BEREC Opinion on the Review of the

EU Electronic Communications Regulatory Framework

II. a) Scope and objectives of the regulatory framework

The EU regulatory framework on electronic communications services and networks emerged in the context of full liberalisation in the 1990s. At that time voice communications were the focus of attention and distinct from online services. The framework contains provisions for the regulation of both networks and electronic communications services. So-called over-the-top services (OTTs), providing communications (voice, messaging) and other services, usually do not fall within the scope of the rules on ECS or those on network regulation in the current EU regulatory framework[1]. Therefore regulatory regimes currently applied to OTTs, on the one hand, and electronic communications service and network providers, on the other hand, differ considerably.

In terms of objectives, the 2009 reform included the promotion of efficient investment and innovation in new and enhanced infrastructures as a regulatory principle to be applied while pursuing the policy objectives of promotion of competition, development of the internal market and promotion of the interests of end-users. However, the current framework has been accused of not having sufficiently promoted the transition to NGA networks.

Access to connectivity should be based on a sustainable, market-based, high-performance fixed and mobile broadband infrastructure. While focusing on the remaining bottlenecks continues to be an important regulatory objective, a question arises as to whether future regulation should be better equipped not only to address bottlenecks, but also to foster investment incentives more generally.

[1] As a result, OTTs are not obliged to provide access to their physical infrastructure, even though certain OTTs have started to operate some infrastructure elements (e.g. backbone, data centers, Content Delivery Networks). In the past, vertically integrated electronic communications network providers have been able to finance investments in network infrastructure due to expected revenues generated by ECS. These services today face increasing competition from novel OTT services as outlined above.

The regulatory framework was drafted at a time of vertical integration, when one undertaking provided the electronic communications network and services as well as the facilities associated with the provision of them, such as ducts and poles. This is not the only business case applicable today and pure providers of associated facilities have significantly changed the landscape. On the one hand, municipalities and other local authorities have invested in ducts, while a number of MNOs have sold their masts.

Questions:

1. *Is the current scope of the regulatory framework adapted to the reality and future of the digital market? Is 'conveyance of signals' still an appropriate distinguishing factor to apply to the full range of services available, beyond the Internet access service? Should all communications services be subject to the same rules and if so, should this be under (broadened, adapted) sector-specific legislation or under general rules? How should such communications services be defined? Should providers of pure associated facilities (ducts, poles, etc.) be subject to sector-specific regulation or excluded from it?*

   BEREC recognises that the landscape of digital products and services is rapidly developing, and this warrants an analysis of the current Framework, including the regulatory treatment of different players on the same market.

   Technological developments, especially the transition to the IP technology, which enable a growing range of services to be consumed online, have included the emergence of new services and business models operating over the internet. The provision of internet-based services commonly known as “over-the-top” (hereafter: OTT) is of increasing importance in the rapidly evolving information- and communication technology industry, and of great value to end-users. Due to the current and expected evolution of new services taking place on-line, the boundary between electronic communication services (ECS) and the content services provided over electronic communication networks becomes increasingly blurred. Whilst the definition of ECS, elaborated at a different moment of technological evolution (with internet-based services at a very early stage of development) has served its purpose in the context of traditional services, it poses some challenges in the OTT environment. Furthermore, different Member States have applied the same definition differently. The resulting lack of clarity in the definition of ECS has opened the door to different interpretations across Europe (including in the context of recent ECJ rulings[2]) that

[2] Case C-518/11 UPC Nederland BV v Gemeente Hilversun and Case C-475/12 UPC DTh Sàrl v Nemzeti Média-és Hirközlési Hatóság Elnökhelyettese

potentially reduce the harmonisation between Member States and create uncertainty to providers in the market or those considering entering it.

The main element of the current definition of ECS provided by article 2 (c) of the Framework Directive is the conveyance of signals. It is worthwile to examine whether it is still an appropriate distinguishing factor.

Concerning *electronic communication services*, the scope of the electronic communications framework must be assessed. This can be done by analyzing each of the rules, both obligations and rights, in the framework. Applying this method, each rule is assessed based on its necessity and proportionality in future. This includes determining the types of services to which each rule should apply. This exercise consists of two separate elements: determining the proportionality of applying the rule to different types of service, and then defining the scope of the rule so as to capture the types of services that should comply with it. This exercise requires scrutiny of the entire framework. In BEREC's draft report on OTT services, it notes that decisions about which rule should apply to a service involve a large number of considerations and that the question of a "level playing field" is only one of them. The determination of the types of rules which should apply to different services – even services which might at some level be competing with each other – is legitimately and necessarily informed by a wider range of considerations, including proportionality[3]. This will, in turn, involve considering consumer expectations (such as guarantees currently provided in traditional ECS), and taking care not to undermine the inherent innovative potential of the new services.

As mentioned below under section e) Q. 3)-4), while certain sectoral horizontal obligations might not be necessary in the OTT world, others might have to be implemented in different ways (such as access to 112, which could be applied through means of sending emergency signals appropriate to OTT players) and others might require an extension in scope, i.e the entire above-mentioned assessment shall be carried out looking also at the end users' perspective.

In relation to network regulation, the continued use of the concept of conveyance should be assessed separately from the questions concerning communication *services* as addressed above.

[3] BoR (15) 142 draft BEREC Report on OTT services, paragraph 4.4
http://berec.europa.eu/eng/document_register/subject_matter/berec/download/0/5431-draft-berec-report-on-ott-services_0.pdf

The review also provides the opportunity to clarify the treatment of premium rate services (PRS) (sometimes referred to as value-added-services (VAS)), which at present are subject to different and inconsistent treatment across Member States and EU regulatory frameworks.

BEREC would like to underline that the assessment of the scope of the Framework should not necessarily be associated with a heavier regulatory burden on new service providers. Furthermore, and whatever might be decided in relation to OTT providers, it is fundamental that NRAs are equipped with adequate information gathering powers to collect data from all OTT providers, with a view to being able to assess the competitive dynamics and the entire panorama of digital players (see also BEREC considerations in the following sections d) and g).

Considering pure associated facilities, BEREC notes that Directive 2014/61/EC on broadband cost reduction (the Cost Reduction Directive) has very recently addressed this subject, and it will be appropriate to assess the effectiveness of this new toolbox in due course[4]. In the meantime, BEREC underlines the importance of the availability of these associated services for the deployment of networks.

2. *Do the principles and objectives enshrined in Article 8 of the Framework Directive contribute to the promotion of connectivity*5 *and a level playing field in the electronic communications and in general in the digital market? Are they complete, and are the priorities the right ones as we seek to ensure widespread roll-out and take-up of the highest capacity networks possible?*

This question addresses two main objectives, promoting connectivity across the EU and ensuring there is no distortion to or restriction of effective competition, each of them raising its own set of questions and challenges.

First, it is important to clarify that the policy objectives of promoting connectivity and a level playing field in the electronic communications (and even more broadly in the digital market) require a multi-faceted programme of rules, covering various tools and sectors, as those policy objectives are affected by a variety of factors not only within but also outside the telecoms sector. With its Digital Single Market (DSM) strategy the European Commission has sought to take such a holistic approach aimed at

[4] The deadline for the transposition of this Directive is the 1st January 2016. Therefore, it is too early to know the impact of these measures in the market and the need of additional rules with regard to these services.

[5] Connectivity, i.e. the state of being or being able to be connected, is used in this context as meaning the existence of ubiquitous, high-speed electronic communications networks.

significantly increasing bandwidths for connectivity and promoting competition between various different players in the digital ecosystem. BEREC shares the view that the EU should have a high level of ambition in that regard and that the Framework review offers the opportunity to consider how the telecoms Framework can contribute to reach these goals, but also that fiscal, contractual and other horizontal rules are potentially equally, or even more important.

BEREC believes that the regulatory objectives outlined in Article 8 of the Framework Directive (promoting effective and sustainable competition and efficient investment, contributing to the development of the internal market and promoting the interests of the citizens of the European Union), remain valid and appropriate. These policy priorities are based on a very balanced and future-proof set of principles, which reflect the inter-relationship between the various policy objectives, and appropriately accommodate future regulatory priorities.

Providing connectivity across Europe is a policy goal addressed by various aspects of the DSM strategy, and can be pursued through the targeted application of the principles laid down in Article 8 of the Framework Directive. At the same time, NRAs' ability to contribute to the pursuit of connectivity might be further strengthened in the context of state aid (as discussed in section b) and f) below).

BEREC remains of the strong view that effective and sustainable competition drives efficient investment and is glad to see that such view is also explicitly supported by the Commission in the DSM strategy as well as Commissioners Ansip and Vestager's recent statements in this regard[6]. Effective competition at the national level also fuels the development of the internal market – Europe's global competitiveness relies on competitive European (national) markets. A competitive European telecoms sector in turn contributes to a vibrant European economy, which in turn should provide the conditions for continued efficient investment and innovation. Finally, competition serves the interests of European end-users, as it helps to fuel innovation and provides for maximum benefit in terms of choice, price and quality.

While the high-level objectives and regulatory principles in Article 8 of the Framework Directive remain the key priorities, the upcoming review of the Framework offers the

[6] See in particular http://www.wsj.com/articles/eu-antitrust-chief-vestager-warns-against-big-telecom-mergers-1434354161. In addition, at the FT/ETNO Conference on 15 October 2015, Commissioner Ansip made clear that "*It is competition that will attract the investment to develop the high-speed broadband networks that Europeans need. So relaxing competition rules is not the answer. That would only shift the cost of the required network investments onto consumers. They would then have less choice and higher prices. It would be the opposite of what we want, which is for competition to develop. For that to happen, other providers need fair access to essential infrastructure. A competitive telecoms market is based on connections between different companies' networks.*"

opportunity to consider the regulatory toolbox and procedures in order to ensure that regulation can tackle the challenges of technological and market developments and the above mentioned goal of connectivity. The increasing complexity of market situations with new players and new business models, as well as the need to respect the principle of proportionality, mean that flexibility and a differentiated regulatory toolbox enabling NRAs to finetune regulatory interventions are even more important than they have been to date.

3. *Is the current regulatory framework conducive to a level of investment in networks and attractive retail offers that can fulfil the needs of all users (all social groups, including in geographic terms) and thus ensure wide delivery and take-up of innovative private and public services?*

The roll-out of high-speed fixed and wireless broadband networks across the EU requires substantial investments and the Framework should continue to ensure the promotion of NGA networks. Indeed, for this very reason the objective of promoting efficient investment and innovation in new and enhanced infrastructure which was inserted as regulatory principle by the Legislator in 2009 will remain key to enable and foster NGA roll-out.

As stated earlier, effective and sustainable competition is and will remain the best driver of infrastructure investment going forward. The current regulatory Framework has provided positive conditions for widespread investment in capital-intense broadband networks. Indeed, in many EU countries alternative providers and local authorities have taken the lead in rolling out FTTB/H networks, and deployment by regional players has been an asset and the driver for further investment in several Member States. The revised Framework should therefore continue to provide these positive conditions.

In general it is also important to remember that the ultimate purpose of both competition and investment is to serve the needs and preferences of end users (both business and residential customers). Only when taking into account the demand side can a solid business case be developed for both providers of connectivity and service providers. And customers will only subscribe to high-speed broadband lines when they enable them to access innovative services they would otherwise not be able to enjoy. Thus, both competition and demand for services drive investment in infrastructure.

The key to a sustainable business case and market development is that demand for services and the offer of services by providers are “synchronised”. Sometimes there

might be a mismatch, i.e. the take-up of superfast broadband lines might be slower than the roll-out. This is particularly well-illustrated by the different paths of development of demand for mobile and fixed broadband access. While in mobile broadband demand and data traffic are exploding due to the use of smart devices and increasing consumption of video streaming, a similar explosion in fixed broadband demand has not yet taken place in the majority of Member States, in particular as not all end users see the need for superfast broadband lines. However once "game changer applications" come onto the market, this could speed up end users' willingness to pay, which would in turn increase take-up considerably and with this incentivise further investment in fixed broadband necessary to satisfy this demand. But even once such bandwidth-hungry applications requiring superfast broadband appear, not all end users will necessarily want to consume them, and it is important that this not be interpreted as a sign of market failure.

Ensuring a clear and predictable framework and regulatory regime will be crucial for the significant investments needed and for the further development of national and European telecommunication markets. Legal certainty and stability, as well as a clear long-term regulatory vision, will be important to sustain and encourage efficient investment. One way of providing longer term stability would be longer market review cycles (i.e. longer periods between market reviews), e.g. for those markets that have been shown to be more stable. This would reduce the administrative burdens on both NRAs and operators. Notably, it would also be preferable to uniform sunset clauses (which could expire too early for one market and too late for another).

It is also worth bearing in mind that universal service obligations (see answers to section f) in this respect) and state aid play a role in achieving investment in networks and the availability of attractive retail offers that can meet the needs of all users (all social groups and geographic areas). BEREC agrees with the Commission's view that efforts are needed to address the rural divide. While universal service can be used to meet social objectives of access to basic connectivity and to basic services independently of geographical location, state aid could help achieve universal coverage of high-performance networks in areas where investment by operators would not otherwise occur commercially.

However, in order to exploit the full benefits of state aid, state aid rules need to be coherent with the ex-ante regulatory framework. Although the regulatory Framework recognises the need for consistency, in practice this is not always achieved, and there are no provisions on how this consistency should be ensured. For instance, both

regimes involve intervention in the markets and the use of similar regulatory instruments (e.g. access obligations), and it is important to ensure that an intervention under one regime does not conflict with or undermine interventions under the other. Wholesale access is a specific area where the risk of inconsistencies arises, as obligations might be imposed on a provider both under the ex-ante framework and separately as a condition under the state aid regime.

The need for coordination between the two regimes is particularly acute in grey areas (i.e. those with only one basic broadband network and a very low likelihood that another high-speed broadband network will be deployed on a commercial basis), in order to exclude the geographical areas where private investment alone would be enough to ensure connectivity. In these cases, where the challenge lies in the many shades of grey (e.g. white spots in metropolitan areas) rather than in the easier distinctions between white and black areas, a more granular analysis of eligible territories could be needed.

Moreover, technological neutrality should be taken into account in the definition of these areas so that the impact of new technologies (fixed or mobile) able to deliver NGA-level speeds can be considered when analysing and mapping the different areas. In sum, while of course state aid interventions should be designed for maximum efficiency and minimum commercial and competitive distortion, the impact of state aid remedies on adjacent markets should also be considered.

The Broadband State Aid Guidelines already recognised the expertise that NRAs are able to offer to the relevant government authorities involved in designing state aid interventions. The potential interaction between state aid interventions and ex-ante regulation means that NRAs responsible for ex-ante market regulation should be an integral part of this effort. While retaining their independence NRAs should play a technical advisory role in the state aid processes, in particular they should have a role in the assessment of state aid conditions (e.g. in determining obligations in terms of access and pricing) that might be imposed on subsidised networks. Furthermore and where appropriate according to national circumstances, NRAs might be involved in the design of state aid interventions (e.g. in carrying out the mapping work and identifying the areas where public intervention may be required).

In particular, BEREC notes that the Broadband State Aid Guidelines are not binding. For this reason BEREC believes that the role of the NRA in charge of ex-ante regulation should be put on an appropriate (binding) legal footing, in consideration to

the “specific expertise with regard to setting wholesale access conditions and prices, and with regard to solving disputes between operators”[7] that these NRAs possess.

Having noted the essential role of the state aid regime in the achievement of connectivity in areas (rural and semi-urban) where the market is unable to deliver, BEREC also recognises, in line with the DSM strategy, the potential role of alternative instruments to state aid, which can contribute to ensure connectivity but potentially with less distortion of the market.

For instance, the public administration can contribute to the coverage of rural areas by ensuring a stable environment for private financing and developing better financing options (such as the long-term financing options and guarantees which are increasingly being used by the EIB, for example under EFSI). The public administration can also contribute by promoting demand through mandatory digitalisation initiatives, promoting the development of digital skills in the population, aggregating demand in local communities to improve a sustainable business plan. Coverage obligations in frequency auctions or in public procurements have been another important instrument successfully used by several Member States to meet their particular national coverage needs.

The use of the European funding available for the deployment of broadband networks, such as the financial resources under the Connecting Europe Facility, the European Structural and Investment Funds or the Investment plan for Europe, are also relevant tools to help achieve the European Digital Agenda targets.

