Submission to the Body of European Regulators for Electronic Communications (BEREC) for the

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1. Introduction

On 16 December 2011 BEREC launched a series of public consultations, including a Draft of the "BEREC Broadband Promotion Report". Deutsche Telekom welcomes the opportunity to contribute to the discussion on how to promote broadband in Europe. BEREC has been awarded a strong voice and an important role by the new regulatory framework.

Considering the ambitious targets of the Digital Agenda for Europe, namely that by 2020 all citizens should have access to at least 30 Mbit/s and 50% of citizens should be subscribed to 100 Mbit/s, the topics discussed in the BEREC report are highly important for current and future policy work. The report strongly focuses on the demand side. Deutsche Telekom welcomes the acknowledgement that early customer adoption is essential to profitably roll out CAPEX intensive networks, and shares the view that efforts on the demand-side are also needed to promote Next Generation Access (NGA) broadband. However, it considers the supply side to be at least as important (if not more) than the demand side, and sees a greater role of BEREC and the National Regulatory Authorities (NRAs) in this area.

On the supply side, NGA broadband deployment heavily depends on investment incentives based on stable, predictable and enabling regulatory rules and practices. A departure from such rules and practices, as recently proposed by the European Commission's Public Consultation on Costing Methodologies (which leads to the depreciation of existing network assets) would neither contribute to regulatory certainty nor to further investment in NGA broadband networks. In fact, the promotion of broadband can only be achieved through a predictable, proportionate, targeted and enabling regulatory approach. Redundant regulation at different levels of the value chain or in markets where no market failures exist should be substituted by a more flexible approach that grants freedom to develop new business models. Meanwhile, fair and symmetric access conditions should be ensured where necessary.

To be successful, any measures to promote broadband should take due account of the main challenges for the business case for NGA broadband roll out in Europe.

First, investment costs are high, especially in less populated areas. NRAs should make sure that synergies are used and that all infrastructures which can contribute to the deployment of NGA networks are made available. Measures that have a rather neutral effect on competition, such as the upgrade of in-house cabling and cost reductions of civil works can significantly improve business cases for NGA broadband roll out. Cost reductions (and the resulting improvement of business cases) can be achieved by regulatory or aid measures as well as within the framework of cooperations, including Public Private Partnerships (PPPs).

Second, operators increasingly lack the financial resources needed to cope with high CAPEX requirements in combination with long payback periods. Throughout the past years, regulatory intervention has often reduced wholesale charges, thereby resulting in lower retail prices. On the supply side, this has resulted in a significant reduction of revenue streams and therefore of investment resources. On the demand side, consumers' willingness to pay for broadband services has decreased as a consequence of regulatory driven price cuttings. Used to situations where broadband services get cheaper even when service quality increases, consumers are now often not willing to pay more for higher broadband speeds and new services. To change the investment trend, regulation needs to change directions and allow for price increases when justified.

Third, long investment cycles imply long pay back periods. Demand stimulation measures (such as temporary subsidies to consumers supporting broadband subscriptions and one-off NGA connection fees) can help accelerate the relatively low take-up rates and reach the break even point sooner rather than later.

Fourth, demand and revenue uncertainty entails high investment risks. Even potentially profitable areas might be considered as high-risk investments, since it is not certain whether the assumed take-up will take place in time to generate the necessary cash-flows. The last version of the telecommunications' regulatory framework expressly allows for risk sharing agreements, but these have not yet been fully implemented in national laws or in regulatory practices. Players that engage in risk sharing will typically receive lower access prices than those that do not carry any risk. Under a risk premium, the investor is allowed to increase wholesale prices in relation to risk and without regard to retail prices. An understanding is needed that risk sharing should not automatically result in situations which could be subject to sanctions under a generally applied, formal margin squeeze. Antitrust and regulatory guidance are therefore needed to avoid situations where one player bears most of the rollout and utilization risk while the remaining market participants are entitled to use the network without compensating the investor for the risks assumed (i.e. free riding).

