



Vodafone response to the public consultation by BEREC on the draft Broadband Promotion Report

Vodafone welcomes comments or questions on the views expressed in this submission. They should be directed to Giulio Maselli at [giulio.maselli \[at\] vodafone.com](mailto:giulio.maselli@vodafone.com)

Vodafone welcomes the public consultation by BEREC on the draft Broadband Promotion Report. As mentioned by BEREC any strategy to promote broadband will have to look at both supply-side and demand-side obstacles. Vodafone understanding is that any further output from the consultation process will be focus on demand side issues, but the paper is also focusing on supply-side issues. Vodafone is providing comments on both aspects.

From both the supply-side and the demand-side, the issues and possible solutions are different if we are looking at basic broadband service or the super-fast broadband to be provided by NGA networks. The table here below summarises the policy approaches that Vodafone believe are most suited to the issues. They will be analysed more in detail in the following paragraphs.

	Type of issue	Description	Proposed policy approach
Basic broadband	Supply-side	Lack of fixed and mobile broadband infrastructure in rural areas (at the end of 2010, 95.3% of EU population not covered by DSL and 90% not covered by mobile broadband)	Promotion of mobile broadband development via: LTE spectrum assignment Simplification of network deployment procedures Industry-wide coverage initiatives in rural areas (also with public funds) Public funds to fiber-optic backhauling
	Demand-side	Only 60.8% of EU households use a broadband connection Large segments of the population do not use internet services Cost of equipment (PC), on-going fees, lack of interest in internet services and security issues are perceived as the main barriers	Promotion of competition Natural market and technology trends (e.g smartphones and tablets) likely to solve most issues Demand incentive and digital literacy promotion schemes should be carefully designed and targeted
Fast broadband	Supply-side	Only single digit EU household coverage of FTTx NGA technologies	Promotion of co-investment initiatives to share risk and safeguard competition
	Demand-side	Only 17% of households passed by FTTH would subscribe to the service Low perceived benefits from high speed broadband compared to normal broadband	Move content from traditional broadcasting to on-line services Promotion of research in new applications

			(e.g. telemedicine)
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Basic broadband – supply side issues

While the European average basic broadband coverage is now over 95% of population, there are discrepancies between countries ranging from 76% in Poland to nearly 100% in other four EU countries. Areas without coverage are clearly in rural areas. According to the European Commission, only 82.5% of the rural population is within broadband coverage. The reasons are mainly economic. The investments needed to upgrade the local switches and connect them with fibre backhauling are simply too high compared to foreseen returns. In addition, technical issues such as the length of the copper pair, incompatible with high DSL rate, will not allow some households to get broadband unless significant investments are put in place.

The European Commission and national Governments are fully aware of the issue. As highlighted in the BEREC report, all EU countries have in place plans to subsidise roll-out of DSL services in rural areas. The European Commission has also provided guidance in this area to make sure that such initiatives are compatible with State Aid rules. It is unclear whether these initiatives will be sufficient to reach the Digital Agenda objective of 100% 2 Mbps coverage by 2013.

However, not much attention has been dedicated to the role that mobile could play in this area via 3G and 4G technologies. Mobile broadband has already a key role in complementing current fixed broadband. It is also, to some extent, providing broadband connection to categories of customers that do not have access to a fixed line because without a permanent address or because do not want to have long term contract obligations (minimum contract duration for fixed broadband range between 12 and 24 months).

Mobile broadband coverage already reached large parts of the population using the 3G network based on 2.1 GHz spectrum and, more recently on the 900 MHz spectrum. The launch of LTE services in Germany last year, to be gradually followed by the rest of Europe, will guarantee further substantial increases in coverage level by operators and more, importantly, it will provide the necessary performance and capacity similar or above current DSL services.