These are further discussed in question II.b)7 below, in the context of promoting the deployment of NGA networks.

In conclusion, an assessment to identify the best instruments (universal service, state aid, EU or other alternative measures), taking into account how they interact and complement to each other, is needed and should ideally be considered by the competent bodies when designing these.

[7] BEREC Opinion on the draft revision of the EU Guidelines for the application of state aid rules in relation to the rapid deployment of broadband networks BoR (12) 91 Page 7.

II. b) Regulated network access

The current framework for electronic communications has delivered more competition and better prices and choice for consumers, and certain investment pressure which may still not be sufficient for future connectivity needs. However, as noted, it is often criticized for not having sufficiently promoted the transition towards high-capacity Next Generation Access (NGA) networks fit to meet future needs, and the huge investments required. Although telecom markets have become more integrated, progress is slow and the provision of connectivity to businesses and consumers remains highly fragmented and divergent across the Union.

The Digital Agenda for Europe targets included universal access to connectivity at 30 Mbps. This indicates the Commission's ambition to ensure territorial cohesion in Europe. The penetration target of 100 Mbps (50% of subscriptions in Europe by 2020) sought to anticipate future competitiveness needs, in line with forecast global developments.

The vision of ubiquitous, high-speed, high-capacity networks as a necessary component for global competitiveness remains the right one as confirmed by the Digital Single Market strategy. While, on the basis of current trends, the 30 Mbps target for 2020 is likely to be largely reached, the uncertainty of adoption dynamics remains a key constraint to investment in high-speed fixed connectivity. The EUR 90 billion investment gap identified in order to meet the 100 Mbps take-up target for 2020 will not be entirely filled from EU and national public sources, which was never intended. The incentives for private operators to do more must therefore be examined afresh.

The review offers an opportunity to assess ex-ante wholesale access regulation in light of market and technological developments. This includes looking at the transition to NGA networks and to an all-IP environment, with a view in particular to ensuring that regulation addresses the remaining bottlenecks that impede effective competition and choice for consumers, lowers barriers to investment and facilitates cross-border services, while insisting on the sufficiency of ex-post competition law in markets where competition has sufficiently developed. This involves taking stock of the level of competition, including infrastructure competition, that has developed in the market since liberalisation, and identifying any areas where enduring bottlenecks require particular attention in view of a risk of abuse of dominant market positions and the European ambition to have a universally connected society. The challenges ahead also call for assessing the appropriateness of using regulatory incentives in order to secure network investment commitments in areas unlikely to be served by the market or at a level of ambition unlikely to be attained by the market in the short term, including how to deal with strategic overbuild threats in areas that can at best support one NGA

infrastructure, that would damage investment incentives and competitive dynamics in the long term.

The current regulatory framework incorporates the principle of technological neutrality. At the same time, it recognises the public interest in efficient investment in new and enhanced infrastructures. In regulatory practice, certain distinctions have already been drawn between historic copper networks and NGA networks in terms of the varying performance, demand and in particular risk associated with them. As NGA becomes more common, it needs to be considered whether – at least in more densely populated areas – the risks linked to NGA roll-out will be mainly limited to complete network upgrades or roll-out up to the end-users' premises, justifying a corresponding focus in any regulatory incentives to those.

Questions:

1. *Is ex-ante regulation of access and interconnection still necessary? Does the current regulatory model, including the analysis of relevant markets and the identification of SMP operators, continue to be the best operational tool in determining the threshold for regulatory intervention? If not, what changes would you foresee?*

Concerning the regulation of interconnection

Ex-ante regulation applied to termination[8] has led NRAs to designate each operator as having significant market power (SMP) on its own network. These markets are significantly different from other access markets, because each network constitutes a separate relevant market. Therefore, each provider offering termination services on its network is a de facto monopolist (unless countervailing buying power exists). Termination markets typically feature the same competitive conditions across different Member States and ex-ante regulatory intervention is pretty much standard.

For as long as the regulation of termination rates remains necessary, it should be possible for NRAs to review these stable markets less frequently than every three years, as currently required under the Framework. In order to reduce the regulatory burden and increase regulatory stability and thereby improve investment conditions, the revised Framework should allow for longer market review cycles for markets such as these that have a proven record of stability.

[8] While it is clear that interconnection includes more than just termination (e.g. origination, transit, peering) in answering this question BEREC has focused on the termination market included in the 2014 Recommendation on Relevant Markets.

Furthermore, given their unchanging characteristics (around market definition and SMP) these markets could also benefit from a simplified regulatory approach, reducing the burden of undertaking a full market analysis every few years. For the same reasons, and as recommended in the BEREC Opinion on the Commission's draft Recommendation on relevant product and service markets[9] the process for imposing remedies on new entrants in termination markets (those who share the same characteristics as regulated operators) could be simplified.

At the same time we have observed the progressive convergence of termination rates over recent years, and it is therefore possible that alternative approaches to charging for termination will be more efficient during the lifetime of the revised Framework. The revised Framework should therefore provide sufficent flexibility to enable the application of such alternative approaches if and when appropriate.[10]

Concerning the regulation of access

Ex-ante regulation of wholesale markets in the electronic communication sector has proven to be an efficient tool to create sustainable competition in former monopolistic (end user) markets. Migration to NGA networks has not fundamentally changed the bottleneck characteristics of broadband access networks, since high barriers to entry persist, and in most EU Member States ex-ante regulation is still needed.

- SMP-regulation remains an important tool in many Member States

In many national markets, depending on local market characteristics, the designation of an SMP provider following an economic market assessment remains an important instrument and the trigger for the imposition of appropriate wholesale access obligations..

In many countries, mandated access to the incumbent fixed network (including conditions covering fairness, reasonableness and timeliness, e.g. in relation to quality of service, under Article 12(1) of the Access Directive), generally the most ubiquitous one, significantly reduces barriers to market entry, enables new business models and fosters innovation. This in turn contributes to mitigating the risk of potential abuses of market power. Generally speaking, therefore, the SMP regulatory model has worked

[9] BEREC Opinion on the Commssion's recommendation on relevant product and service markets within the electronic communications sector susceptible to ex ante regulation BoR (14) 71; page 17

[10] Such as "Bill and keep" regime: in 2010 BEREC concluded that "Bill and keep" is more promising than CPNP as a regulatory regime for (voice) termination in the long term. The application of cost orientation in the current CPNP environment has brought down termination rates. This can be considered as a major step towards BaK.

well and is still considered to be appropriate for determining the threshold for regulatory intervention in a number of access markets.

At the same time, the current Framework could be improved, and NRAs could be given greater flexibility in their regulatory toolbox, for example as discussed below.

- Growing importance of symmetric regulation: the need to reassess the relationship between asymmetric and symmetric regulation

NRAs already have some symmetric regulation powers in their toolbox (namely under Article 5 of the Access Directive and under Article 12 of the Framework Directive), and these should be considered to ensure they can be exercised. For example, it could be useful to make clear on the face of the Directive that the powers in Article 5 of the Access Directive are not exhaustively defined in paragraph 1, subparagraphs (a) through (c), as recently confirmed by the ECJ in case C-556/12.

Where a direct relationship between control over ubiquitous infrastructure and market power cannot be identified or is not conclusive, the potential of local “bottlenecks” will raise the question of whether general access obligations are required to ensure effective competition. Where local “bottlenecks” exist which could harm competition, providing a general access obligation on a SMP operator – either at national or at regional level – might no longer be an efficient means to prevent barriers to market entry. In these cases a symmetric access obligation imposed on all operators irrespective of SMP could be a more effective regulatory instrument.

The situation differs between Member States depending on their market structures, but in the cases described above, symmetric regulation of access to fibre networks could be an option, in particular where it is unlikely that there will be a second fibre access to a house. Access to high capacity fixed networks will be extremely important to preserve end user choice. At the same time, NRAs considering the use of such symmetric tools will have to consider the impact of their interventions on investment and innovation incentives.

The Framework needs to be able to address duopolistic/oligopolistic scenarios

Duopolistic/oligopolistic market scenarios, driven by consolidation or the deployment of NGA networks and technological convergence, are likely to become a more frequent occurrence in some of the electronic communications markets in Europe. This trend

has significant implications for competition, and is creating increasing challenges for NRAs with regard to the application of the SMP framework and regulatory toolbox.

NRAs should be able to address duopoly scenarios – e.g. where NRAs are unable to find a single SMP operator in the relevant market but where two players are nonetheless not effectively competing.This is especially relevant, for example in the market for internet access, where the duopoly situations (with only two infrastructure-based competitors) is more likely to develop. As described in BEREC's report on oligopolies, duopolistic/oligopolistic communications markets face a high risk of evolving in a non-competitive manner and are less likely to support efficient and sustainable competition ("two are not enough"). BEREC's report on oligopoly analysis and regulation has identified several possible options for adapting the Framework regarding the regulatory treatment of oligopolies, including potential market indicators of non-competitive oligopolies. BEREC will carry out further work on this topic during 2016, including considering possible practical approaches to address these concerns.

2. *Considering the transition to NGA networks, network virtualisation and all-IP, what will be the enduring bottlenecks and the vital inputs that an access seeker would need to effectively compete downstream?*

The transition to NGA networks, network virtualisation and all-IP are quite different phenomena, both in nature and in their state of development. The transition to NGA networks affects the external plant (whether fibre, copper or coax) and is well understood. Network virtualisation, meanwhile, refers to the active part of the network, the transmission and switching component, and is a new trend, still in development and thus of uncertain impact. The trend towards all-IP refers to the protocol of the transmission, whether transported over HW-based traditional networks or virtualised networks, and is also better understood. All three complement each other and have the potential to change the landscape of electronic communications over the next couple of years.

However, their impact on market regulation might not be the same.

The transition to NGA networks has an impact on the traditional bottleneck which is the last mile, the connection to the end user. Whether it is copper-based or fibre-based, whether it is vectoring-based, P2P or NG-PON2-based, the innate characteristics of the network topology might give rise to a monopoly in the absence of regulatory intervention. Thus, BEREC believes that the existing bottlenecks will remain in NGA networks in the future, regardless of the NGA technology. The exact network location

of the bottleneck might change and it could give rise, bottlenecks in some areas within a country and not in others, allowing several operators to build their own network. Thus a careful market analysis will still be needed in order to decide if and how to regulate this last mile. The enduring bottlenecks will include at least access to the terminal segment of the local loop, access to civil engineering (including ducts, trenches, co-location facilities and ancillary services) and access to the backhaul links. There may also be a continued need for backhaul using dark fibre. The role of different bottlenecks differs between MS. The availability of ducts up to the bulding constitutes a "game changer" for NGA-roll-out.

Software-Defined Networking (hereafter SDN) and Network Function Virtualisation (hereafter NFV) aim to transform the way that networks are built and operated, through the implementation of network functions in software that can run on a range of industry standard server hardware. SDN/NFV will impact the way networks are implemented, and possibly have an impact on the characteristics of bitstream and VULA products, but are not expected to cause a shift of paradigm in access regulation.

The trend to all-IP will possibly impact the services offered to customers and how they are transported within the network, as well as potentially impact the end user equipment. While the trend to all-IP will simplify interconnection and lower its costs, it will not necessarily impact on access regulation.

3. *Is any change needed to improve the regulatory regime as regards access to civil engineering infrastructures?*

On the regulatory regime for access to civil engineering infrastructure, BEREC notes that the Cost Reduction Directive has very recently addressed this subject. In the Directive the general mechanism foreseen for the imposition of access to civil engineering infrastructure is dispute resolution. As its transposition into national law is to be completed by 1 January 2016, with implementation of new measures by 1 July 2016, we have no evidence of the effectiveness of its toolbox, and it is too early to address the need for any changes to improve the regulatory regime for access to civil engineering infrastructure. However, similar provisions have been implemented in the past in some Member States with successful results in terms of NGA deployment.

4. *What market developments are likely to have an impact on fixed backhaul needs and hence on access requirements to backhaul, especially in the context of increasing fixed-mobile convergence? Do you foresee any obstacles to access to backhaul in the future? Are the current rules adequate to address them?*

Fixed backhaul connects fixed or wireless access infrastructure with the backbone.

Wireless base stations are often connected to the corresponding base station controllers and further on to Layer 2 aggregation nodes via copper or fiber lines, but also by point-to-point microwave radio relay transmission (terrestrial or, in some cases, satellite) or by point-to-multipoint microwave access technologies, such as LMDS, Wi-Fi, WiMAX, etc.

Fiber line backhaul infrastructure allows the highest transportation capacity. This characteristic will become increasingly important as the demand for mobile access to broadband networks or broadband internet continues to generate growing data traffic. Fibre line backhaul connections of wireless base stations will be needed for the unimpeded transport of high traffic volumes, e.g. created by high-capacity LTE wireless access technology. This effect will be reinforced by the the roll-out of 5G. Fixed backhaul might, for instance, be used to carry traffic from the hand-over point of local wholesale access products (be they physical or virtual) to higher points of the network hierarchy.

Fixed backhaul might be considered as a relevant wholesale market, and fixed backhaul products might be included in market 4/2014. Different kinds of products can be used for backhaul, e.g. specific backhaul wholesale products, leased lines or dark fibre. If significant market power is found, the appropriate access obligations should be imposed. Where asymmetrical regulation might not be an adequate solution to the competitive problems found, and in those cases symmetric regulation could provide NRAs with a means of intervening in those markets. To date, the current rules – both SMP and symmetric regulation – have been adequate to address those potential problems, even if their relative weight might differ between national markets, as discussed above.

5. *Is the maintenance of copper networks a barrier to NGA deployment? Should copper switch-off be promoted to sustain a more rapid transition to the highest capacity NGA networks? If so, how?*

To provide households with high-capacity broadband access lines, an appropriately powerful infrastructure is needed. While BEREC has a preference for a technology-neutral approach, fibre infrastructure currently appears to be the most future-proof, and the role of other technologies, such as cable (at least in the short term), should also be taken into account.

Hybrid copper/fibre infrastructure like FTTC infrastructure is also capable of providing high-capacity broadband access lines, especially if they are provided over VDSL-Vectoring technology in line with the gradual increase in demand for higher capacity. Therefore, copper networks should not in general be considered to be a barrier to NGA deployment. Such a negative assessment would also contradict the principle of technology neutrality which has been, and will continue to be, central to the Framework.

Decisions aimed at promoting roll-out of high-capacity access lines should accommodate all appropriate technologies (FTTH/B, FTTC, TV-Cable, LTE) and look to foster competition, which in turn will lead to greater investment and innovation. Of course, the provision of sufficient spectrum for high-capacity mobile infrastructures will also be important. As discsussed in above, if there is no market-driven investment, state aid projects could be used to promote investment.

However NGA investments using copper could lead to a reduction in or delay to FTTH investment. Wherever access to FTTH infrastructure is available in an area already covered by copper networks, the continued maintenance of the latter is generally not the most cost-effective solution. In these cases, the operator will generally decide on the commercially appropriate time-table for switch-off, and there could be scope for support from the NRAs in order to minimise the existence of parallel networks and help promote a more rapid transition to the highest capacity NGA networks. Any intervention to *mandate* the transition would be structurally intrusive by nature, inconsistent with the principle of technology neutrality, and would have to be considered carefully, taking into account its implications on investments made and on alternative operators relying on copper unbundling.

The experience across Member States reveals that each national market has its own particularities including in terms of progress on fibre network deployment, usage of copper-based services and related end-of-life products, and commercial agreements between network operators. It is therefore best to leave the question of copper switch-off to be managed by national network operators and relevant stakeholders at the national level, with the support of NRAs. Best practices and lessons learned from each Member State’s switch-off experience can provide valuable insights, and BEREC will continue to play a role in disseminating this knowledge.

6. *Should NRAs have the power to address access bottlenecks in relation to any input, whether or not this related to electronic communications services and networks, and have you identified market failures that might justify such powers?*

The intention of this question is fairly unclear, especially in its reference to access bottlenecks “not related to electronic communication services and networks”.