Fifth, the expected return on investment is low. Pricing flexibility on a geographic and product basis would improve the business case by optimally matching demand and supply for different segments of consumers in different regions, thereby allowing for further demand oriented revenues. Retail price differentiation calls for a respective wholesale price differentiation in order to avoid cream skimming and cherry picking.

Sixth, regulatory measures often cover shorter time periods than the long term planning required by infrastructure investments. An investment friendly and enabling policy and regulatory direction should thus remain valid throughout longer periods of time, stretching over several market analyses, for operators to be able to rely on their calculations of a business case for long term investment.

Seventh and final, innovation is crucial in telecommunication markets. Players should be given the freedom to experiment with new business models. In addition, innovative services (such as e-government, e-mobility, e-energy and e-health as well as cloud services) should be actively supported by policymakers. Such support can take different forms, ranging from the provision of an enabling regulatory framework for such services, aid for research and development or for the adoption of e-services, to ensuring standardization and interoperability.

Deutsche Telekom invites NRAs and BEREC to further focus on issues relating to the stimulation of both broadband supply and demand from a regulatory standpoint and welcomes the opportunity to provide input to the current discussion.

Question 1 (section 5): What elements do you consider essential for the successful definition and implementation of governments' strategies to promote broadband:

a) At the general and European level[1]

The FSR study (p.12) quoted by the BEREC report states that supply side policies should come first and demand-side policies should follow. The rationale is that supply side policies support network deployment and demand side policies help increasing take-up once the network is in place. But demand stimulation measures are also important before network deployment. If no network has been built, specific demand side measures (such as subsidies to consumers) may reduce the risk taken by the investor and improve its business case. Such measures can lower but not eliminate the risk assumed by the investor. Therefore, adequate risk sharing agreements remain necessary.

Concerning the current debate on universal service obligations, it is clear that a mere imposition of roll-out obligations regarding the provision of specific services and certain minimum speeds in all areas will not solve the obstacles inherent to the relevant business cases. While Deutsche Telekom supports the ambitious European goals regarding broadband coverage, speed and take-up, it considers that universal service obligations are not the appropriate tool for achieving these objectives.

Before liberalization, holders of special and exclusive rights could easily cross-subsidize between profitable and non-profitable areas in order to offer equal services to a uniform price throughout the territory. In liberalized markets, universal service obligations are only a safety net meant to prevent the disruption of services for a minority of consumers whose financial resources or geographical location does not allow them to access basic electronic communication services. Under the current regime, universal service obligations are and should remain an instrument for the prevention of social exclusion rather than one of economic or structural policy.

As rightly pointed out by the European Commission in its recent Communication on universal service in e-communications (COM(2011) 795 final) "to prematurely mandate broadband at EU or at national level risks distorting markets and holding up private investment in broadband". Such a mandate seems also questionable regarding the just and equitable distribution of benefits and burdens. The provision of broadband infrastructure and its use creates socio-economic benefits for society as a whole. Therefore, any burden created by obligations related to broadband deployment should not be borne by private firms of just one sector.

Funding by general taxation would create less market distortions and be more equitable. It can neither be expected nor demanded that private operators roll out broadband networks in unprofitable areas. Public funds are the appropriate remedy in such cases, and should be made available to cover the profitability gap and make the business case viable. The Community Guidelines for the application of State aid rules in relation to rapid deployment of broadband networks provide valuable guidance on this issue.

b) Overall at the national level? What role, if any, could NRAs play to enhance the effectiveness of those strategies?

NRAs should ensure that operators are granted enough flexibility to react in a quickly evolving and increasingly competitive market. For this purpose, they must be provided with the necessary certainty regarding their room to maneuver and develop innovative products and services.

[1] Sub-Section added by Deutsche Telekom for clarity purposes.