The concept of closing the digital divide via mobile broadband technologies has been put in practice by Vodafone:

- In Italy with the launch of the “1000Comuni” initiative in 2010 that aims to bring broadband coverage to at least 1000 communities in “digital divide” villages across Italy. In June 2011, Vodafone had already received over 2000 applications and covered almost 200 villages.¹
- In Germany, Vodafone started the LTE roll out in September 2010 delivering broadband to around 1000 rural communities with 165,000 households that did not have access to either fixed or broadband before. The objective is to practically eliminate the digital divide in Germany.²

¹ See http://1000comuni.vodafone.it/aree_coperte/

² See <http://www.vodafone.de/lte/>

- In Romania, Vodafone announced in April 2010 the national deployment of its 3G services in the 900 MHz spectrum, which now enables access to mobile Internet for 90% of Romania's population, at speeds of up to 21.6 Mbps.³

This clearly demonstrates that the EU-led moves to allow UMTS 900 refarming and to assign UHF spectrum are key steps to further increase mobile broadband availability.

Vodafone has undertaken a detailed analysis of the potential use of mobile technology to bring broadband service to rural areas without fixed broadband in the UK (with the aim to extend the analysis to other European countries). The results show that:

- mobile is a cheaper technology than fixed for bringing broadband to rural areas
- with the right conditions (see below for details) coverage could reach over 99.8% of UK households with a limited amount of subsidies with a minimum of 1 MBit/s service offered at current market prices
- Only a few customers in extremely remote areas will be uneconomical to serve. They could be reached by satellite (two way satellite broadband services are already available on the market at prices not too distant from mobile or fixed broadband prices)

The analysis is based on the UK case and relevant data⁴.

The achievement of this is connected to a number of conditions:

- Availability of at least 2x10 MHz of 800 MHz or 900 MHz of spectrum for LTE and/or HSPA
- At least 1 MBit/s of broadband speed
- Only one network infrastructure available in the area (i.e. network sharing and/or wholesale access to third parties)
- Market prices for the service (activation fee and monthly fee)
- Reception through an outdoor antenna connected to the modem and internal telephone cabling (equipment financed by customer through an activation fee)
- Provision of telephony service (i.e. a percentage of the customer will also subscribe to a fixed telephony package)
- Take up of the service in 5 years equivalent to current broadband penetration levels

If state intervention will be necessary to reach 100% coverage, then any initiative should respect the guidelines for the application of State aid rules to the deployment of broadband networks. The

³ See <http://www.vodafone.ro/personal/servicii/reteaua-vodafone-acoperire/harta-de-acoperire/index.htm>

⁴ Data from Digital Britain Report

Guidelines are being reviewed by the Commission. Vodafone has provided its views to the Commission within the public consultation in 2011.⁵

Basic broadband – demand side issues

A number of independent researches, including the latest from the Commission within the digital agenda scoreboard⁶, show that the use of internet is constantly increasing. In the last year, according to the Commission report, the number of citizens that have used internet at least once has increased by 4 percentage points to 74%. However, this number is still low and still with wide differences depending on the country (19 percentage points between the highest and lowest country), age (up to 32 percentage points) and education (up to 54 percentage points).

A high percentage of non-users in the elderly segment of the population is not a surprising factor. They do not need internet to study or work (or more in general use traditional computers) and their perceived utility of internet services can be limited.

According to the same analysis, the main reasons why many citizens do not have a broadband connection can be summarised as follows:

- Up-front cost including the cost of the equipment (e.g. PC, modem)
- No interest in accessing the internet
- On-going costs of broadband
- Security reasons

However, the same Commission data show positive signs as internet usage is increasing in all categories and countries and that the cost of the equipment and the on-going costs of broadband are decreasing in terms of importance. This is likely to be a factor related to the more widespread use of mobile broadband.

The cost of the equipment necessary to connect to the internet is becoming less relevant in the last years thanks to the following trends:

- The cost of desktop computers and laptops has remained stable while performance has greatly improved. This is an ongoing trend of the last couple of decades.
- The introduction of the netbooks that have less performance, less memory and simplified operating systems and software in exchange of a lower price (the average starting price of a netbook is about €200). While sales of such terminals have decreased in recent months as customers seem to prefer full laptops or tablets, they still cover the needs of users that want a more complete equipment than simply a tool to internet access.
- The cost of the DSL or mobile broadband modem is now usually included in the ongoing broadband access fees.
- Tablets and smartphones can now be fully considered as tools to access the internet for most type of uses. The starting price of an android smartphone is now close to €100, while

⁵ See

http://www.vodafone.com/content/dam/vodafone/about/public_policy/position_papers/broadband_state_aid_vodafone_response_300811.pdf

⁶ See http://ec.europa.eu/information_society/digital-agenda/scoreboard/docs/pillar/usage_content.pdf

tablets can start from €250 (prices of the latter are expected to go down as more equipment manufacturers enter this market). In addition, many mobile operators offer smartphones and tablets within the on-going pricing plans for broadband.