First of all, NRAs do not regulate access bottlenecks, but markets with ECS where a market failure has been found. That means a provider will have been designated as having significant market power in providing a specific wholesale access or telco (retail) service. Infrastructure bottlenecks might be the reason for high barriers to market entry and low market shares of competitors, and this could lead to a finding of SMP. In some cases, access to non-telco infrastructure (like fibre lines or ducts rolled out by energy companies) could reduce access bottlenecks in the telco industry by facilitating the accessibility of remote or capacity-constrained telco infrastructure.

Having said that, BEREC recalls that the bottleneck exists in the telco infrastructure and not (necessarily) in the non-telco infrastructure. The relevant question is around access to this telco infrastructure, which according to Article 12 of the Framework Directive should be addressed through symmetrical regulation. The Cost Reduction Directive also addresses this issue, albeit not through direct powers for NRAs to mandate access (other than as a result of resolving a dispute). Its transposition into national law has not yet been completed in all EU Member States, so NRAs do not have any experience with it and it is therefore too early to consider any further need for adapting the Framework.

7. *Should alternative regulatory models be considered to secure investments in areas unlikely to be served by the market, with the overall aim of promoting the fullest possible coverage of NGA networks across the EU? If so, which models would be the most effective?*

As a general observation it is worth considering whether the introduction of alternative/supplementary regulatory measures into NRAs’ regulatory toolbox (such as forms of “ex-post” sector-specific measures) would be appropriate. This could enable NRAs to reduce the regulatory burden and to deregulate more quickly where appropriate. Competition remains the best incentive to investment. Pro-competitive access regulation, together with demand-side measures, together help contribute to the achievement of coverage targets, as discussed in the previous question, above. The copper switch-off is best left to the operators to manage as a commercial

decision, as they will have to take into account (a) having to manage their capex outlay, (b) responding to customer demand. If there is no customer demand or appetite to pay for fibre access, then this does not constitute market failure and so should not be subject to any ex-ante regulatory intervention. When commercial investment reaches its limits, other tools, including state aid, could become necessary.

BEREC is of the opinion that the state aid regime has been and remains a very useful tool to bring investment to underserved areas. However, and despite the clear benefits of the state aid scheme, its application, as explained in question IIa)3, has revealed a number of difficulties (delimitation of the state aid areas, consistency with the *ex-ante* regime, etc.), and the potential impact on competition will always need to be carefully considered. Furthermore, there are limits to what it can achieve, as even the prospect of benefitting from state aid might not always be enough to unlock investment.

Therefore, there is merit in considering other (potentially complementary) options that could contribute to the objective of achieving full connectivity across the country, all of which are already available to NRAs and/or Member States, and can be pursued under the current Framework. For instance:

- The ability to add coverage obligations linked to spectrum auctions where appropriate. Among the conditions set in spectrum assignment processes, coverage obligations could be included that would oblige winning bidders to achieve a defined level of mobile broadband coverage that extends to rural areas which might be otherwise be commercially less viable for mobile service providers. This measure would require availability of sufficient spectrum, and would involve the elaboration of coverage maps, the determination of a percentage of coverage to be reached, or the definition of specific characteristics of the areas to be served – e.g. areas with less than 500 inhabitants. The decision of whether or not to impose coverage obligations, and how such obligations should be defined, should be left to each Member State, which is best placed to align the national broadband policies with the circumstances in its country.

- Infrastructure deployments by non-telecom utilities. Although a provision aimed at facilitating access to utility infrastructure has been included in the Cost Reduction Directive[11], Member States could consider other measures, e.g. mandating or

[11] http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32014L0061&from=EN

"(…) any network operator has the obligation to meet all reasonable requests for access to its physical infrastructure under fair and reasonable terms and conditions, including price, with a view to deploying elements of high-speed electronic communications networks".

creating incentives for new utility deployments (including new water, energy, transport or sewage networks) to allow for more space within their infrastructure for the deployment of high-speed broadband. Also, the implementation of measures included in the Cost Reduction Directive will play an important role in enabling easier planning consent and rights of way.

- The risk of deploying technologies that exceed the current demand should be compensated in the calculation of wholesale tariffs for access to such technologies – rather than alleviating access obligations for operators deploying networks in rural areas, which could lead to the creation of local monopolies. Thus, some benefits can still be awarded to the first mover, but not at the expense of competition.

- While state aid mainly acts on the supply side, measures could be considered to foster demand for broadband services, either through the regulatory Framework or through government policies (e.g. digital education) or through increasing demand from state services (e-government, physical location of government departments). These demand-side initiatives (already described in question II.a)3 above) help to support the business case for investment by operators.

Although demand-side actions are not the most direct or comprehensive way of encouraging NGA rollout, they are likely to create fewer distortions in the market than many supply-side measures, as they would allow different operators to compete in neutral conditions, allowing end-users to decide on the most suitable offers for their needs.

8. *As NGA becomes more common, should the regulatory framework provide specifically targeted incentives for operators that choose to complete network upgrades or to roll-out NGA networks up to the end-users' premises given the possible different level of associated investment risks compared to incremental upgrades of copper networks?*

As already mentioned in the answer to question 5 above, specifically targeted incentives such as those described in this question would contradict the requirement for technological neutrality, whereas the Framework should remain open and flexible to all appropriate infrastructures and technologies to achieve roll-out of high-capacity access lines.

With regard to the shift from FTTC to FTTP in urban areas, the level of investment risks can already be considered by NRAs, as set out in Article 13 of the Framework Directive. In order to encourage investment by the operator, including in next generation networks, NRAs should take into account the investment made and allow the operator a reasonable rate of return on adequate capital employed, taking into account any risks specific to a particular new investment network project. In this scenario, operators will tend to prioritise urban areas which have lower average deployment costs.

With regard to the promotion of fibre deployment in rural areas, targeted incentives for FTTH deployment may be considered in the context of state aid measures, as already discussed in question 7 above.

II. c) Spectrum management

In light of the EU objectives beyond 2020, the Commission seeks to evaluate the results of the current regulatory framework with regard to the use of radio spectrum. This evaluation will look at the regulatory framework's original objectives and its adequacy for the new connectivity vision and challenges.

Wireless technologies are rapidly transforming our societies and economies. Demand for wireless connectivity has exploded with regard to Internet access, mobile, nomadic and fixed wireless data and new services within telecommunications, transport, energy, social services and healthcare. As spectrum-enabled services today are worth approximately EUR 500 billion per annum – and are expected to grow to approximately EUR 1 trillion by 2023[12] – spectrum supply is crucial for the Digital Single Market.

However, many European citizens, especially in rural areas, are still deprived of access to wireless broadband services. European industry investments in fourth generation technologies are still having to catch up on other world regions, instead of leading them, due to delays in spectrum assignment, despite efforts made in the RSPP. Europe's telecoms sector remains nationally fragmented and the current institutional set-up fails to ensure consistency across the EU regarding both the timing and substantive conditions under which spectrum is made effectively available. The duration of rights of use of spectrum appears to be a key determinant of the investment environment for new network assets using such frequencies, while coordination of such durations could lead over time to better synchronisation and easier

[12] Sources: Eurostat Structural Business Statistics 2011, London School of Economics 2013, GSMA 2013, Analysys Mason 2012, GSMA PricewaterhouseCoopers 2012, PMSE Impact Assessment 2014.

planning of spectrum acquisition and renewal over multiple Member States. This could be complemented by greater ease of trading, leasing or sharing of spectrum rights within the licence period, thus improving market mechanisms and better ensuring that the rights of use are available to the party that values them most. The imperative of ubiquitous, high-quality wireless broadband indicates that the regulatory framework should encapsulate experience and best practice built up to date regarding coverage conditions attached to the most suitable frequency bands. In addition, the regulatory framework could lay down greater guidance on the types of conditions which most directly determine the market structure and ease of entry and sustainability of competition and investment. Over a decade of experience should also permit key insights from both auction and comparative procedures to be reflected in the framework, thereby improving predictability while leaving to competent authorities sufficient leeway to take into account existing market structures, anticipated demand and valuations and the quantity and character of the bands for assignment or renewal in a given procedure.

Spectrum management should accompany and support the internal market to increase productivity and growth as well as the welfare of European citizens. Such a vision cannot be achieved without coordinating certain procedures and spectrum assignment conditions, which are essential for investment predictability and decision-making as well as for driving competition.

BEREC is of the view that the introductory text above does not provide a comprehensive picture of the European situation, and it draws conclusions without clearly outlining the reasons for the alleged shortcomings. For example, in Europe more harmonised spectrum for mobile broadband is available than in all other parts of the world, including the US, Australia and Japan(see draft RSPG opinion on RSPP[13]). Indeed, the first 4G networks in the world were rolled out in Europe, under the current regulatory Framework. The reasons for slower 4G investments in parts of Europe do not lie in a lack of spectrum, but involve a variety of other factors, including the economic climate, the availability of investment funding, and above all demand and how well the previous networks and technologies met the demand. Under the existing regulatory Framework, 4G coverage in Europe rose significantly, from 59.1% in 2013 to 79.4% in 2014[14]. Thus the Framework cannot explain any reluctance of parts of European industry to invest. On the contrary, changes to the regulatory Framework, and the threat of changes, add uncertainty to the market.

[13] http://rspg-spectrum.eu/wp-content/uploads/2013/11/RSPG15-621rev-RSPP_draft_opinion_PC.pdf

[14] " High speed mobile broadband (4G based on LTE) coverage went up from 59.1% in 2013 to 79.4% in 2014.", https://ec.europa.eu/digital-agenda/en/news/broadband-speeds-europe-are-not-delivering-their-promisses-broadband-prices-are-declining.

Questions:

1. *Should spectrum across the EU be managed in a more coordinated framework and manner? If so, what criteria and procedural elements of spectrum assignment should be coordinated (e.g. licence durations, coverage requirements, timing of awards and renewals, conditions for trading, leasing or sharing spectrum, conditions directly affecting market structure (e.g. caps, reservations, wholesale requirements), auction methods)?*

Broadband access is important for the EU citizens and companies, and in rural areas wireless broadband is an important means of giving all citizens connectivity alongside fixed network access. BEREC generally welcomes a holistic and strategic approach to the promotion of the European digital single market. However, before designing detailed measures, in addition to the existing harmonisation process already defined in the European Framework[15], it is important to agree upon a common vision and a shared ambition for wireless connectivity, against which to assess the efficacy of existing rules, then it is possible to identify whether there are any gaps in the Framework that might prevent us from achieving that vision.

Connectivity objectives will vary from one Member State to another, and for each mobile service might include things such as the indoor coverage or connectivity along roads and railways. The means that connectivity objectives do not translate directly into a given amount of allocated spectrum. The solutions to the challenges of delivering connectivity to Europe's industries and consumers are multi-faceted, and simply allocating spectrum will not solve the problem. As already mentioned earlier, there could be other issues that need to be analysed and addressed, pertaining to e.g. demand or competition.

The important question to start with is what would characterize a well-functioning wireless communication market in the EU in the coming ten years.

The question should be analyzed through two angles: a) connectivity for EU citizens (wireless broadband access throughout the Union) b) from a market perspective, ensuring competition, investment, innovation and growth.

Having set out the objectives, we can then consider what the obstacles might be to their achievement, and what measures might be effective and proportionate to reach the objectives. At the beginning of the Framework review process it is thus essential to

[15] Defined in particular in the Radio Spectrum Decision adopted in 2002 and involving international organizations such as the CEPT

take enough time to set out the vision, the objectives, and find the obstacles to meet the objectives. Only then is it possible to agree on measures.

To achieve those objectives, the appropriate measures would typically vary between Member States, reflecting the different circumstances (obstacles) and needs (objectives) across Member States. The EU is and will remain a diversified region, with intractably different geographies, and often significant variation in patterns of demand.

In the DSM strategy, the Commission points to the slow roll-out of 4G networks in Europe as a general problem. In reality, the roll-out strongly varies across the continent, with some MS among the first in the world some others moving at a different pace.[16] An assessment of the underlying reasons for the perceived delay is nonetheless needed.

The speed of roll-out in a specific region could be attributable to a number of different factors, including the level of demand, levels of competition (given the positive impact of competition on roll-out and investment), the availability of spectrum, the cost and efficiency of building and land permit processes, the degree of legal uncertainty, and any complicating national regulations/constitutions. Each factor would require a different response, some of which could be pursued under the current Framework and/or which are within the scope of competences of the Commission.

BEREC agrees that the timing for the release of spectrum for ECS in the EU is important and the current processs of harmonisation of the timing has been proved valuable for the market and the end users. And we note that the Commission already has the power to harmonise the release of spectrum for ECS within certain timelines, and to enforce those decisions. Regarding the timing for release it is also a matter of setting reasonable time schedules and enforcing them.

As it happens, the Commission granted derogations to all countries which did not meet the deadline for release of the 800 MHz band, in recognition of the difficulties they faced in resolving interference issues, particularly those Member States sharing a border with non-EU countries.

Against this background, greater “coordination” of the criteria and procedural elements of national assignments (including coverage requirements, timing and conditions of

[16] The Commission claims Europe trails other regions on 4G deployment. However, despite variations across Member States, the main operators in the EU are investing heavily in very high speed mobile networks. It should also be borne in mind that the quality and coverage of 3G networks is higher in the EU than in the US, which has had an important impact on the timing and pace of 4G deployment.

renewals) would not lead to greater efficiency in improving the roll out of high-speed mobile broadband networks. It would also seriously risk hindering such roll-out, potentially creating more restrictive award processes, undermining innovative solutions, and slowing all of Europe down to the speed of the slowest, or at the very least, the average.

It is important that national spectrum authorities are able to design their spectrum awards and licence conditions to reflect the situation in and meet the needs of their Member State. The common EU objective of connectivity will best be met by ensuring each Member State can move as quickly as it can, and manage its spectrum as efficiently as it can.

It is important not to lose sight of the fact that the vast majority of coordination of spectrum use occurs at the global and regional levels, through the ITU (where spectrum is allocated to different uses, and cross-border interference is addressed) and the CEPT (where detailed technical rules to ensure maximally efficient spectrum use across the greater European landmass beyond the EU are developed). Neither organisation produces decisions on the use of spectrum which bind its members. And the speed to market of new wireless services depends more on the development of (globally defined) common standards for equipment (and the interoperability of equipment and networks) than it does on the coordinated availability of spectrum.

In any event, it should be borne in mind that Articles 8a to 9b of the Framework Directive and Articles 5 to 8 of the Authorisation Directive already harmonise important aspects of the spectrum managed in Member States. This framework guarantees important EU-wide principles of regulation aimed at ensuring the efficient use of this scarce resource at national level, including technology and service neutrality, the principle of general assignments, the removal of obstacles to spectrum trading, and the ability of holders of rights to use frequencies to transfer or lease those rights. In addition, Article 4(3) of the Radio Spectrum Decision (676/2002/EC) already empowers the Commission to issue binding decisions for “technical implementing measures with a view to ensuring harmonised conditions for the availability and efficient use of radio spectrum”, including the harmonisation of frequency bands to be used for ECS.

2. *How could a more coordinated approach be reached, that enables innovative and progressive national approaches which reflect local market realities without compromising EU consistency?*

Common policy goals and adherence to those are far more important than a coordinated approach for the promotion of the single market. We would welcome a discussion on the merits of overarching objectives for, e.g., the availability and access to wireless communication services, strengthened competition and common principles for spectrum awards (which could be based on the recent work of the RSPG). While there is certainly merit in these objectives, it is very much jumping to conclusions to claim that the diversity of coverage requirements and licence durations, or the absence of EU-wide criteria for spectrum assignments, create barriers to entry, hinder competition or reduces predictability for investors. Any such claims should be substantiated with evidence before an appropriate response can be proposed.

The existing Framework already enables innovative and progressive national approaches which reflect diverse local market realities without compromising EU consistency. It is not obvious that a “more coordinated approach”, as suggested in this question, would result in more efficient spectrum management in the Member States. Rather, as noted above, more “coordination” (on top of the existing harmonisation of regulatory principles) could delay spectrum administration procedures, could hamper both innovation and progress, and ultimately slow down roll-out.

The spectrum awards and the awards processes in the EU have developed substantially throughout the last ten years, typically driven by innovative solutions in different Member States which came about from the need to address the requirements and objectives of that Member State. This has led to a considerable weight of experience among Member States, and also to a palette of tried and tested approaches that other Member States can learn from and be inspired by. Coordination is not a useful goal in and of itself. Rather, the goal should be to define the desirable outcomes for the market and for end users, and to share best practices on how to achieve them.