Consistency of policy measures and regulatory decisions is essential for long term investment. Once confidence in political and regulatory consistency is damaged, it is very hard to repair it. Regulation needs to be investment friendly and limited to the minimum necessary. It should leave room for new business models and provide consistency as well as clear and precise guidance, thereby enabling the long term planning that investments in infrastructure require. Abrupt changes in policy or before completion of the payback period will cause significant harm to the investor. Therefore, policy and regulatory directions should thus remain valid throughout longer periods of time, stretching over several market analyses.

Furthermore, competition in European telecommunications markets has evolved rapidly over the past years, and several alternative providers now offer FTTx access or DOCSIS 3.0 high speed broadband via cable. Symmetric access is becoming increasingly important in a multi-carrier environment, where different firms provide both wholesale and retail services for high speed broadband in different regions. Only when all operators, including a former incumbent, can have access to any other operator's network (also at the regional level) can markets be effectively competitive.

Within this context, there is a clear need to implement geographical differentiation in order to account for current market realities and regional specificities. Geographical segmentation of markets has already been implemented, for example, in the United Kingdom and Portugal. Industry driven solutions for open access to operators' networks should be fostered and symmetric access obligations need to be imposed if negotiations are not forthcoming or lead to no adequate results regarding open access.

A key element for broadband promotion is the principle of technological neutrality. The prevailing focus on fiber to the home (FTTH) technology and its deployment might detract attention from a more suitable technology mix to achieve the Digital Agenda targets. The European wide roll out of FTTH is too expensive, as FTTH is only economically feasible in certain areas. Therefore, it cannot be the sole instrument for a large scale roll out that fulfills the public policy goals set in the Digital Agenda. Only a technology mix, including VDSL2 Vectoring, LTE and even satellite broadband in remote areas is realistically capable of achieving such goals. NRAs should therefore adjust access obligations to allow for the implementation of new technologies such as VDSL2 Vectoring, which requires an adaptation of the unbundling regime.

c) Specifically in rural and peripheral areas? What role, if any, could NRAs play to enhance the effectiveness of those strategies?

Rural and peripheral areas can be covered relying on a technology mix that includes LTE (as a fixed broadband substitute), a variety of DSL and FTTx products and satellite connections.

The business case for investment can be improved by geographical price differentiation. As stated above, geographical cross subsidization allowed for uniform service standards and tariffs before liberalization. In liberalized markets cross subsidization is no longer sustainable due to a high level of competition in densely populated areas. Therefore, a higher price of broadband in less populated areas may be justified in order to enable the deployment of NGA broadband networks.

Living in rural areas often provides for several financial and non-financial benefits (such as lower real estate prices, and a greener, often cleaner and quieter environment), which could compensate for a higher price of broadband.

Differences between rural and urban areas from a demand side point of view must be taken into account as well. In rural areas, day to day infrastructure (e.g. schools, shops, contact points for public authorities, health services, etc.) may be less developed than in urban areas. Therefore, e-services such as e-government, e-health and e-learning can fill gaps and improve quality of life even more than in urban areas. The higher added value of broadband coverage in rural areas may also justify a higher price for NGA.

Question 2 (section 6 and 9): Among the main supply-side obstacles to broadband promotion, NRAs have perceived the low expected return on investment, the lack of access to financial resources and the access to spectrum. In addition, NRAs have considered, among the main demand-side obstacles to broadband promotion, aspects such as the citizens' lack of perceived need to adopt broadband, the high price of broadband, the fact that NGA is still in an initial stage of the product life cycle and, mostly in rural areas, the lack of choice between operators.

2.1. What of the above mentioned factors, if any, would you not consider as obstacles? And what other factors, if any, would you add to the list of main obstacles to broadband promotion? Please reply with specific regard to:

a) Supply-side obstacles;

As stated in the introduction, the main supply side obstacles are

- high investment costs;
- lack of financial resources;
- long investment cycles;
- uncertainty of demand and revenues;
- low expected return on investment;
- regulatory uncertainty;
- insufficient support for innovation and new services.