- New ways of accessing broadband services are becoming more widespread such as game consoles, smart TV sets, e-book readers, etc.

With reference to the on-going costs for internet access, a study undertaken by Plum for Vodafone looking at the level of affordability of communications services in general and broadband services in particular⁷ confirms that broadband prices may not be a key barrier to broadband adoption. The study provides the following definition of affordable pricing plan:

- It allows a household in the lowest income decile to make socially necessary use of communications services (i.e. 60 min of calls and one GB per month) through sustainable expenditure (6% of income for voice and broadband)
- The pricing plan allows such a household to readily control its expenditure on telecommunications

The study looked at a number of selected, but representative, countries (Finland, Poland, Portugal, Romania and the UK). The study shows that thanks particularly to prepaid services, not only voice is within the limits of affordability, but mobile broadband too. The study shows also that commercial mobile broadband is more affordable than traditional fixed broadband for the socially necessary use of internet described above. For use of the internet that requires large consumption of video download and streaming, a fixed broadband package may be more suited. However, any analysis of affordability should look at the socially necessary use only as this is the one important in terms of social exclusion.

Figure 9 in the BEREC report, shows that in the opinion of NRAs the main demand-side obstacle to broadband adoption is that citizens do not really perceive the need to adopt broadband. This obstacle is perceived to be more important than the on-going cost of broadband or the lack of a computer. These results are confirmed by Digital Scoreboard statistics from the European Commission and a study performed by Plum in 2010 for Vodafone on 'Demand-side measures to stimulate Internet and broadband take-up'⁸. A summary of the conclusions of this study in terms of what governments and regulators could do to improve broadband take-up are provided later on in this response.

In this area, digital illiteracy is an important factor.⁹ If an individual does not know how to use a computer, it is unlikely that the same person will have interest in using broadband. However, technological trends are already modifying behaviour and they have the potential to reduce substantially this barrier.

The advent of mobile internet, the growing penetration of smartphones and tablets are making sure that a computer is not anymore necessary to access the internet. User-friendly interfaces, easy to

⁷ See http://www.vodafone.com/content/dam/vodafone/about/public_policy/affordability_plum.pdf

⁸ See

http://www.vodafone.com/content/dam/vodafone/about/public_policy/policy_papers/public_policy_series_10.pdf

⁹ See http://ec.europa.eu/information_society/digital-agenda/scoreboard/docs/pillar/digitalliteracy.pdf

use applications, the fact that the whole population is already familiar with the use of a mobile phone ensure that users can access the internet via a smartphone or tablet without knowing how to use a computer. While using smartphones and tablets is not immediate for all segments of the population, the learning phase is much faster and easier compared to computers. In addition, it is easier to ask help to friends and family on how to use a smartphone or tablet as they are carried around all the time.

With smartphone and tablets, the barrier to acquire new “useful” software is considerably decreased. In addition, the combination with the use on the move and the use of location based services (navigation, transport information, etc.) will help users to perceive broadband access as more valuable thus creating demand.

Another key factor is related to the advantages, in terms of productivity, cost reduction and service deployment that companies and governments obtain in having users accessing their services on-line rather than off-line. These advantages are at least partially transferred to the end-users via lower prices (e.g. cheaper on-line banking services compared to traditional banking) or more convenience (e.g. longer deadlines for on-line tax returns than traditional paper ones). In some extreme cases, companies are forcing customers to use on-line facilities to access their services (e.g. low-cost airlines allow passengers to check-in on-line only).

The segment of the population that is still behind in terms of internet use is the elderly. This is not uncommon for any new technological product or service on the market. The typical example of the past it has taken a long time to the elderly to understand how to use a VCR. It is possible that the use of broadband by the elderly segment is just a matter of time. Here too there are signs of improvement as shown by the European Commission statistics.