3. *Would such an approach require an EU-level coordination procedure? How could such an approach be realised in line with the subsidiarity principle and with minimisation of administrative burden?*

The phrasing of this question implies a positive answer to the previous questions, whereas BEREC does not believe that there should be greater coordination in the ways described in those questions. Nonetheless, it is worth remembering that the EU already has a substantial number of coordination and harmonisation processes in the areas of spectrum management, which have by large worked well in releasing spectrum for ECS. Furthering that EU-level coordination in the absence of a

demonstrated regulatory failure is not necessary and would undermine efficient frequency management and raise regulatory costs by adding complexity to the decision-making processes.

It is of course essential for the functioning of the single market in mobile communications that Member States designate and assign the same frequency bands for ECS and harmonise technical conditions in order to ensure the availability and efficient use of radio spectrum for those services. This is already ensured through the work of CEPT and the COM-Decisions based on Art. 4(3) of the Radio Spectrum Decision.

4. *What is the appropriate institutional forum for European spectrum coordination?*

Once again, this question presumes a positive answer to the preceeding questions. BEREC believes that the current approach, composed of the global and regional coordination processes including the ITU, the CEPT, the RSC and the RSPG, the mandatory principles of the Framework and Authorisation Directives, and existing Commission powers, together with the global standardisation process, have already delivered appropriate levels of globally and regionally harmonised spectrum use and equipment for the market. For the reasons described above, in principle, there is no need to change the existing European framework for spectrum regulation.

At the same time, more sharing of best practice and support on spectrum awards or spectrum management could be carried out through the RSPG, working together with BEREC. Indeed, existing procedures are already highly effective.

In order to spread best practices, guidelines on spectrum awards and in particular on the award or auction designs which have become the most commonly used in Europe have already been prepared by the RSPG, working with BEREC. These have just been adopted and published for public consultation[17]. This type of cooperation among NRAs can be continued by developing further guidelines to promote objective, transparent, non-discriminatory and proportionate spectrum assignment procedures. Competent bodies for spectrum awards can strengthen their cooperation in order to support each other by providing advice on spectrum auctions.

[17] RSPG Report on Efficient Awards and Efficient Use of Spectrum
http://rspg-spectrum.eu/wp-content/uploads/2013/11/RSPG15-619-Draft_report-Efficient_Awards_Use_of_Spectrum_PC.pdf

II. d) Trends in network technologies and operations

The most important trend in network environment over the next decade is likely to be the convergence of fixed-mobile and wireless, crystallised by the commercial deployment of 5G networks by 2020. 5G will enable networks to cope with rapidly increasing data traffic, thanks to denser/smaller cells and even greater offloading to fixed networks via WiFi links. 5G will integrate networking, computing and storage resources into one programmable and unified infrastructure which will allow for an optimised use of all distributed resources. Furthermore, 5G is expected to be a key enabler for machine-to-machine communications (M2M) and for the Internet of Things. M2M represents one of the fastest growing segments of the wireless communications market where other types of identifiers may be considered in the future, in addition to ordinary forms of numbering identification, facilitating pan-European or global services.

There is also a trend towards the "virtualisation" of network functions through various approaches such as "Software Defined Networks" (SDN) and "Network Function Virtualisation" (NFV). Virtualisation results from the implementation of network functions in the "cloud" such as set-top boxes, mobile signal encoding/decoding, firewall, routing schemes and traffic prioritisation. This means that functions are based on software servers, instead of locally-distributed and dedicated hardware equipment run by the operators. Network virtualisation should facilitate the emergence of pan-European telecom services.

Yet another driving force in network technologies and operations concerns the shift to "all-IP" networks. This transition, which has been driven by the gradual roll-out of NGN, implies moving the point of interconnection for voice services from distributed local central offices to a central point in the network, thereby enabling cost savings for operators as well as a more efficient network management (including across countries).

New issues may arise from these developments such as:

- greater needs for fixed backhaul for mobile networks, and less clear distinctions between access and backhaul networks as wireless networks densify;

- growing demand for virtual network infrastructures accessed and programmed from the core of networks;

- new vertical applications (or 'verticals') based on specific network platforms with dedicated features and performance requirements (e.g. latency rather than throughput for gaming, high reliability and low latency for health or automotive, etc.);

- operators are likely to explore opportunities to expand their portfolio to services beyond the mere provision of connectivity and to offer integrated M2M platforms and M2M services themselves (new forms of vertical integration).

Questions:

1. *Do you consider that the developments described above – which are naturally subject to significant uncertainty – should be taken into account during a review of the regulatory framework with a horizon of 2020 and beyond? Which are in your view the most important?*

   BEREC note the key trends in network technologies and operations outlined by the European Commission, namely: the convergence of fixed-mobile and wireless, crystallised by the commercial deployment of 5G by 2020; the growth in both Machine-to-Machine (M2M) communications and the Internet of Things (IoT); a move towards the virtualisation of network functions such as SDN and NVF; and the shift to 'all-IP' networks.

   BEREC considers that these trends should indeed be taken into account during the review of the Framework with a horizon of 2020 and beyond. The rationale for their consideration in the review and some additional, associated issues that arise and merit consideration are set out below.

   No one trend is necessarily ranked more importantly than the other, though there are arguments that M2M/IoT will be the most significant technology trend that will emerge in by 2020 and become increasingly important thereafter. If M2M/IoT were to be considered the service layer, with the other technology trends (i.e. 5G, all-IP networks and SDN/NFV) as enablers, then we can say that these enablers will support an exponential growth in M2M/IoT communications.

   While IoT services hold the promise of a major impact on the economy as well as on society, these services are at different phases of development, characterised by experimental business models and exploratory alliances, including 'verticals'. In the next few years, IoT-enabled services will pass through a variety of different models, and a variety of solutions will emerge, each of which will utilise different technologies. In adopting a technology-neutral stance today, it is important that policymakers allow different models to thrive, fostering the development of alternative technical solutions and service models. Such neutrality will allow competitive forces to have as much freedom as possible in order to shape the market going forward.

   The shift to 'all-IP' networks, already discussed in question II.b)2 above, will bring benefits to network operators (in terms of a reduction in hardware, management and maintenance costs, while improving security and scalability) as well as end users (enabling the use of unified communications platforms that integrate voice, video,

instant messaging, text, presence and other features through a single interface). The review of the Framework should ensure that the revised Framework is consistent with the net neutrality provisions in the TSM Regulation, ensuring that network operators cannot favour their own bespoke services (including 'verticals') over competing services by blocking (throttling, degrading, etc.) such competing services in order to better monetise the data crossing their networks.

The virtualisation of network functions (SDN, NFV), also discussed in question II.b)2 above, have become core enabling technologies for meeting future demands and ensuring the relevance of service providers in a cloud-centric world, and holds tremendous promise for the future of networks, including reduced CapEx; reduced OpEx; accelerated 'Time-to-Market' (reduced time to deploy new networking services); and greater agility and flexibility to address changing demands.

However, software virtualisation could raise reliability issues, which could in turn have a detrimental effect on end users. These issues should therefore be dealt with at the appropriate level/forum to ensure high standards for network reliability, coupled with appropriate penalties for failing to meet these standards, , and thereby to ensure there is consumer confidence and take-up of new product offerings.

While the issue of regulatory incentives to foster migration to 'all-IP' is addressed in question II.b)5, a similar question arises in relation to the roll-out of 5G networks. For example, there is no guarantee that network operators will have the commercial appetite to invest in the commercial deployment of 5G networks from/by 2020, particularly in circumstances where they are making sufficient returns on investments from their existing (presumably 4G) networks and there is insufficient competition to drive further investment in 5G networks. As already argued above in relation to NGA roll-out, competition is the best means of fostering investment, and the same applies to investment in 5G.

Bearing in mind the ongoing consolidation taking place across the telecoms industry, particularly in the mobile sector, and the importance of competition to fostering investment, the 5G "agenda" will make it all the more important that NRAs are able to address uncompetitive duopolies/oligopolies, as discussed in question II.b)1 above.

2. *To what extent should the framework apply to M2M services and the new players related to them? For example, what changes, if any, are needed in the framework in relation to numbering and addressing to facilitate M2M deployment in Europe? Would*

a European numbering space contribute to the development of M2M (in particular for mobile objects and sensors) and if so, how should it be administered?

M2M services have shown strong growth in recent years and are expected to continue to grow significantly in the near future18. At the moment they are in varying phases of development and take various shapes. One main characteristic of M2M communications is the fully automatic communication (or with limited human intervention) of data from remote devices. The value chain and the business models of the M2M services greatly differ from the traditional models applied within the electronic communications sector(e.g. voice telephony) and where there is a contractual relationship between a connectivity service provider and a consumer (B2C model). In the M2M value chain, the connectivity service provider often has no contractual relationship with the consumer but only with other service providers, and the business model is a B2B or B2B2C model. However, there are also business models where the consumer has a contract with a connectivity service provider and the M2M service is provided over the top of this (i.e. as an OTT service).

Against this background, the Framework applies to the service provider who provides connectivity over a public network for remuneration in the M2M value chain. Such an operator is responsible vis-à-vis NRAs for compliance with the obligations deriving from the Framework. In contrast, other players in the M2M value chain (e.g. M2M users such as car manufacturers, providers of energy including smart meters) typically do not provide an ECS unless they wholly or mainly resell connectivity to the end-user. According to this approach, the majority of M2M users would not be subject to the rules of the Framework. However, since there are so many different types of packages including connectivity, and since business models are just beginning to evolve, the question of when an M2M user might qualify as an ECS provider has to be carefully assessed, also taking into account the spirit and purpose of the law.

At the same time, it is advisable to assess during the review of the Framework, whether and, if so, to what extent the existing rules which were primarily construed for voice telephony should nonetheless apply to M2M communications. In doing so, we should take into account possible regulatory costs and/or the possible number of notifiable market players (cf. in more detail section II. a) 1).

One of the areas where the Framework might require adapting to the specificities of M2M is the area of international roaming.

[18] The response builds on the BEREC draft report on enabling the Internet of Things, BoR (15) 141.

The Roaming III Regulation did not address the admissibility of permanent roaming as such, nor its applicability to M2M communications in the context of permanent roaming. The Roaming Regulation as amended by the TSM Regulation (Article 3), allows operators to include conditions in their reference offers to prevent permanent roaming or anomalous or abusive use of wholesale roaming access for purposes other than the provision of regulated roaming services to roaming providers' customers while the latter are periodically travelling within the Union. In other words, this would imply that the wholesale access obligation in relation to such services does not apply to situations of permanent roaming, but that operators may nonetheless offer permanent roaming services on a commercial basis.

- With regard to M2M roaming agreements, BEREC notes on the basis of the available data that there do not appear to be issues such as refusal to conclude roaming agreements or tariffs exceeding the price caps under current regulatory conditions. However, debates around an obligation to grant or a right to refuse access might occur in the future when "roam like at home" (RLAH), as defined in the TSM Regulation, comes into effect, and applies to M2M (by mid-2017). Furthermore, on certain national markets there seem to be competition distortions stemming from the fact that the roaming operator could benefit from the coverage of all the visited networks, while visited networks (in the absence of national roaming) are often prevented from doing so themselves. The use of permanent roaming might in some instances reflect the absence of national roaming. All of these issues are currently being investigated by BEREC.

- Any possible further revision and/or clarification of the Roaming Regulation should take into account the specific M2M context. Considering that M2M connectivity services might be a truly single European market, BEREC notes that permanent roaming is currently used for the provision of a number of M2M services and might facilitate the creation of such a market. Apart from that, the rationale for permanent roaming differs in the case of, on the one hand, person-to-person communications and, on the other hand, M2M communications. In the context of the review of the wholesale roaming market to be finalised by the Commission in mid-2016, it might be worthwhile to consider an access right for M2M permanent roaming. Given that the Roaming III Regulation is a consumer protection instrument, it might be possible to address permanent roaming in the context of M2M in a different regulatory instrument.

BEREC has begun to consider what changes might be needed in the Framework in relation to numbering and addressing to facilitate M2M deployment in Europe.

The identifiers used for M2M applications in public networks are: E.164 (e.g. MSISDN) and E.212 (IMSI) numbers as well as IPv4 and IPv6 addresses. In the short and medium term – and perhaps even in the long term – classical telecommunications numbers (E.164 and E.212) will continue to be one solution to identify M2M entities. In the longer term, the use of IPv6 addresses might become the preferred solution. However, NRAs are notably not competent to assign IP-addresses.

Most of the numbering issues NRAs currently have to tackle – and which are primarily dealt with by CEPT and/or ITU on an international level – concern M2M services based on mobile connectivity for public networks:

1. Firstly, the alleged scarcity of E.164 numbers does not seem to be a barrier or a problem that needs to be solved in order to foster the development of M2M. In any event, any scarcity of E.164 numbering resources would be properly dealt with by NRAs at the national level, e.g. through introducing a new numbering range for M2M services or increasing the mobile numbering resources (by using numbers with more digits).

2. Secondly, the current national regulation in several countries (and also the present version of ITU-T Recommendation E.212) does not allow M2M users to be assignees of mobile network codes (MNCs), even though this could be one way of facilitating a change of network operator without having to physically swap SIMs. On this issue CEPT has suggested in the ECC Report 212 that CEPT countries should consider relaxing the MNC assignment criteria. Still, broadening the circle of assignees could lead to a scarcity of E.212 MNC resources since in many European countries only 100 MNCs are available. A flexible approach at national level on how to solve this issue might be appropriate. Finally, a standard for remote programming of SIM (over-the-air provisioning; OTA) is currently being developed which is likely to solve the lock-in issue.

3. Thirdly, the permissibility of the extra-territorial use of national E.164 and E.212 numbers for M2M servicesand/or the possibility of developing M2M solutions based on global ITU-resources might need to be considered for M2M services to be economically viable. In the case of extra-territorial use of numbers, assurances would be needed that public interests such as security

would not be compromised. Alternatively, there is a potential regional solution for Europe recently suggested by the European Commission using a European numbering scheme.

Further work is clearly still needed to assess which of these solutions is preferable to address the need for global marketing of connected devices and whether these solutions might be used in a complementary way.

An assessment of these solutions, including the European numbering scheme, will be made in the final BEREC report "Enabling the Internet of Things", which will also reflect the results of the stakeholder consultation.

Finally, a review of Article 30 of the Universal Service Directive (which regulates number portability) might be appropriate to foster M2M communications, firstly, in order to facilitating a change in provider beyond number portability (e.g. by promoting OTA-provisioning of SIM or making it mandatory). Secondly, with regard to the applicability of number portability specifically in the M2M context, since number portability might not be an issue for M2M users and/or end-users who do not need to communicate, or even be aware of possible phone numbers associated to their M2M devices.

3. *What are the spectrum challenges for the Internet of Things (IoT) and M2M, and what changes, if any, are needed in the licensed, unlicensed and shared use of spectrum to meet their future heterogeneous spectrum needs?*

IoT and M2M services can be deployed using a range of communications technologies, both wired and wireless. Many of these services will require the flexibility or mobility of wireless networks and will, therefore, rely on the availability of spectrum to support their connectivity.

There is no one single description of the spectrum requirements for IoT and M2M services; rather, the requirements of a particular IoT and M2M service will influence the technologies used to provide it. In general terms, IoT and M2M rely both on licensed spectrum – either for private/professional networks or for public mobile networks (terrestrial systems capable of providing ECS) – and unlicensed spectrum (such as SRD or RLAN) in a wide range of spectrum bands.

In the longer term and as the market develops, the spectrum requirements for IoT and M2M services might change and, also given the variation in maturity in the evolution of the IoT and M2M industry across Member States, it is therefore important for NRAs to monitor market developments and spectrum use and, if objectively justified and

necessary, take steps to make additional spectrum bands available for IoT and M2M services. For the benefit of harmonisation, industry is invited to make use of the established processes via ETSI and the CEPT if it identifies demand for additional spectrum.

It is worth mentioning that a recent RSPG Report on "Strategic Sectoral Spectrum Needs"[19] focused on the development of a strategic policy approach to meet spectrum needs for different sectors and in particular for the IoT, due to the high availability of spectrum resources that can be used to address the different needs of different IoT and M2M services. The RSPG concluded that there is no case for a harmonised European solution for dedicated spectrum for specific services or applications, and that future spectrum needs for IoT and M2M can be addressed via the ETSI and CEPT processes.