These issues can be respectively addressed via

- cost cutting regulatory measures and State aid;
- investment friendly (instead of price cutting) regulatory framework;
- demand stimulation measures;
- better implementation of risk sharing agreements;
- more leeway for price differentiation and increased flexibility;
- clear regulatory direction covering a longer time frame and several market analyses;
- measures fostering standardization, interoperability and the adoption of e-services.

From the list of obstacles identified by BEREC, the lack of access to financial resources requires further clarification. Indeed, there may be less of a problem in accessing financial resources than in coping with the resulting increase in debt and its potential negative impact on companies' rating. Moreover, the current economic crisis has negatively affected financing terms and thereby business cases.

Regarding spectrum, it is important that the digital dividend in the 800 MHz is be made available in all countries by 2013 at the latest. A harmonized approach to the allocation of this spectrum can significantly decrease costs and efforts across Europe and help bridge the digital divide. It is of utmost importance that EU Member States which are lagging behind schedule in their switchover activities make additional efforts to timely assign the 800 MHz band to mobile operators. The 800 MHz band will, and in some countries such as Germany already has, greatly contribute to the supply of high speed broadband and

towards the achievement of the Digital Agenda targets. Additional, it is important that further spectrum (including a "Digital Dividend II") becomes available in the medium term in order to cope with the ever increasing demand for mobile broadband services and applications.

b) Demand-side obstacles.

As stated in several studies, policy papers and reports, the provision and uptake of Information and Communication Technologies (ICT) and services is key to ensure social, economic and green growth as well as to improve European competitiveness on a global scale. A precondition for reaping the benefits of innovative ICT services is the deployment of the NGA networks. However, most consumers have not yet experienced the need for higher speed broadband. The low level of perceived need might be rooted in a lack of experience of the added value of NGA based services such as public and private cloud, e-learning and e-health and their potential to improve quality of life. Other customers might, however, be willing to pay more for a given high quality service but regulatory principles applicable to legacy networks may hinder welfare enhancing price differentiation, thereby limiting potential revenues. Indeed, retail price differentiation calls for wholesale price differentiation in order to avoid cream skimming and cherry picking as well as formal margin squeezes.

The price for NGA is currently low in EU Member States. Consumers used to spend more in broadband services in the past and still do so in several non EU countries such as Switzerland and the US (see OECD Broadband Portal). However, adoption rates are high in many of these countries. Thus, the absolute price level in the EU cannot be considered as being too high and, consequently, a demand side obstacle. The issue is the low level of awareness of the added value of e-services and the negative impact that regulatory driven price cuts have had on willingness to pay. Policymakers should make consumers more aware of the actual benefits of broadband and of its high underlying costs, and regulators should allow for differentiation and for price increases to improve business cases.

The report states that a lack of choice of operator (mainly in rural areas) is a demand-side obstacle. There is a market for broadband infrastructure and another for broadband based products and services. One infrastructure can support offers of several competing telecommunications service providers, provided that it is open to third parties by means of commercial agreements or regulatory obligations via geographical segmentation. Moreover, mobile broadband networks are rolled out also in rural areas in many EU Member States. Therefore, it can be concluded that is no general lack of choice of operators for consumers in remote areas.

Remote areas are however extremely challenging for large infrastructure investments. If profitable, the business case of only one infrastructure provider can often be upheld and the presence of a second network is generally economically unviable. Any efforts to support a competing infrastructure via State aid would only be justified where the existing infrastructure is not open to third parties.

2.2 Taking into account namely your assessment of the existing and potential obstacles to broadband adoption, what elements do you consider essential for the successful definition and implementation of NRAs' strategies, in particular from a demand-side viewpoint, to promote broadband? When replying to question 2.2 above, please mention also what core strategic differences, if any, should be weighted regarding the consideration of those elements in rural/peripheral areas and in urban areas.