In Vodafone view, there are three main reasons for this positive trend to continue in the future. First of all, equipment such as tablets can be particularly suitable to this category of users because they are user-friendly, intuitive and with wide screens that can easily enlarge the font used. Secondly, VoIP services with video are particularly liked by elderly people that can speak and videocall friends and family (and viceversa relatives can check more easily the health of their elderly family members by seeing them in a videocall). Thirdly, assisted living products that monitor the health and well-being of elderly, manage alarms, allow video/voice communications are starting to enter the market and will become more common in the coming years. Industry initiatives in this area are often more suited than large Government funded programmes. In this area, the Vodafone Foundation together with users associations EDF and AGE successfully launched last year a competition for the best smartphone applications that focus on the needs of disabled and elderly population. The initiative has contributed to the development of a number of innovative applications that are now available for download from Android based application stores.¹⁰ As already mentioned in its response¹¹ to the BEREC consultation on accessibility requirements, Vodafone believes that smartphones and application can play a key role in bringing innovation to this users segment.

¹⁰ See <http://developer.vodafone.com/smartaccess2011/>

¹¹ See http://www.vodafone.com/content/dam/vodafone/about/public_policy/position_papers/vf_response%20berec_nov2010.pdf

Security is also an important concern for many private users. A recent survey¹² from the European Commission based on Eurostat data shows that over two thirds of internet users are mildly or strongly concerned about a number of security issues related to the use of the internet including: viruses, spam emails, phishing, privacy violations, fraudulent payments and the use of the internet by children. These issues limit some of the more productive uses of the internet such as e-commerce, e-banking and electronic access to public services. The same survey shows that over 20% of internet users have not benefited from electronic banking services or bought anything on-line specifically because of these concerns. In addition, for some internet users they may represent a key obstacle to accessing the internet at all.

In this area, broadband providers and many internet companies are already active in preventing security issues by filtering at both network and application level most common and lethal viruses and the great majority of spam activity. However, more should be done particularly by social network applications to inform and allow users to protect better their privacy and the information that they are sharing on-line.

This is also an area where the advent of smartphones and tablets will help users to gain the necessary confidence in using broadband for more activities previously perceived as risky. In general, smartphones and tablet are more secure than traditional PC-based internet access, and perceived so by users, thanks to higher quality control on the applications available and the better resilience of the software to virus attacks.

Educating current and prospective on-line users is also important to eliminate the widespread misconception that on-line payment transactions are less secure than the same transactions in the off-line world. On-line payment tools are actually more secure for the end-user than high-street card payments thanks to the protection mechanisms put in place by the providers. In addition, the majority of the fraudulent transactions tend to affect the merchants rather than the end-users.

E-government (or better on-line access to public services) can be an important factor in promoting the use of broadband. This does not need to be run via expensive top-down projects, but rather by allowing citizens to perform tasks currently only off-line via the internet. It is often the case that the most effective e-Government initiatives are the ones implemented to increase overall efficiency of the public sector, but that have also the positive side-effect of stimulating demand for internet services. Eurostat numbers show that properly run on-line tax declaration systems, now common in every EU country, could be very effective in increasing not only the number of citizens using them, but also indirectly to stimulate non-internet users to go on-line. For example, in Portugal despite a relatively low percentage of internet users (58%), a high percentage of citizens (48%) have submitted their tax declaration on-line. This number is particularly large if compared to only 31% of users that have done any shopping on-line. Other effective ways the public sector can use include:

- On-line availability of information on local services, functions and transports
- Possibility to obtain certificates and perform different types of registrations on-line
- Access public health services (e.g. booking of medical visits, information on hospitals, etc.)
- Promotion of the use of electronic certified mail for official communication with the public sector institutions and services

¹² See http://ec.europa.eu/information_society/digital-agenda/scoreboard/docs/pillar/security.pdf

All statistics from the Commission mentioned in the previous paragraphs show that the overall picture of broadband take-up and general internet use is broadly positive.