4. *Is the emergence of the network virtualization phenomenon combined with the emergence of new network platforms likely to impact the demand for regulated wholesale access and interconnection products under the relevant timeframe of this Review? What regulatory adaptations are needed to cope with future needs in that area?*

As already discussed in question II.b)2 above, Software-Defined Networking (hereafter SDN) and Network Function Virtualisation (hereafter NFV) aim to transform the way that networks are built and operated through the implementation of network functions in software that can run on a range of industry standard server hardware. SDN/NFV could come to subsitute today's network operators' large variety of proprietary hardware appliances which are used in networks. NFV allows the software to be dynamically moved to, or instantiated in, various locations in the network as required, without the need for installation of new equipment. In the SDN architecture network intelligence and state are logically centralised (through the decoupling of control and data planes) and the underlying network infrastructure (based on NFV) is abstracted from the applications.

In a nutshell, the benefits of SDN/NFV can be identified as:[20]

[19] http://www.cept.org/files/9421/RSPG13-540rev2_RSPG_Report_on_Sectoral_needs.pdf.

[20] NO ETSI NFV ISG (2012), p. 8, ONF (2012), p. 2 (https://www.opennetworking.org/images/stories/downloads/sdn-resources/white-papers/wp-sdn-newnorm.pdf); https://portal.etsi.org/NFV/NFV_White_Paper.pdf<https://portal.etsi.org/NFV/NFV_White_Paper.pdf>

- Carriers gaining unprecedented programmability, automation, and network control, enabling them to build highly scalable, flexible networks that readily adapt to changing business needs,
- Reduced equipment costs (CAPEX) and reduced power consumption (OPEX),
- Rapid innovation,
- Much more efficient test and integration,
- Targeted service introduction (services can be rapidly scaled up/down as required),
- The enabling of a wide variety of ecosystems and greater openness,
- The optimizing of network configuration and/or topology in near real time,
- Support for multi-tenancy[21], and
- Improved operational efficiency.

The SDN/NFV phenomenon is expected to be more relevant for core network operation rather than NGA networks. Virtual networks enabled by SDN/NFV-based networks stand out due to reduced network specific investments (reduced risk of sunk costs because of reduced equipment costs (CAPEX)) and improved operational efficiency (because of reduced power consumption (OPEX)) compared to traditional networks. This might facilitate innovation in network services and completely change the cost structure of a network, potentially impacting on the costs and the way they are calculated.

Should multi-tenant-capable SDN/NFV become available and implemented in the networks of operators and should multi-tenancy therefore become a reality, several operators could have access to and share (virtualised) physical network infrastructure. In this case the new technology could have an impact on the value chain and could, in the most optimistic scenario, lead to new forms of competition (because competitors would not need to build up new infrastructure but could instead rent the necessary capacity at significantly lower costs). Consequently, due to the significantly lower barriers to entry, many parallel virtual networks could be created and could compete against each other. This could lead to simpler and cheaper wholesale access products, which of course would also need to be adequately designed.

[21] Thereby allowing network operators to provide tailored services and connectivity for multiple users, applications or internal systems or other network operators, all co-existing on the same hardware with appropriate secure separation of administrative domains.

However, multi-tenancy might not be in the interest of network operators who might prefer to use SDN/NFV to optimise their own network. Therefore, not only the size of the different effects and their interaction but also the practical relevance of the options, will require further in-depth analysis. In that context the potential impact of SDN/NFV on infrastructure competition – particularly in access networks – still needs to be assessed.

As a preliminary view, it does not seem that the virtualisation itself requires a new regulatory approach, and the current Framework (the Access Directive) seems sufficiently flexible and open in order to enable NRAs to impose the required access products, taking into account the above-mentioned constraints. However SDN/NFV has the potential to completely change the way networks are built and operated, and this remains an area of dynamic developments. For these reasons, it is not yet possible to reach a final view on the regulatory implications of SDN/NFV, and BEREC will therefore continue to carefully monitor ongoing developments in the area of SDN/NFV and contribute with its conclusions to the Framework review in due course.

5. *Is it necessary to foster the migration to all-IP by means of regulatory incentives? Is coordination at EU level required?*

Migration to all-IP is a term refering to a whole range of developments. Migration to all-IP could take place in different parts and levels of the network (core network, concentration network, access network). It could only take place within the boundaries of an operator's network or also impact on how network operators interact with other network operators or end-users. Accordingly, IP migration could impact wholesale products provided to other service providers, as well as retail products provided to end-users.

While it appears that NGA roll-out is the main driver for migration towards all-IP, BEREC notes that IP can be used across both copper and fibre networks. The question of copper switch off should therefore be kept separate from the question of migration to all-IP.

While many network operators have been running their core networks based on IP already for some time, migration to IP in the access networks has been taking place at different speeds across Member States.

A network operator will decide to migrate its network to all-IP on the basis of cost efficiency and impacts on revenues, and this process is well under way in most

Member States. There is therefore no need to impose regulatory incentives to foster all-IP migration, as cost efficiency will be the most important incentive, and in most countries all-IP migration is already taking place because operators have an interst in doing so. For this reason too, migration will take places at different times according to different national circumstances, and no coordination at the EU level is needed. Indeed, the principle of technology neutrality dictates that all-IP migration should not be further pushed through regulation.

All-IP refers mainly to the way voice telephony services are offered, here via broadband networks using IP-technology or otherwise via the PSTN. The migration to all-IP is a result of the network operator's decision to offer its customers the voice services they demand in an effective way and at a quality comparable to that of the PSTN.

Wholesale services

Under the current regulatory regime, NRAs can ensure that wholesale IP-interconnection products for voice services are available. Generally, with migration to IP-interconnection, the number of hand-over points will be dramatically reduced. Depending on the modern equivalent asset (MEA) underlying NRAs' pricing calculations, this could create incentives for migration.

Any impact of full IP migration on carrier pre-selection should also be evaluated.

Implications for end-users

For the end user there are only a few differences in functionality between telephony services provided via all-IP or via the PSTN. When the provider migrates to all-IP the end-user might sometimes also have to invest in new routers. Some operators prefer to migrate to IP up to the multi-service access node (MSAN) in order to avoid having to replace end-user equipment. In terms of the consumer's interest, there is generally no reason to actively promote all-IP migration.

NRAs do, however, have to ensure that the market has visibility over and is well-informed about when and how IP migration takes place.

It is important to remember the key success criteria in migrating to all-IP, namely the continued availability of all existing products (residential and non-residential products)

over IP and a smooth transition process in practice. Thus, while regulatory incentives to promote migration to all-IP might not be necessary, the Framework should nonetheless allow for some regulatory measures to be taken in order to mitigate any transition problems in practice which might be identified at the end-user level.

II. e) Scope of services regulation and scope of corresponding rights and obligations

Following IP convergence and a demand shift from voice to data traffic, traditional electronic communications service (ECS) providers are increasingly competing with IP- and software-based business models. Over-the-top (OTT) services such as VoIP, messaging and also social networks[22] are more and more used by end-users as substitutes for traditional ECS such as voice telephony and SMS. There is some evidence for a chain of functional substitutability encompassing traditional ECS, OTT communication services and OTT applications with a communication element. Such OTT services, however, are at this stage not subject to the telecoms regulatory regime, as the current scope of the EU regulatory framework is centred on the definition of ECS. As a consequence, telecom operators have argued they are the only actors of the digital value chain required to comply with various sector-specific obligations, leading to a lack of level playing field. This would mean that it is more difficult for telecom operators to generate service revenues to finance investment in the upgrade and expansion of modern network infrastructures. The emergence of substitutable OTT services therefore calls for a review of the existing provisions, with the objective of achieving a situation where providers of competing or comparable services would be subject to the same obligations and would also enjoy the same rights. At the same time, the communications sector has seen important technological and commercial innovations which may also require a modernisation of the applicable regulatory framework.

Against this background the review pursues a two-fold goal with regard to communications services: firstly, the REFIT exercise will evaluate to what extent the currently applicable provisions are still fit for purpose and how they need to be amended or removed in order to respond to current and future challenges. Secondly, because of the recent emergence of new types of players offering communications services, the scope of the regulatory regime for the future should create a level regulatory playing field for functionally substitutable and competing services. Such a level playing field is expected to incentivise investment by all actors of the value chain and enable innovation while modernising the safeguards for end-users and thereby boosting the demand for communications services.

Questions:

[22] Twitter, Facebook, LinkedIn.

1. *To what extent, given the ongoing market and technological developments, does safeguarding end-user interests require sector-specific regulation in the future? Have you identified areas of end-user protection which could be covered by general consumer protection rules?*

General consumer protection rules cover a wide range of consumer protection measures; in particular it is worth mentioning the updated European Directive on Consumer Rights (2011/83/EU), which was required to be implemented in national law by 13 June 2014, and the Unfair Commercial Practices Directive (2005/29/EC).

These rules have been laid down in these general consumer protection provisions in order to support end users effectively in making well-informed choices in any market, and to protect them from unfair behaviours when concluding contracts. However, there are a range of end-user rules derived from the Framework which address forms of harm specific to the sector. Indeed, building on the Framework, several NRAs have adopted innovative rules targeting a range of ever-changing commercial practices used by operators in different countries, and tailored to the specific needs of their national end users. For example, among the initiatives taken by some NRAs, it is worth recalling anti-bill shock measures extended to beyond intra-EU roaming, quality-related obligations outside the scope of Universal Service and anti lock-in provisions.

Any changes to end-user protection rules should ensure that European consumers and other end users are not inadvertently made worse off. General consumer law could play a more relevant role, but sector-specific rules should continue to be used when necessary to ensure end-user protection.

As already publicly argued when commenting on the Commission's proposal for the TSM Regulation, sector-specific regulation enables Member States and NRAs to innovate in order to meet the evolving needs of their respective markets and national end users in what is a highly technical and specified market segment. Furthermore, telephony as well as internet access, are almost necessities of life and consumers need to be able to use those service at all times. These are the services that are also subject to the universal service obligation, and therefore require specific regulation to ensure continuity, quality of service, access to emergency services. Their special nature also justifies the protection of the relevant users in the case of change of contract conditions; although the new consumer protection rules address this issue to some extent, the protection level in electronic communications services is higher and should not be reduced. Furthermore, in particular in the new digital ecosystem, it is increasingly important to take into account the protection of switching end users, and

the prevalence of service bundles resulting from fixed-mobile convergence on the one hand, and telco-media convergence on the other. Finally, these issues also affect the level and effectiveness of competition in electronic communications markets. For example, number portability and rules on contract term and termination are aimed at reducing the cost of switching to end users, lubricating competition between market players and reducing an important barrier to entry in electronic communications markets.

It is also worth noting that general consumer protection measures do not specifically target business users and in particular SMEs. It is therefore likely to be appropriate to ensure sector-specific protection of small business end users where business users have a comparable (lack of) buying power to consumers.

Finally, BEREC believes that the effectiveness of sector-specific regulation in adequately protecting end-users' interests through the adoption of effective and proportionate interventions requires a clear allocation of the relevant institutional tasks to a body with substantial sector expertise. This means that it is fundamental that end-user protection-related competences in the electronic communications sector are entrusted to the independent regulator for the sector (this aspect is further discussed in section g) below).

2. *In this regard, is it appropriate to make a distinction between Internet Access services and other communications services? Does this require amending the definition of "electronic communications services" and, if so, how? Which services should be covered by the amended definition? Furthermore, should a distinction be made between interpersonal communications services and machine-to-person and machine-to-machine communications?*

In light of the answer provided to the general question about the scope of the reviewed Framework (see question II.a)1), BEREC considers that the current ECS definition should be clarified and the scope of any future regulation should be assessed on an obligation-by-obligation basis. It might well be that some obligations only apply to a limited set of services – for example, the net neutrality rules recently adopted apply to Internet Access Services only[23].

[23] Regulation EU) 2015/2120 of the European Parliament and the Council laying down measures concerning open internet access and amending Directive 2002/22/EC on universal service and users' rights relating to electronic communications networks and services and Regulation (EU) No 531/2012 on roaming on public mobile communications networks within the Union.

Turning to M2M/IoT services, it should be assessed whether and, if so, to what extent the existing rules which were primarily designed for voice telephony are relevant to M2M communications. At this stage, BEREC has identified several areas where there might be a need for special treatment of M2M communication (e.g. roaming, number portability, switching of connectivity service provider) and for an amendment of the existing rules (e.g. Roaming Regulation and/or separate regulatory set; Article 30 USD).[24] For a more detailed answer, reference is made to Annex II. d) 2.

3. *Are there any new end-user protection issues specific to communications services (provided by ECS or OTTs) resulting from recent technological or market developments which should be addressed in the review? Please explain these issues and how they could be addressed.*

Under question II.a)1 BEREC has already described how each current provision (including those relating to end-user protection) should be looked at in turn to determine what the scope of that provision should be, and then decide how to best define that scope.

Some new end-user protection concerns can be reasonably anticipated in relation to some of the digital services being provided over the Internet. For instance, looking at the ECS-substitute services only, questions of access to emergency services[25], network resilience, cyber security and interoperability might arise between different digital services, as well as concerns around data retention, cloud data and email portability (especially for SMEs), and new forms of online advertising. Such issues come into play in the wider digital ecosystem, even beyond the traditional ECS world and BEREC's remit.

Regardless of what the EU legislator decides on the perimeter of the current obligations, or any new obligations that it might consider necessary to introduce with respect to the provision of digital services, it is important to highlight the existence of these potential new digital end-user concerns, even though the implementation of any relevant obligation might fall outside BEREC's remit and that of its member NRAs, depending on how the scope of the revised Framework is defined.

[24] BoR (15) 141 Draft Report on Enabling the Internet of Things, p. VI

[25] With reference to such obligation and its imposition on new service providers, it might be appropriate to consider alternative systems to implement it on OTT1, looking at alternative means of sending an emergency signal.

4. *If, in your opinion, there are sector-specific obligations that should apply to OTTs, should OTTs then also benefit from certain rights (e.g. access to numbering resources for their own services, portability and interconnection)?*

The imposition of any obligation on OTTs depends on the results of the exercise described under question II.a)1 and, more specifically, on whether and if so which obligations should be applied to services provided over the internet. Should any obligations be applied to OTT services, it seems reasonable that these services should also benefit from related rights, such as the examples mentioned in this question.

As explained in the draft BEREC report on OTT services, before extending to ECS-substitute services certain sectoral provisions, it is important to check both market and end-users' needs, as the "level-playing field" goal (on the regulatory treatment of players in the same markets), should be considered in conjunction with all the other regulatory principles enshrined in the Framework, including proportionality.

Adjusting the ECS definition, as suggested in the above-mentioned report, does not necessarily imply that all players that qualify as an ECS would be subject to the same rules (rights and obligations).Rather, it will be important to ensure that any rules that apply are necessary, proportionate and fair.Indeed, while in certain respects the OTT world is sufficiently different from the traditional world that some sectoral obligations might not be necessary, it does raise brand-new challenges in other respects, as mentioned under question 3.

In addition to considering the applicability of the current sector-specific obligations to OTT services, we should also reflect on the horizontal rules that might need to apply in order to ensure consistent end-user protection throughout the digital ecosystem, e. g. and data treatment rules which might also be applicable to non ECS-substitutes, as briefly described under question 3 above.

5. *Should any revised end-user provisions be based on minimum harmonisation (to give flexibility to Member States) or on full harmonisation (to facilitate cross-border service provision and a digital single market)? Can the two approaches be reconciled, and if so on what grounds?*

Turning the minimum harmonisation approach endorsed by the current sectoral framework into a "fully harmonised" end users' protection framework would prevent Member States and NRAs from maintaining or introducing any additional consumer protection provisions, thus lowering the level of consumers' protection and welfare.

Responding to the changing needs of their respective markets and national end users (by introducing new obligations, changing existing obligations or lifting obligations) would not be possible in a full harmonisation system. Member States and NRAs would be unable to react flexibly to the differentiated and continually evolving commercial practices used by operators in different countries, and could result in a “lowest common denominator” approach which would risk reducing consumer protection in many countries. Regulatory innovation, including identifying and implementing best practices, would also be limited by a fully harmonised regulatory framework.