Policymakers and regulators should thoroughly consider that demand and supply are inextricably linked and that measures taken on one side may have a strong impact on the other. For example, following the current Commission proposal on costing methodologies for copper and NGA access would negatively

impact both the supply and demand of NGA. From a supply perspective, the proposal may entail a reduction of revenue streams and therefore of investment resources, and distortions of competition on the market. Such a precedent of depreciation of network assets will undermine legal certainty and trust in future business cases. From a demand side perspective, any further decrease of wholesale prices for access products to the copper network will result in lower retail prices for copper based broadband products. As the price for high speed broadband products cannot be lowered without risking profitability, the price difference between copper based and NGA products will increase. This increase will discourage consumers from upgrading their broadband subscriptions, thereby worsening the business case for the deployment of NGA broadband networks.

NRAs, BEREC and, more generally, policymakers should also take due account of the relation between the wholesale and retail prices and products. For example, regional and product based price differentiation should be allowed at the wholesale level in order to be viable at the retail level. Furthermore, the imposition of wholesale access obligations entails investment and operational costs that are (at least partially) reflected in retail prices. While open access is crucial for competition, compliance with disproportionate requirements creates unnecessary additional costs to the detriment of the industry and of consumers. NRAs should only impose access obligations when demand is proportionate to the costs of implementation (e.g. when the interested party commits to using certain capacities over a given period of time) and disproportionate obligations should be lifted.

These measures should be complemented by efforts to raise awareness of the actual benefits of broadband and of its high underlying costs, aid to consumers and support for e-services and innovation.

Question 3 (section 7): What elements do you consider essential for the successful definition and implementation of operators' strategies, in particular from a demand-side viewpoint, to promote broadband, with regard to:

a) Fixed Broadband?
b) Mobile Broadband?
c) NGA Broadband?

When replying, please mention what role, if any, could NRAs play to enhance the effectiveness of those strategies.

Several points have already been made throughout this questionnaire, which are clearly relevant for operators' strategies and business cases. A key issue is the call for an adjustment of regulation to quickly evolving market conditions and technological developments. In particular, a more flexible and investment friendly regulatory practice is needed. For example, NRAs should acknowledge that a technology mix is necessary and that this will impact access products, as some technologies such as VDSL Vectoring do not support unbundling.

Question 4 (section 8): What elements do you consider essential for the successful definition and implementation of public-private partnerships strategies, in particular from a demand-side viewpoint, to promote broadband? What role, if any, could NRAs play to enhance the effectiveness of those strategies?

PPPs may play an increasingly important role in the development of broadband on a regional or local basis. Public local undertakings may be interested in cooperating with telecommunications firms to provide passive NGA infrastructure in a given area. In such situations, it is essential that cooperations and partnerships can be implemented in a pragmatic way. Players should remain free to choose the most suitable technology and determine the time and scope of roll-out projects.

Question 5 (section 10): In addition to the initiatives already taken by BEREC with regard to the promotion of broadband from a supply-side perspective, what other initiatives do you perceive it is important that BEREC develops in the future from that perspective?

The overall goal of any regulatory strategy (both of NRAs and BEREC) should be to apply an investment-incentivizing regulation that takes due account of the fact that network investment entails substantial costs and risks. The profitable operation of a network should be ensured in the long run, and confidence in the regulatory and policy framework must be kept and further strengthened amongst stakeholders.

BEREC is uniquely placed to give NRAs guidance regarding the need to apply the regulatory framework in an investment friendly manner. This includes

- the provision of legal certainty over several market analyses;
- geographic segmentation of markets;
- symmetric regulation of networks where commercial agreements are not forthcoming;
- promotion of the use of synergies on a cross-sectoral basis;
- support of cooperations, including PPPs;
- support of risk sharing agreements as well as implementation of risk premia;
- technological neutrality;
- reduction of access obligations to an more proportionate level;
- increase of wholesale tariffs where justified by costs or value;
- leeway for price differentiation on a geographic and product basis.