While still gaps and differences between age, income, education groups and countries still remain, all segments show positive growth in terms of take-up and usage. This means that it is not yet clear if government initiatives to stimulate demand are necessary or if technological and market trends will simply solve the issues by themselves.

In 2010, Vodafone has asked to Plum¹³ to look at the demand side measures that could be put in place to stimulate demand. The market trends and technological developments mentioned above show that large scale measures may not be needed anymore, but the recommendations to Governments contained in the paper are still valuable:

- Governments should target incentives in a more systematic and rigorous way. Above all they need to make rigorous, ex -post evaluations of effectiveness a condition for funding programmes of demand-side measures
- They should look critically at programmes of demand-side measures aimed at the over 25s who are poorly educated before funding them. When based around traditional technologies such programmes are costly and slow to take effect
- In dealing with this group Governments should take advantage of current market trends such as the take-up of mobile broadband and smartphones, the introduction of Internet access via televisions and ebook readers, the move from browsers to applications, and the trend towards cloud computing. These all reduce the skills needed to use the Internet and the cost to end users of doing so. They should refuse to fund programmes which fail to take account of these trends
- In general they should give the 25 to 54 year age group higher priority than the over 55s. The former group will be Internet users for longer and, once users themselves, can potentially support their parents to become Internet users
- To deal with affordability barriers, governments should design universal broadband policies which allow non-users to choose appropriate broadband packages from fixed and mobile offerings. This may mean switching subsidies from the supply-side to the demand-side
- Governments should encourage the development of services which allow those currently without debit or credit cards to carry out e-transactions.

Fast broadband – supply side issues

A large part of the current public policy debate in the electronic communications sector is dedicated to identifying the best way to facilitate investment in new fast broadband services mainly based on fibre-optic networks. The substantial investment involved and economic unsustainability of network duplication (i.e. natural monopoly is likely in most areas) require innovative ways to guarantee competition and ensure investment. Vodafone's views on the matter are well-known. We believe that the best solution are co-investment initiatives where the market participants share the risk

¹³See

http://www.vodafone.com/content/dam/vodafone/about/public_policy/policy_papers/public_policy_series_10.pdf

related to investing large sums in new fast broadband infrastructure, but continue to compete in the downstream market. Further details on the position of Vodafone on this matter can be found in:

- Vodafone response to the public consultation on the draft NGA Recommendation¹⁴
- Vodafone response to the Commission's public consultation on the Revision of the Guidelines on public funding to broadband networks¹⁵

In addition, Vodafone has commissioned to Oxera a report to look at the feasibility of co-investments and its practical implementation also drawing upon lessons from other network industries.¹⁶ Vodafone will reply to the public consultation launched by BEREC on co-investment also to make sure that all the work done in this area in the last years by Vodafone and other stakeholders could be taken into account in the final version of the report. At this stage, the initial reaction is that the report is too sceptical about co-investment approach to NGA deployment.

Fast broadband – demand side issues

While the debate is focusing on what are the best measures to promote the deployment of fast broadband NGA networks, demand related issues for high speed services have not been investigated enough. This is understandable taking into account that the networks have not been built yet and, therefore, it is still unclear whether specific measures will be needed. In addition, at this stage there are not many services that require a very high speed broadband connection and that are not feasible on current normal broadband lines. The main exceptions are related to business services, HD/3D video services and some Telemedicine applications.

In the meantime, demand from LTE services for high-capacity backhaul is likely to be a key driver of fibre deployment in Europe and should be a key focus for BEREC work in the coming months as pointed out in various occasions by Vodafone.

At this stage, the role of Governments and NRAs in stimulating demand for such high speed services is likely to be limited. Possible initiatives include moving more broadcasting services from traditional terrestrial TV to IP-TV and financing experimentation of new functionalities that require high speed connection such as Telemedicine applications.

¹⁴ See

http://www.vodafone.com/content/dam/vodafone/about/public_policy/position_papers/vodafone_comments_final.pdf

¹⁵ See

http://www.vodafone.com/content/dam/vodafone/about/public_policy/position_papers/broadband_state_aid_vodafone_response_300811.pdf

¹⁶ See http://www.vodafone.com/content/dam/vodafone/about/public_policy/netco_oxera_final.pdf