II. f) Universal service - scope of obligations, emergency services and 112, and numbers for services of social value

The objective of the universal service rules under the EU regulatory framework is to make available a minimum set of electronic communications services at a specified quality to all users independently of their geographical location and, in the light of specific national conditions, at an affordable price, while minimising competition distortions. The underlying presumption behind the set of minimum services is that market forces alone would not lead to the delivery of the required availability, affordability, and accessibility levels without a public intervention, and that certain end-users could thus face a risk of social exclusion. Historically, universal service obligations are a characteristic accompanying element to liberalisation processes which brought state monopolies to an end, which could previously address such objectives through cross-subsidised network and service provision. To the extent that there are still risks of sub-optimal market delivery to all, the concept of universal service should evolve to reflect advances in technology, market developments and changes in user demand.

High-speed broadband access to the Internet is a prerequisite for end-users to exploit the full potential of digital services. All digital services – from personal communications to entertainment, e-commerce, cloud computing, public e-services or e-Health – rely on fast and effective broadband connections. Access to the Internet through a broadband connection has thus become an essential platform over which a number of services are being used by a majority of end-users. It can be reasonably expected that, in future, the role of broadband as an enabler of access to services will become even more prominent.

Significant developments have been achieved both in broadband coverage and take-up in recent years. 78.3% of EU households had at least a basic broadband connection in 2014, although the number of connected households in rural areas is substantially lower. As regards coverage, the "basic broadband for all" target identified in the Digital Agenda for Europe has

been reached through a mixture of terrestrial fixed, wireless and satellite technologies in 2013. At the same time, many urban and some suburban areas are experiencing very significant advances in fixed and wireless speeds. A further increase in availability of higher capacity broadband networks, both due to the deployment of mobile solutions (especially 4G) and further expansion of fixed networks is expected up to and beyond 2020. However, some areas, such as very low density areas and places with very difficult geographical conditions, are likely not to benefit from these developments. At the same time, very broad sectors of the economy – online providers of content, application and services – as well as public authorities stand to benefit from the ubiquitous connectivity and accessibility of the population.

Certain places of specific public interest such as schools, libraries, education centres, digital community centres, research hubs and health-care centres are at the forefront of the development of the digital society, enabling the development of digital skills and boosting research, education and access in general. Access to high-speed broadband for these types of places may however prove difficult in less dense and rural areas in particular.

Emergency and harmonised free numbers for services of social value in the European Union proved to be a useful development across the Union as confirmed by users. The functioning of these services should be assessed in light of impact of OTT applications and all IP migration on the access to and provision of 112 and 116 services.

Questions:

1. *Is the current concept of the universal service regime, based on availability, affordability, and accessibility of defined basic universal services, an appropriate policy tool to ensure that certain end-users are safeguarded from the risk of social exclusion? Does universal service have a role in future to provide a safety net for disabled end-users? In your opinion, what would be the most efficient mechanism for funding universal service?*

   Over the last two decades , Universal Service (US) has ensured that some basic electronic communications services are available to everyone, helping to guarantee social inclusion and to avoid a digital divide across Europe. The US provisions are part of a flexible framework which enables Member States to impose US obligations (USO) on (a) designated undertaking(s) and oblige specific undertakings (the sector or the State) to finance these obligations. By limiting the scope of USO and defining how they are financed, the US regime has achieved the twofold objective of connecting everyone to basic services without harming competition.

The policy goal to avoid any digital divide and social exclusion will remain relevant in the future, and the Framework should retain sufficient flexibility to adapt the concept and features of US, to reflect not only ever evolving market and technological circumstances, but also the specific national needs, enabling Member States to continue to ensure all users have affordable access to the minimum set of basic services that are already available to a vast majority of users.

The central point of US should remain to ensure that access is available to everyone. The services that might be provided thanks to this access should not be necessarily pre-determined in a legislative instrument. Member States should also retain the ability to remove certain declining services from the scope of USO in their country.

The purpose of US should still be to enable access to at least one public communications network whatever the technology used (whether copper, fibre or mobile) at an affordable price, in all parts of the territory, for all users (including those with low incomes) and at a specified quality of service. The USO should remain technologically neutral in order to enable wireless solutions, since these can offer the same end-user experience and might constitute a substitute in those cases where a wireline network cannot be rolled out at an acceptable cost. These provisions already exist in the recitals of the Universal Service Directive, but they could be clarified in the Articles of the Directive.

In terms of **measures for disabled users**, the Universal Service Directive gives NRAs the power to ensure “equivalence in access and choice for disabled end-users” (Article 23a). Imposing equivalence of choice and access for disabled end-users for all kinds of electronic communications services is a target already set in the Framework, on which everyone can agree. Furthermore, specific provisions for disabled end-users are already included in the national regulatory frameworks of many Member States. Measures included in the Directives should therefore continue to be flexible enough to adapt to the situation of each country.

The existing **funding mechanisms** for USO remain relevant and the current flexibility should be retained, allowing Member States to choose the appropriate mechanism.

In today’s Framework, Member States already have the flexibility (and they have used it) to designate one or several undertaking(s) to cover the US obligation(s) according to their national needs and to optimise the provision of the different components of the US. Member States have also been ableto use the **designation mechanism** they consider most appropriate, in accordance with the principles established in the

Universal Service Directive, to designate the US provider(s). In 2010, BEREC noted that three types of designation mechanisms –designation with or without public consultation and public tenders – have been used in a "fairly balanced manner"[26].

2. *Is the current scope of universal service adequate in light of market, technological and social developments? What is the relevance of such developments for the funding base of universal service?*

Considering the development of services and of network roll-out, the scope of USO can evolve idifferently depending on the market developments in each country.

- **Payphones**

According to Article 6 of the Universal Service Directive, "Member States shall ensure that NRAs may impose obligations on undertakings" to provide access to payphones. Nowadays, payphones are less and less used in the European Union mainly due to the roll-out of mobile services (97.1% of households were covered with HSPA in 2013). The cost of payphone maintenance is increasingly burdensome for either the US provider or the compensation fund. It could also become very expensive to upgrade current payphones in order to adapt them to the evolution of networks. However, in various Member States payphones are still included in the scope of USO because they are still relevant for some segments of the population (e.g. low income groups, people with no access to mobile services). Indeed, in response to a European Commission consultation on US[27] conducted in 2014, 21 out of the 34 respondents replied that they did include payphones within the scope of USO. Member States should thus retain the flexibility to include this service in the USO according to their specific national needs.

- **Directories**

According to Article 5 of the Universal Service Directive, Member States shall ensure the provision of directory enquiry services and directories. The development of competition has made available a number of electronic directories and telephone directory enquiry services, and has therefore reduced the demand for printed directories. However, for certain segments of the population, this service might still be relevant, (e.g. the eldery population or those who cannot easily access electronic directories). Member States should therefore be able to remove this obligation, in part

[26] BEREC, "Report on Universal Service – reflections for the future", BoR (10) 35, 14 June 2010, p. 30.

[27] BEREC, "EC questionnaire on the implementation and application of the universal service provisions, a synthesis of the results", BoR (14) 95, 2 July 2014.

or in full, from the scope of their national US if this is deemed appropriate in their country, or to change it to accommodate an opt-in mechanism.

- **Provision of access at a fixed location and provision of telephone services**

Access and provision of telephone services at a fixed location remain useful to ensure that all users, including those located in remote areas, have access to affordable basic communications services, the delivery of which should be technologically neutral (copper, cable, fibre or wireless technology). The Framework should thus enable Member States to adapt this component of the US to their national needs. In particular, Member States should have the flexibility to adapt the scope of the services mentioned in Article 4.3 of the Universal Service Directive, for instance to include internet access services.

With reference to such national flexibility, as well as to the technologically neutral approach to US mentioned above, given recent jurisprudence of the European Court of Justice, it would be helpful if the Universal Service Directive were amended so as to clarify that mobile operators are entitled to provide Universal Service.

- **Social tariffs**

Even if the development of competition has made services less and less expensive for consumers and has thus also reduced the number of users without access to electronic communication services, social tariffs remain a useful tool to help avoid social exclusion. Article 9.2 of the Universal Service Directive foresees a special tariff obligation (options or packages) to guarantee that users with low income or special needs can benefit from the services covered by the US. This should be retained.

3. *Could universal service contribute to ensuring that every end-user in the EU is connected at an affordable price by extending the universal service scope to broadband? If so, what should be the parameters, set at EU or national level?*

The development of digital content has made internet access a key commodity product. As a result, in 2014, 81% of European households had access to Internet at home[28] and this share is still increasing. Fixed broadband was available to 97.2% of households at the end of 2013 and this percentage was above 99% in 12 Member States.

[28] Figures have been extracted from the Digital agenda for Europe website.

Few Member States have included broadband accessin the scope of USO. In a 2014 BEREC consultation on US, only six countries reported having included broadband in the scope of US, and one of them restricted this obligation to disabled end-users.

Other tools are available to enhance global broadband connectivity and mobility, such as state aid for network deployment in rural areas, National Broadband Plans, and mobile coverage obligations imposed during licence awards or revision. In this regard, the Commission stated in a 2011 document that "*Basic broadband access can therefore be part of USO at national level in justified cases, particularly where market forces and other policy tools and financing instruments have not led to universal broadband coverage. To minimise market distortions, Member States should take full account of public intervention tools other than USO to ensure broadband availability*."[29] It should therefore remain up to each country to decide whether broadband access should be included in the scope of their US and, where it is included, to set the specific requirements for the universal broadband service.

In BEREC's opinion, with regard to the objective of providing access to every end-user, there is no clear advantage in explicitly extending the current scope of the US to include broadband services, as the scope is technologically neutral and flexible enough to allow Member States to adapt it to their respective national situations. Indeed, the Framework already sets out the conditions under which broadband can be included among the USO at national level. Having said that, it could be helpful to make explicit that the reference to"functional internet access" in the Universal Service Directive does not preclude the inclusion of broadband within the scope of US.

4. *Should the future role of universal service be adapted to help realise public policy objectives such as roll-out of networks to provide high-capacity connectivity to public buildings (e.g. community centres, libraries), schools and university/research hubs? What other mechanisms could be used to realise such public policy objectives?*

The current US framework is not necessarily the most appropriate tool to reach these public policy objectives (including coverage goals). Indeed, each public policy objective is specific and should thus be addressed with the most appropriate measures. Indeed, the objective of US interventions is to provide a basic minimum service affordably and at a certain quality, whereas public policy goals associated with coverage tend to be

[29] European Commission, "Universal service in e-communications: report on the outcome of the public consultation and the third periodic review of the scope in accordance with Article 15 of Directive 2002/22/EC", 23 November 2011, COM(2011) 795 final, p. 12.

focused on higher-capacity services. To apply US interventions to meet high-capacity coverage objectives would turn the logic of US on its head.

Having said that, public structures, like schools or libraries, can already ask operators (and the US provider(s)) for access to electronic communications services through public tendering.

5. *In the light of technological and market developments and their effects on the way end users access 112 and 116 services, is the current regulatory approach to 112 and 116 numbers fit for purpose?*

With the 2009 revision of the regulatory Framework, the scope of the obligation to provide access to emergency services has already been extended from PATS providers to ECS which provide originating calls to numbers in the national numbering plan. This regulatory approach remains fit for purpose.

However, two difficulties remain:
Firstly, some undertakings providing a service for originating calls to numbers in the national numbering plan have argued that they do not provide electronic communications services and therefore do not comply with the obligation to route emergency calls.
As stated above (cf. Q II.a) and II.e)1), there is currently a lack of clarity in the definition of ECS that does not allow a straightforward delimitation of the services included in this definition. This lack of clarity is particularly important in relation to relatively new players that provide their services over the internet (so-called OTT-services).

Secondly, all-IP technologies bring some difficulties related to the location of the caller: multi-location companies with an IP network with only one or few interconnection points to the public telephone network make it difficult for operators to locate callers, and thus to correctly route emergency calls. In those cases, the companies would need to provide operators with updated information on the location of their employees. This issue mostly affects small national and regional SMEs, for whom an obligation to do ensure access to 112 could represent a substantial regulatory burden, assuming it was even technically feasible for them to comply (which it will not always be). Still, there are various initiatives currently underway to develop technical solutions to this, within ETSI, and EEC (CEPT), as well as in standards bodies at the national level. Given the currently evolving technical and standardisation landscape, it is best to wait for

concrete technical solutions before considering any changes to the regulatory Framework.

Regarding user access to 116 services, no specific issue has been identified on the way end users access 116 services, despite technological and market developments. Although the usage of 116 varies among Member States, greater harmonisation can already be pursued under the existing regulatory Framework, through appropriate Commision initiatives.

II. g. Institutional set-up and governance

A study for the European Parliament assessing the achievements and failures of the current framework has shown that Europe's telecoms sector remains fragmented along national lines[30]. This lack of integration represents a significant missed opportunity.[31] One study[32], for example, estimates the indirect benefits which could be achieved from policies fostering a consistent regulatory approach for business communications alone at up to EUR 90 billion per year. The lack of consistency in the regulatory approach taken at national level appears to be attributable – to a degree at least – to the institutional set-up and the way the various institutional players (i.e. mainly the NRAs, BEREC and the Commission) interact and can influence the regulatory outcome.

Whilst consistency across the EU is not a primary goal in itself, diverging regulatory practices in the individual national markets can reduce investment predictability, increase compliance costs and have a significant effect on cross-border business conditions and, thus, on the development of a Single Market in electronic communications. It may also seriously distort competition across the EU by "unlevelling" the EU-wide playing-field.

The EU regulatory framework has been designed with flexibility in mind in order to allow NRAs to take account of national circumstances. Whilst it seems appropriate to continue to allow for

[30] http://www.europarl.europa.eu/RegData/etudes/etudes/join/2013/518736/IPOL-ITRE_ET(2013)518736_EN.pdf

[31] With regard to the implementation of SMP remedies, consistency is necessary in order to provide similar conditions in different markets so as to encourage operators to expand from one market to another. However, whilst there has been a relative improvement over the past year regarding the treatment of termination rates across Europe, less success was had with regard to a key aim of the 2009 framework revision, i.e. to achieve a consistent approach to fostering competition and investment in next generation access networks. Studies (http://www.wik.org/index.php?id=studiedetails&L=1&tx_ttnews%5Bpointer%5D=2&tx_ttnews%5Btt_news%5D=1411&tx_ttnews%5BbackPid%5D=85&cHash=faa66cf28a16361c5df48e2e56ba3a8f) have found that approaches towards the regulation of NGA-based networks continue to differ widely even where circumstances appear relatively similar.

[32] WIK for ECTA and INTUG "Business communications, economic growth and the competitive challenge", January 2013, http://www.ectaportal.com/en/upload/File/Reports/ecta_businesscustomers_final_5_clean.pdf

a sufficient degree of flexibility in this respect, the Commission has repeatedly pointed out[33] that many differences in the national regulatory approaches cannot be sufficiently explained by varying national circumstances. The inconsistency witnessed is exacerbated by the fact that the procedural and institutional set-up currently in place appears to be ill equipped to ensure a more consistent approach in similar circumstances[34].

One can identify two particular areas in which increased consistency would contribute greatly to further integration *en route* to a true Single Market: market regulation and the management of scarce resources. With regard to both areas there may be various sub-themes[35], which would benefit more broadly from an institutional set-up that was geared more thoroughly towards ensuring consistency.

First, concerning market regulation, one area in relation to which a more consistent approach is particularly important is the choice and design of access remedies. Unfortunately, it is especially in this area where there is the most notable divergence across the EU. Whilst competition still predominantly takes place at the national level, EU-wide consistency in designing access remedies is increasingly considered important, in particular by pan-European operators, in order to provide a level playing field, favouring entry and competition across national markets whilst ensuring efficient investments and innovation and also in order to provide the best practice outcomes for consumers and citizens in terms of product offerings, price, choice and value across an EU-wide Single Market. In addition to access remedies, fragmentation of other regulatory conditions (e.g. authorisation conditions) may also represent an obstacle to market entry and cross-border provision of services[36].

Secondly, with regards to the management of scarce resources, in particular the allocation of spectrum, the existing governance structures focus on the harmonisation of technical parameters but may not allow for sufficient consistency of the timing of effective assignment and other related conditions. The current governance model in this areas falls short of ensuring consistent assignment conditions throughout the Union.