BEREC's guidance should strike an adequate balance between helping implement a consistent European regulatory strategy and ensuring that NRAs can react appropriately to national and regional circumstances.

Question 6 (section 10): A list of potential measures was identified, in the present document, that could be adopted or reinforced in order to promote broadband from a demand side perspective.

a) Are there any identified demand-side measures that you consider inappropriate?

Deutsche Telekom welcomes initiatives to find innovative ways to promote broadband usage. This is certainly in the interest of network operators, and therefore part of their tasks. However, due to the societal benefits of broadband, its promotion should also be in the interest of public authorities, and part of their tasks. Public authorities' interests and capabilities are much broader and include also social and cultural areas. Therefore, they are in a unique position not only to promote NGA, but also to reap its full benefits.

The high societal benefits of broadband justify, among others, targeted State aid measures for both providers and consumers. Within this context, tax incentives or subsidies to promote broadband usage seem adequate. When using NGA based services, consumers can experience their value, which may increase the willingness to pay for NGA in the near future.

Actively promoting digital literacy and fostering education can be achieved by connecting schools and supporting trainers. In Germany, Deutsche Telekom's initiative "Schulen ans Netz" has been highly successful in connecting schools with broadband supporting educational pro-grams for the elderly. As governments are largely in charge of educational systems in Europe, they should assume a pivotal role in improving general levels of media literacy, with the industry's support.

While no major obstacles for broadband access by disabled people are noted (broadband is, on the contrary, an enabler for disabled people, facilitating access to, and participation in many services and activities otherwise not available to them), Deutsche Telekom considers it highly important to prevent social exclusion and to move further to a "digital society" and a connected life and work, leaving no one behind. We already offer need-based services and barrier-free products. In light of the strong voluntary efforts and the rules already in force, new obligations have to be carefully assessed in terms of their necessity, effectiveness, and ultimately the resources involved.

Further obstacles identified in the report have been subject to clarifications in our response. Among others, we made clear that the absolute price of NGA is not a relevant obstacle and that there is no general lack of consumer choice in rural and peripheral areas. Similarly, we believe that difficulties do not lie in the access to financial resources in capital markets as such, but rather in the consequences of drawing on further credit facilities, especially under the current economic and market conditions. As for the lack of consumer confidence in contractual relationships, transparency is strongly supported by Deutsche Telekom. Operators are subject to transparency obligations regarding the terms and conditions of their offers and services. In fact, they have an inherent interest to have a trustful relationship with their customers, including a correct billing and effective complaint management mechanisms. Therefore, any measures to address these particular issues would be inappropriate.

b) What other demand side measures, if any, would you consider particularly important to promote broadband?

In order to further promote demand for broadband, governments should assume a crucial supporting role in increasing the consumer awareness of the benefits of broadband access. By making public services accessible for its citizens through the internet, governments can save significant financial and human resources. Citizens, especially living in rural and peripheral areas or having special needs, would also spare significant time and money and therefore be highly incentivized to use e-services.

The further development and support of cloud services will also play a crucial role in increasing high speed broadband demand while, at the same time, significantly contributing to European competitiveness and growth. Such innovative online services offer a great potential for new business models and also significant efficiency gains in several sectors of the economy. As data is stored and processed in the cloud, private consumers would be able to spare money in hardware and software, which could be re-invested in a better broadband subscription.

In order to foster this development and the take-up of cloud services, rapid evolution should not be hindered by additional legislative or regulatory measures. Instead, market driven solutions for standardization and interoperability should be actively supported and pursued. What remains necessary is the harmonization of data protection legislation. Deutsche Telekom thus welcomes the European Commission's work on this topic, which will further increase consumer welfare and trust by combining a high standard of protection with room for innovation on the market.

Decentralized competence centers for broadband related issues can increase transparency and access to information to citizens and, perhaps even more importantly, to local authorities. They also support municipalities and operators interested in engaging in regional broadband projects. Germany has made positive experiences in this regard.