[33] http://ec.europa.eu/priorities/digital-single-market/docs/dsm-swd_en.pdf

[34] Section 3.7.1 in the study on "How to build a ubiquitous EU Digital Society" referred to in footnote 5.

[35] For example, issues surrounding the independence and funding of NRAs, the constitutional set-up of BEREC, the design of the EU consolidation process under Article 7, the Commission's powers to adopt harmonisation measures under Article 19, standardisation, rights of way, numbering, spectrum management, naming and addressing.

[36] The negative impact a fragmentation of conditions has on the provision of connectivity services has been widely reported by BEREC in "BEREC report on the public call for contributions on possible existing legal and administrative barriers with reference to the provision of electronic communications services for the business segment" (BoR (11) 55), by WIK (for ECTA and INTUG) in "Business communications, economic growth and the competitive challenge" referred to in footnote 7, and in two studies for the EP, i.e. "Mapping the cost of non-Europe, 2014-19" (PE 510.983), and "How to build a ubiquitous EU Digital Society" referred to in footnote 5 (in particular pages 42 and 107).

An increased coordination of spectrum management procedures and conditions could not only reduce the administrative burden at national level but also increase the predictability sought by investors. Better investments could also mean more revenue – directly in fees and indirectly by increased added economic value for national administrations. These revenues would remain exclusively with Member States.

In addition, a level playing field and a common regulatory approach becomes more and more relevant with regard to the use of numbering resources, the scarcity of which is likely to increase in the future, for instance due to the advent of M2M and OTT services.

As a body formally charged with contributing to the better functioning of the internal market, BEREC has long been considering the question of regulatory consistency, and in particular the arguments that there is insufficient regulatory consistency that are the basis of the Commission's questions around the institutional set-up in the sector.

The identification and addressing of unwarranted regulatory fragmentation is one of the pillars orienting BEREC's own work., BEREC believes that both the level of sectoral regulatory fragmentation and its potential impact on the achievement of the telecoms single market are overestimated[37]. National Regulatory Authorities have long been clear that harmonisation for harmonisation's sake can undermine rather than enhance the quality of regulation in national markets and, consequently, market outcomes. As already described in the previous sections, it is vital to begin with a substantiated problem definition, and a clear understanding of the roots of the problem, before considering potential solutions.

In this respect, the preface to the Commission's questions asserts a continued regulatory fragmentation along national lines, described as a "*lack of integration*", and suggests that the lack of regulatory consistency "*appears to be attributable – to a degree at least – to the institutional set-up and the way the various institutional players interact and can influence the regulatory outcome*."

The Commission does note that consistency is not a goal in and of itself, and explains that greater consistency can improve investment conditions and cross-border business opportunities, and reduce compliance costs. It also suggests that the lack of consistency can lead to serious distortions of competition "across the EU" (which we take to mean "between Member States").

[37] See BEREC document n. BoR (13) 142, bearing "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

BEREC does not disagree with this statement of principle, though we would also point out that differences in approach can be beneficial where they allow experimentation and innovation (leading to the discovery of new best practices). It is also not clear that either the cause of or the solution to this perceived problem lies in the institutional set-up.

The Commission goes on to identify two particular areas of insufficient consistency - market regulation (including access remedies and authorisation conditions) and the management of scarce resources (timing and conditions of spectrum assignments, numbering resources) - and notes that in both cases "there may be various sub-themes which would benefit more broadly from an institutional set-up that was geared more thoroughly towards ensuring consistency. The Commission cites as "sub-themes" issues surrounding the independence and funding of NRAs, the constitutional set-up of BEREC; (by which we understand its institutional status and governance arrangements); the design of the Article 7 process (by which we understand the respective roles and powers of the Commission and BEREC in relation to economic regulation), and the Commission's powers under Article 19 (by which we interpret a desire by the Commission for greater harmonisation powers).

These are not so much "sub-themes" but rather potential answers to a problem definition. The Commission also lists several policy areas (standardisation, rights of way, numbering, spectrum management (repeated), naming and addressing) where, we deduce, the Commission believes there is greater scope for harmonisation. Therefore, trying to identify the core of the Commission's problem definition, we are left with:

- ***insufficient consistency in access remedies*** – BEREC has long argued that access markets are intrinsically local, that the nature of competition is not homogeneous either for supply (given network topology/market structure) or demand (given consumer preferences, language) reasons. At the same time, where a service requires access in multiple markets, there is likely to be a benefit associated with harmonisation, e.g. businesses operating on a pan-EU basis might benefit from greater harmonisation of supply conditions, and progress on mobile roaming could depend on greater harmonisation of termination rates. This year BEREC produced a report on common characteristics of Layer 2 wholesale access products, and in 2016 is planning to develop this into a common position.

- ***insufficient consistency in authorisation conditions*** – As already stated in the BEREC's opinion on the TSM Regulation, BEREC, BEREC believes that there is indeed a likely benefit to a common approach to authorisation for those operators operating in more than one Member State. But the Framework already prohibits

Member States from requiring anything more than a notification from an operator before it is able to start its activity. Furthermore, BEREC believes there are benefits to be achieved by straightforward process improvements without the need for a single authorisation framework or any institutional change. BEREC has already developed a standardised notification template which could be used in those Countries where a notification requirement exists (26 out of 28). The obstacles to further harmonisation are constitutional/administrative requirements at Member State level, outside the scope of NRAs or sectoral regulation, and the Framework (in Article 3 of the Authorisation Directive) already provides for a harmonised system limiting the notification requirements that Member States may put on undertakings..

- ***insufficient consistency in approaches to right of way regulation*** – Undeniably, planning issues can be important, given the impact of planning on the cost of network deployment. However, the European co-legislators have recently addressed this issue by means of the Cost Reduction Directive. The Directive has been adopted but has yet to be transposed, so it would be premature to take any further legislative action before having the possibility of an evidence-based evaluation of its effect.
- ***insufficient consistency around the management of numbering resources*** – to the extent this is about M2M/IoT (as potential cross-border services), BEREC's views are set out above. The challenge here is a potential shortage of numbers, rather than a lack of harmonisation, coordination or management.
- ***insufficient consistency in the timing/conditions of spectrum assignments –*** BEREC's views on this have already been set out in question II.c) above.

The Commission also cites insufficient consistency in other areas, e.g. naming and addressing (which we note are not the competence of NRAs in any event), and standardisation (without suggesting what role NRAs could possibly play in what is and should remain an industry-led activity).

As a general point, it is worth stressing that sectoral regulation is not a panacea for the achievement of the digital single market, and that the drivers of the digital single market lie mostly outside the electronic communications Framework (including the financial condition of operators and their access to financing, national administrative and commercial law frameworks, national constitutional law and relevant judicial review systems, national tax regimes, labour costs and actual market demand). These factors must be considered alongside any improvements in sector regulation, in the pursuit of the Digital Single Market.

Regarding the causal link that the Commission asserts between insufficient consistency and the current institutional set-up, BEREC believes that the current institutional design, in particular the respective roles of the institutional players involved and, in particular, BEREC's role within the Framework, is balanced, innovative and has been effective at promoting regulatory consistency in Europe[38]. Indeed, the BEREC system received a positive overall evaluation in the Commission's own 2013 evaluation report: BEREC performed well in its role as advisor to both the Commission and individual NRAs within Article 7 and 7a proceedings, acting within the statutory timeframes, and independently from its member NRAs to promote consistent high-quality market regulation in the pursuit of the internal market. Indeed, despite scepticism from some parts that BEREC would reflexively defend its members, its track record over the last 5 years shows it has not hesitated in challenging its members when necessary.

As described above, the Commission has not made the case for tinkering with the current sectoral institutional set-up in order to solve an alleged fragmentation problem. There is nonetheless scope to strengthen BEREC's effectiveness in the face of the rapidly evolving digital ecosystem as an engine of the single market. This is particularly timely given the demands made on BEREC over the last year (including its advisory role in the context of the TSM Regulation and, presently, the review of the Framework, as well as its duties stemming from the TSM Regulation).

We note that the Commission's 2013 evaluation report had already identified some potential areas for improvement, particularly around the relationship between BEREC and the BEREC Office, and that many of these have since been taken forward.

In the meantime, however, it is worth highlighting that the success of the sectoral regulatory mechanisms relies on the independence of both BEREC and its constituent NRAs, and on the alignment of competences between them.

Currently under the Framework there is a misalignment between the competences of BEREC and the (more narrowly defined) competences of its constituent independent NRAs. This misalignment undermines BEREC's effectiveness as an engine of the single market, depriving it of a full set of 28 national voices on all the subjects for which it is responsible. At the same time, it undermines BEREC's effectiveness as the disseminator of best practices, on those topics where competences are not held by its members. It is therefore worth considering identifying a common set of sectoral competences that should be entrusted to independent NRAs and their aligning them to BEREC's own institutional competences. This would

[38] BEREC first expressed its support for the current "bottom-up" institutional set-up in the document BoR (13) 74 " BEREC preliminary informal views on MEP Catherine Trautmann's set of questions".

significantly improve BEREC's ability to promote regulatory consistency in all the areas of the Framework under its competence.

Questions:

1. *Could the principle of NRA independence as currently expressed in the regulatory framework be improved or complemented and, if so, how? Are there any provisions in the current regulatory framework which act as an impediment/obstacle to ensuring NRA independence?*

   The formalisation of the requirement of NRA independence, as set out in Article 3 of the Framework Directive, has significantly improved NRAs' independence with respect to their national Governments, compared to the guarantees in place prior to the 2009 legislative reform.

   The comprehensive formulation of the provision, covering the status of NRA Heads and their collegiate bodies, the availability of adequate financial and human resources, including sufficient capacity to participate in BEREC activities, has made it a benchmark for several other regulatory contexts.

   However, recent spending reviews and national government or legislative interventions in several Member States have substantially impacted on NRAs' independence in practice. In some Member States, legislative initiatives aimed at spending cuts have resulted in the removal of the independent NRA's Head, or in the re-allocation of sectoral regulation competences among different national bodies (sometimes not fully independent from national Governments), and in a reduction of the NRA's' autonomy in terms of its allocation and management of its financial and human resources, with an impact on their ability to recruit and keep staff with the necessary expertise and also on its capacity to fully participate in BEREC activities, as prescribed by the Framework.

   Given the recent increase in the workload of BEREC (and, by extention, the workload of its constituent members), coinciding with recent national spending reviews in some countries which have resulted in substantial cuts to NRA budgets, it has become increasingly important to ensure that Member States comply with their requirement to ensure NRAs are adequately resourced, in order to contribute to the work of BEREC; there is indeed a particular risk that the understandable desire of national governments to reduce public spending results in an inappropriate degree of government influence on how NRAs operate.

In this respect, the provisions relating to NRAs' financial autonomy should be further strenghtened in order to ensure NRAs' independence in practice, not only in the elaboration of their budget, but also in its allocation, which is key to preventing any external influence on NRAs' decision-making. In this respect, the scope of NRAs' activities whose costs could be covered via administrative charges could also be more explicitly defined, with a view to increasing NRAs' certainty about the resources on which they can rely. Closely linked to the issue of financial autonomy is the availability of sufficient and competent human resources which is also fundamental to the NRAs' ability to act independently and effectively. In the same vein, and without prejudice to any legitimate accountability mechanism and requirements according to constitutional law, the Framework should also ensure that independent NRAs are empowered to take decisions concerning their internal organization autonomously, i.e. without intervention of external bodies.

More explicit legal guarantees are needed in this field, in order to ensure the proper implementation of a requirement (which is already in place)) that Member States ensure that their NRAs have adequate financial and human resources to actively participate in and contribute to the work of BEREC. In this respect, BEREC would also encourage the Commission to consider the European Parliament's first reading resolution on the TSM Regulation, where it proposed strengthening the legal safeguards to NRAs' independence by explicitly identifying the full set of competences that should be entrusted to independent NRAs. Such competences would not be limited to ex ante regulation and dispute resolution (as in the current formulation of Article 3 of the Framework Directive), but would instead cover all the tasks in the sectoral legislative framework, and reflect the competences of BEREC.

Indeed, as already described above, there is a misalignment between the competences of BEREC and those of its constituent NRAs. In particular, there is a misalignment between NRA competences which are legally required to be pursued independently (on the one hand) and BEREC's competences (all of which are subject to an independence requirement). In order to ensure that BEREC members are not limited in their involvement in, and ability to contribute to, the essential work of BEREC (and to ensure their ability to comply with BEREC regulatory guidance and common position which NRAs are required to take utmost account of), it is important to ensure that the functions for which BEREC is responsible are properly reflected at national level in an independent NRA. While aligning the set of tasks to be entrusted to sectoral independent NRAs to those of BEREC, it would also be important to explcin the scope

of “ex ante market regulation”, which has not been consistently implemented to date across the EU (e.g. to clarify that it includes the application of symmetric regulation).

A further point is that an NRA’s independence is affected by its ability to enforce regulation. The Framework generally leaves enforcement provisions to national legislators to develop, but this can lead to huge disparities in terms of NRAs’ ability to take effective deterrent action, for instance through the application of proportionate sanctions through penalties and orders without having to resort to national courts. For instance, Article 10 of the Authorisation Directive gives Member States the discretion to empower the relevant national authority to impose “dissuasive financial penalties where appropriate”. The Directive should be amended to confirm that this power should be given to the sectoral NRA[39] .

2. *How do you foresee BEREC's future role in contributing to the development of the single market for electronic communications? More precisely, how could the current governance structure of BEREC be improved in order to help it achieve its main objective, i.e. contributing to the development and better functioning of the internal market for electronic communications networks and services by aiming to ensure a consistent application of the EU regulatory framework for electronic communications? Have you identified new areas where you would see particular added value for BEREC to be involved (for example issues of cross-border nature) or areas where there is no longer need for BEREC intervention?*

In reflecting on possible improvements to BEREC’s set-up and activity, any change should therefore be responsive to clearly defined need.

Beyond the tasks with which it is already entrusted, and the positive results achieved so far in terms of regulatory consistency, there are additional areas where BEREC could play a greater role to further the development of the internal market. These include:

- BEREC could be entrusted with a stronger advisory role in the European regulatory processes, through an enhancement of the status of its Opinions. Whereas the Commission is already required to take utmost account of BEREC opinions, (e.g. under Article 7/7a and Article 19 of the Framework Directive, whether solicited or unsolicited), it could also usefully be required to provide a reasoned justification where it decides not to follow BEREC’s

[39] See also the case of the Electricity (2009/72/EC) and Gas Directives (2009/73/EC)

advice. This would reflect NRAs' obligations vis a vis Commission recommendations, and increase the transparency of European decision-making, which would be in everyone's interest.

- Still within the European regulatory processes, the scope of BEREC Opinions under Article 7 and 7a of the Framework Directive could be broadened compared to their currently narrow perimeter (which is limited to the Commission's own serious doubts) so that BEREC would be able to (but not necessarily have to) opine beyond the specific concerns raised by the Commission where relevant to respond to the Commission's serious doubts, thus identifying any matter relating to the NRA's proposed measures and further contributing to the adoption of appropriate regulatory measures. For the avoidance of doubt, this should not constitute an assessment of the NRA's full market notification.
- BEREC's advisory role should be extended beyond Article 19 to include a formal role advising the Commission in relation to proposed draft legislation prior to it being tabled[40]. This would involve both an obligation on the Commission to seek BEREC advice ahead of any legislative proposals and an obligation on the Commission to take utmost account of BEREC's advice[41].
- In relation to BEREC's role on issues of a cross-border nature, BEREC is already entrusted with specific powers under Article 3 of the BEREC Regulation as well as under Article 21 of the Framework Directive, and notes that, apart from international roaming, there has been no significant request for assistance on other cross-border matters. However, and as already stated by BEREC in the context of the TSM Regulation, there could be scope for BEREC to play a role in collecting notifications from undertakings active in more than one Member State. In addition, BEREC could play an enhanced role in cross-border cases of fraud and misuse of numbering resources, falling within the scope of Article 28(2) of the Univeral Service Directive; BEREC has already developed guidelines on this provision and,

[40] It is worth tlokking at the European Parliament's proposal within the TSM legislative process. In its legislative resolution of 3 April 2014 on the proposal for a 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, the European Parliament proposed to amend article 3 of the BEREC regulation introducing the additional task for the Body to "support the development of Union policy and law in the field of electronic communications, including by delivering opinions to the Commission with respect to any planned initiative".

[41] In the meantime, prior to any formal extension of BEREC's advisory role, BEREC would urge the Commission to seek its input on its legislative proposals prior to tabling them, in order to help ensure that what is ultimately presented to Council and Parliament is as robust position as possible, so that legislative negotiations can be focused and progress quickly.

considering the increasing incidence of cross-border PRS services and relevant malpractices, believes some clarification and strengthening of that provision would be useful

- Also, the objective of defending an open internet, as instituted by the newly adopted Regulation, requires performance indicators for Internet Access Services that would, among other things, show whether end users could access various kinds of online services. BEREC could therefore play an active role in benchmarking the quality of Internet Access Services at European level.

In addition to these improvements to BEREC's role, we have also identified operational improvements, some of which can be pursued internally, some of which might require legislative change. These are discussed under question 5 below.

Any changes to BEREC's competences or functions must not undermine its independence or that of its constituent members, in relation to both EU and national institutions, as well as stakeholders.

BEREC's independence is achieved not only through its governance arrangements but also, and critically, through its rootedness in its member NRAs. Indeed, this is BEREC's "unique selling point" and distinguishes it from other experts – BEREC's output is informed by "on the ground" knowledge and experience of its constituent NRAs. Whereas the Commission is the guardian and promoter of the single market vision, BEREC is there to ensure that its proposals are grounded in the reality of the day-to-day regulation of electronic communications markets (and therefore to maximise their chances of success in practice). It also performs this role as advisor to the Council and the European Parliament, ensuring that legislation is informed by and grounded in national realities. This partnership is key to the success of this regulatory ecosystem, and a degree of tension between the two forces (single market vs national autonomy) is not only normal but desirable.

3. *How could the regulatory framework (including the BEREC Regulation No 1211/2009) be improved in order to help BEREC ensure that individual NRAs comply with its opinions and guidance? Where do you see the current shortcomings of BEREC developing and disseminating regulatory best practice among its members and in ensuring adherence? Bearing in mind the possibility of a new institutional set-up, could BEREC be given more executive tasks or binding powers in specific areas?*

BEREC does not have significant concerns about NRA compliance with its opinions and guidance (nor, as mentioned earlier, with its ability to challenge its members). Over the last five years BEREC has complemented its production of common positions with a periodic monitoring exercise, where NRAs are required to disclose the manner in which they have taken the common positions into account, exposing where and why they have not followed its recommendations. As further discussed in question 6 below, these internal disciplines, together with the "double scrutiny" to which NRAs are subject under Articles 7/7a, have helped to surface both the legitimate national differences justifying particular regulatory solutions, as well as any national obstacles to adherence to European best practices, which might be outside the realm of sectoral regulation. For instance, it should be recalled that, in recent cases, it was national courts/constitutions which prevented the NRA from following a Commission recommendation:

In any event, it is important to remember that the multi-year cycle of market reviews means that regulatory convergence will necessarily take place gradually and incrementally, as markets come up for reconsideration across Member States on a staggered timetable. While we should certainly not be complacent, it is nonetheless important to bear in mind that the most sustainable form of regulatory convergence is one that is based on experience and best practices, rather than top-down diktats, and as such takes time. This is further discussed in question 6 below.

The sectoral legislative review is also a good opportunity to consider the specific challenges that have faced the **EEA/EFTA countries**. The EEA EFTA States are part of the internal market through the EEA Agreement and are expected to implement EU legislation in the same manner as EU Member States. In order to be applicable in the EEA/EFTA states, EEA-relevant EU acts (such as the Framework) have to be incorporated into the EEA Agreement by means of Joint Committee Decisions (JCDs). In most cases EU acts can be incorporated into the EEA Agreement without any adaptation. However, in some cases adaptations are needed due to the particular features of the EEA Agreement.

The 2002 Framework is part of the EEA Agreement and has been legally transposed in the EEA/EFTA States, but the amendments to the Framework in 2009, and the BEREC Regulation, have not to date been able to be incorporated in the EEA Agreement.

In fact, the EEA/EFTA States submitted two draft EEA Joint Committee Decisions (JCD) to the Commission (first in March 2011 and then in October 2012), proposing a standard EEA adaptation. However, the Commission rejected both adaptation texts

proposed by the EEA EFTA States, with the EEA/EFTA States and the Commission unable to agree on the terms of the adaptation.

The imminent review of the Framework provides the opportunity to address this stalemate and, also considering the relevance of an EEA-wide regulatory harmonisation to the ends of the Digital Single Market objectives, BEREC would urge the Commission to work closely with the EEA/EFTA States to agree the necessary adaptations to enable the 2009 Framework and the BEREC Regulation, as well as any further amendments to either that might be agreed over the coming years, to be properly incorporated into the EEA Agreement.

If effective regulatory convergence is the objective, then it is also worth looking more closely at the operation of the Framework from the Commission's point of view. Under the current legislative Framework, NRAs and the Commission are required to take utmost account of any BEREC opinion. However, while NRAs are required to provide reasoned justifications for departing from a Commission opinion or recommendation (under Articles 7a and 19 of the Framework Directive), this is not the case for the Commission. As already noted above, BEREC believes that it would increase the quality of European decision-making if the Commission were required to formally provide evidence about the manner in wchih it takes account of BEREC Opinions.

Finally, the recent experience of the TSM Regulation shows that it is already possible for the development of technical guidelines to be entirely delegated to BEREC, as in that Regulation, BEREC is responsible for developing guidelines on the implementation of the net neutrality provisions.. BEREC would therefore encourage the Commission to consider such a role for BEREC in future.

4. *In view of the market, user and technology developments, what should be, in your opinion, the institutional set-up at EU level in the future? If possible, please identify examples of institutional set-ups which could be used as a reference.*

As further described throughout this document, BEREC believes that the current institutional set-up at EU level is broadly correct, representing an appropriate balance between the Commission's legitimate role as the guardian and promoter of the single market, on the one hand, and NRAs' legitimate role in representing the reality of the national markets that collectively make up Europe, on the other. This "co-regulatory" balance of power has its roots in the 2002 Framework, and is based on NRAs and the Commission being in a steady state of tension moving forward incrementally, ensuring that the initiatives of the European institutions are informed by and based on fact and

an understanding of how regulation works in practice, and thereby helps to ensure their effectiveness.

BEREC is aware that the Commission has been actively considering regulatory models in other sectors, such as financial services, and BEREC has also carried out its own investigations as it shares the Commission's desire to ensure that the regulatory ecosystem for the sector is as efficient and effective as possible.

So far BEREC has identified the need to strengthen the cooperation with other networks of regulators established in adjacent economic sectors, also with a view to exchanging ideas with them and understanding the specificities of their regulatory cooperation patterns; such exchanges are ongoing.

5. *Should the provisions related to BEREC and the BEREC Office be revised in terms of i) set-up (structure, composition, etc.), ii) mandate (objectives, roles, tasks, sunset clause, etc.), iii) deliverables (powers, format, content, timely delivery, etc.) and iv) functioning (procedures, working methods, internal rules, etc.)?*

The objective of any revision of the current BEREC and BEREC Office set-up is ultimately to ensure that BEREC (comprising NRAs acting collectively) is able to fulfil its statutory objectives and roles and perform its statutory duties, and to serve as an effective engine of regulatory consistency in Europe. The BEREC Office is integral to BEREC's ability to meet this objective

Prior to, and since the Commission's evaluation of the BEREC system in 2013, BEREC and BEREC Office have been working closely together to effectively fulfil their respective tasks under the BEREC Regulation and other relevant Union legislation. Broadly speaking the relationship is working well, within the limits of the resources available to both the BEREC Office and BEREC members.

However, as already discussed above, the combination of new (current and potential future) functions and national spending cuts are already putting pressure on BEREC, and it will need to be proactive in order to avoid facing difficulties in the future. Looking ahead, therefore, BEREC has begun to consider this question, including possible adjustments to its working practices and we note the importance of ensuring that the competences of BEREC members are aligned to those of BEREC itself.

i. set up (structure, composition)

BEREC has a “bottom up” structure, and its resources are provided by the independent NRAs, reflecting the principle of “rootedness” described in question 2. The BEREC Office is separate to this. With a maximum number of staff of 27, the BEREC Office is now fully operational, and its role is to provide professional support to BEREC.

The BEREC Office staff numbers are limited by the multi-annual staffing plan, which in turn reflects EU-level staff limits applicable to EU agencies. However, it is important to make clear that the solution to BEREC’s resource constraints will never lie (solely) with the BEREC Office. Most of the work of BEREC’s expert working groups is policy-facing, requiring the participation and specialist input of national experts who regulate the relevant markets on a day-to-day basis. Indeed, as described in question 2, tapping and collecting this national expertise is the value that BEREC adds to the European regulatory ecosystem. So while greater support from the BEREC Office might be helpful, ultimately the “engine” of the BEREC system will (and should) always be powered by NRA experts.

This makes it important not only to address the issue at the national level (as discussed in question 1 above in relation to the provisions on NRAs’ independence and financial ability to perform their duties, including actively contributing to BEREC work), but also for BEREC to constantly check that it is deploying its resources in the most efficient way. Already over the last two years it has introduced a series of changes to this end. For instance, it has introduced a better division of labour between members of the governing board (not only rationalising the workload but also having the side effect of exposing a greater number of NRA Heads to the “European” side of their jobs). It has also made greater use of “A” items in meetings, and introduced a requirement that expert working groups have two co-chairs rather than a single chair, However, there are further areas where improvements can be sought, some of which might require legislative change:

- Under Article 10(3) of the BEREC Regulation, one of the BEREC Vice-Chairs is identified as the “appointing authority” under the Staff Regulations. Given the nature of this role in practice (including the approval of business-as-usual staff leave requests), BEREC would like to consider the scope for delegating this function . This would free up the Vice-Chair to provide greater support to the professional work of BEREC.

- Related to this, BEREC would also like to consider the scope for reducing the administrative burden on the 28 NRAs in their role as members of the Management Committee (the governing body of the BEREC Office). For example (and following the model of the European Supervisory Authorities in the financial sector), the BEREC Regulation could be amended to redefine the membership of the Management Committee, such that it can be composed of only a sub-group of NRAs Heads. At a minimum, Article 7(1) of the BEREC Regulation could be amended so as not to require the Management Committee to meet four times a year, as is currently the case. Both of these changes would significantly release NRA resource, not only at Heads level but at the working level, which could be redeployed in the substantive work of BEREC.

ii. mandate (objectives, roles, tasks, sunset clause, etc.)

As already described above under II.g)2), there is scope for extending BEREC's advisory functions, and potentially a role for the BEREC Office in relation to notifications from operators active in more than one Member State.

Furthermore, the new digital ecosystem and the Digital Single Market targets point to a complex system of intersecting industry sectors which are currently under different European legislative frameworks, covering network security, audiovisual and on-line content, spectrum, e-commerce and information society services, to name just a few. It would be prudent and indeed important for the relevant regulatory networks active in these fields to have open dialogues and the ability to cooperate effectively.

iii. deliverables (powers, format, content, timely delivery, etc.)

BEREC's experience with the current Article 7/7a process has made clear that the time-frames for the provision of a BEREC opinion, negotiated in haste in the last days of the review of the Framework back in 2009, can be excessively tight. Currently, time begins to elapse upon the issuing of a Serious Doubts letter from the Commission. However, it can take an average of up to 5 days from notice of the serious doubts for a BEREC expert working group to be convened, particularly as the relevant national experts are likely to have to be taken off national projects in order to participate in the expert working groups. An adjustment to these time frames should therefore be considered.

iv. functioning (procedures, working methods, internal rules, etc.)

BEREC current working structure (Board of Regulators, Contact Network, Expert Working Groups) and methods are fit for purpose, requiring only fine tuning (most of which does not, in any event, require legislative change). We have already raised the possibility of streamlining the Management Committee of the BEREC Office, in sub-paragraph (i) above.

We have also already noted that as BEREC's role and functions incease, this will present an ever increasing challenge for NRAs, not least in terms of their human resources (some of them are already working *de facto* nearly full time for BEREC) and budgets, in particular (but not exclusively) for smaller NRAs. In sub-paragraph (i) above, we have considered the benefits of increasing staff numbers in the BEREC Office in order to increase the level of professional support available to BEREC, but we have also explained how it is key that NRAs, in the first instance, are endowed with the necessary range of competences and resources, in view of the challenges ahead of the sector.

In this respect it will be important to ensure the continued ability of the BEREC Office to attract highly qualified staff.

6. *How could the inter-institutional co-operation between the NRAs, BEREC and the European Commission be improved in order to ensure a consistent application of the regulatory framework across the EU? How do you see the Commission's powers as regards general guidance and harmonisation and its role in individual cases notified by NRAs? Where do you see weaknesses in the current procedures and processes?*

BEREC believes that what has previously been called the "co-regulatory" model is the appropriate means of promoting the consistent application of the Framework across the EU, though there is scope for improving the processes (e.g. timetable for BEREC opinions, regularity of market reviews) and scope (e.g. of BEREC's role under Article 19, or of its opinions under Articles 7/7a).

On the one hand, this "co-regulatory" framework holds NRAs to account and incentivises them to be proactive and more ambitious in respect of the promotion of the internal market (through a combination of BEREC common positions/monitoring, BEREC opinions, Commission recommendations and decisions, and Commission scrutiny of individual cases). On the other hand, it recognises that there are some intractable differences between national markets (and ensures that NRAs are able to

address the specific needs of their national markets within the broader internal market framework).

We understand that there might well be frustration around the pace of convergence of regulatory approaches, particularly in those areas where harmonisation measures have already been adopted and yet where discrepancies remain. However, we should not assume that the discrepancies are necessarily the result of stubbornness or the absence of a binding legal obligation. As described above, Europe is not a single country but the collection of 28 different sets of legacy networks, consumer profiles, and national/constitutional frameworks. Furthermore, differences in approach can be beneficial, particularly in a sector as fast-changing as ours, where they allow experimentation and innovation (leading to the discovery of new best practices).

There is benefit associated with all NRAs having a common toolkit, and flexibility to determine which tools to use (and whether or not to use them). Indeed, one of the reasons why flexibility is important is that sometimes the threat of intervention is sufficient, and there is no need for an actual intervention. A particular intervention might be necessary in one national market, but disproportionate (potentially undermining investment, e.g.) in another. The more complex the sector becomes, the more important it will become for regulators to share a common principled approach, while retaining the flexibility to respond to problems if and as they might arise in their respective national markets.

7. *If spectrum management is to be co-ordinated more closely at European level, which governance structure would you consider appropriate and which role should BEREC (the NRAs) take in this respect? In addition, how can it be ensured that more coordination at EU level in this respect does not lead to a lowest common denominator approach and does not unduly increase the administrative burden for the actors involved?*

As already discussed in section II.c), this question presumes the need for greater European “coordination” of spectrum management.

As explained above, however, the EU already benefits from substantial coordination and harmonisation processes around spectrum management, and no further EU-level coordination procedures are necessary. Indeed, there is a real risk that they would instead undermine efficient frequency management at the national level and increase regulatory costs.

That is not to say that the principles in the existing Framework could be not further enforced. For example, the Commission could make sure that the rights of use for radio frequencies are granted through open, objective, transparent, non-discriminatory and proportionate procedures, or that trading/leasing are not prohibited, as already required under the Framework. These concerns should be pursued through cooperation and the dissemination of best practices between MS through relevant existing bodies for cooperation within the EU with regards to the electronic communication sector and radio spectrum issues(including RSPG and BEREC).

8. *Do you see a need to establish a greater role for co-regulation and self-regulation in any areas within the current or envisaged future scope of application of the regulatory framework?*

In the wider digital ecosystem, with its ever evolving market dynamics and diversity of players, it is particularly important to adopt a “light touch” regulatory approach so as not to undermine investment and innovation. This is likely to mean lighter ex-ante interventions, with a greater focus on ex-post regulation, In principle, therefore, there could be more room for co-regulation and self regulation mechanisms.

While this kind of innovative and “softer” approach to regulation can be effective, where it is pursued it will be important that its details are defined “bottom-up”, through the direct involvement of the affected stakeholders.