Questionnaire for the public consultation on the open internet and net neutrality in Europe

Ministry of Economic Affairs and the Ministry of Education, Culture and Science the Netherlands, September 28th 2010

Before addressing the questions posed by the Commission, we make some general remarks.

We share the ideal of preserving the open character of the internet, enabling end users to access and distribute all information, applications and services of their choice with the kinds of equipment of their choice. As noted in the Commission's questionnaire (p.5), the open 'end-to-end' architecture of the internet has been a "key driver of the growth of the internet to date, and has facilitated an open environment conducive to the spectacular levels of innovation seen in online applications, content and services networks." Today, growing volumes of internet traffic and evolving new business models pose challenges to this ideal. Network operators become involved in more active managements of internet traffic, start offering premium services to end users, and enter into contracts with content and application providers for better delivery of their services. In this context, net neutrality has become an issue of debate.

The definition of net neutrality itself is subject of debate. Some define net neutrality as the absence of *any* restrictions or preferential treatment by Internet Service Providers (and governments). Such a definition tends to favor ex ante regulation of internet networks as a 'universal service' with equal opportunities to all. At the other end, net neutrality is defined as any traffic management, including prioritization and blocking of certain traffic, which comes about as a result of fair competition, that is 'contracts' between network operators, service providers and consumers in a competitive marketplace. Such a definition tends to favor ex post oversight of the telecommunication market in order to prevent abuse of significant market powers of ISPs.

We propose to start from a definition of net neutrality that recognizes the need to maintain an open public internet as well as the need for reasonable traffic management and specialized premium services. Such a definition in effect foresees the development of two lanes on the internet, an open and public lane, and a private lane with toll gates. From the phrasing of question 5 we understand the Commission considers such a two-lane concept when looking at net neutrality. The ´public internet lane´ may warrant principles of open and free access, freedom of expression and privacy, and the ability for service providers to reach a large audience. The ´managed services lane´ supports innovation of services that need high speed and quality, and network investments. There is a risk though that this two lane concept legitimises an unwanted breach with the open internet ideal. This would occur if network operators invest all efforts into the managed services lane, while squeezing capacity and quality of the public internet lane. This might be acceptable if internet were merely a tool for consumption and entertainment. But it is not. The internet is a communication tool which is the basis for many innovations within our economy and society; within government, all industry and business sectors, science and education, medicine, media and democracy. Hence, we welcome the Commission's questionnaire as a next step to gain insight into developments affecting net neutrality and what possible remedies are available and needed in order to sustain a viable and innovative public space on the internet.

The Commission's questionnaire focuses on the way network operators may manage traffic flowing over their networks, seeks to identify if there are any concrete problems and investigates whether national regulatory authorities can properly address these problems under current EU telecommunication rules. We embrace this approach. As the ecology of the internet is changing rapidly, we do not propose any new detailed rules at the EU level at this stage. Instead, we advocate to make full use of rules on transparency in the new telecom directive(s) to gain insight in the way in which ISPs manage internet traffic and quality of services. In addition, we explore the effectiveness that the power to set minimum quality of service requirements offers us. In this, we believe that oversight and coordination by national telecommunication authorities, such as CoCom, will prove important.

Question 1: *Is there currently a problem of net neutrality and the openness of the internet in Europe? If so, illustrate with concrete examples. Where are the bottlenecks, if any? Is the problem such that it cannot be solved by the existing degree of competition in fixed and mobile access markets?*

'Net neutrality' does not mean the same to everyone. What to some is a clear breach of net neutrality, to others may be 'common network management practices'. So far, there has been no systematic monitoring of the behaviour of network operators with regard to traffic management. In the past few years in the Netherlands, three incidents have been reported upon that could be referred to as 'problems of net neutrality': one concerns slowing speeds of peer-to-peer applications, the other blocking VoIP services, the third a dispute over delivery of public broadcasting.

1. September 2009, the cable operator UPC was accused of throttling certain types of traffic (peer-to-peer filing and newsgroups). The Dutch Consumer Authority picked up the issue from expert website debates, and brought it to the public's attention using press and the political arena. UPC pointed out the traffic management measure was necessary to stop a relatively small group of customers using excessive amounts of bandwidth. It has since stopped throttling and acknowledged that communication about the measure could have been better.

   This example shows how a signalling function from experts, followed by attention from the press and politicians, had a disciplining effect on the net neutrality policy of UPC. Transparency proved to be sufficient to deal with this net neutrality incident.

2. Two of the three mobile operators in the Netherlands contractually did not allow VoIP in their mobile subscriptions (KPN and Vodafone). This issue gained substantial press and political attention in April 2009. Consequently, both mobile operators launched new mobile subscriptions which do allow VoIP – at a premium rate. VoIP is not allowed in the cheapest mobile flat fee subscription.

   Two interpretations are possible from this example.
   - One could argue that, similar to the previous example, attention in the press and politics created a degree of transparency for consumers that put enough pressure on the ISPs to 'voluntarily' resolve the issue. There now is product differentiation, and hence consumer choice for subscriptions with and without VoIP. Customers who prefer not to use VoIP can opt for a cheaper subscription with (for them acceptable) limitations.

- On the other hand, one can argue that this net neutrality problem is not resolved, as customers have to pay additional rates for equivalent amounts of data, just to have access to a VoIP service. Often this is judged as unfair because the additional rates are not justified by extra costs to deliver VoIP.

Clearly, the reason for ISPs to charge additional rates to deliver VoIP is not extra costs incurred, but the perceived loss of voice income. The question is; does this business reason lead to unwanted outcomes for consumers? Not necessarily. Under conditions of competition and product differentiation, the market will in principle deliver consumers the products they want. At the same time, it is important to monitor that independent service providers (like Skype) entering the market with services that compete with ISP services (like VoIP), do not experience unreasonable entry barriers. It is important to find the right balance between the benefits of product differentiation and potential harm from anti-competitive behaviour.

3. The national public broadcaster (NPO) had disputes with some ISPs about the delivery of live streams of sports (the Tour de France, the European Football Championship and the Olympic Games). The NPO has signed settlement-free peering arrangements with almost all Dutch ISPs. While most ISPs relayed the generated traffic without a problem, two ISPs stated that the amount of traffic transmitted was too large and could not be handled without a fee, whereas the NPO claimed that it stayed within the existing peering agreements. As the NPO and the ISPs did not reach an agreement, one of the ISPs put a cap on the NPO streams to its end-users.

   It is questionable whether this dispute is a typical net neutrality issue – one can also look at this as a interconnection dispute between two parties. The NPO holds the view that given its public function, it must meet user requests to the maximum available capacity, without discrimination. As a remedy, the NPO suggests that (public) broadcasters should be allowed to install or share Content Delivery Networks within the ISPs networks, in order to reach the audience. This will lower the costs of delivery, decrease the (public) broadcasters dependence on investments by ISPs in their networks and give them greater autonomy over the delivery of their content over the open internet. ISPs thus far seem reluctant to implement this suggestion.

Question 2: *How might problems arise in future? Could these emerge in other parts of the internet value chain? What would the causes be?*

A study conducted for the Ministry of Economic Affairs in 2009[1] looked at possible future problems arising with net neutrality. The researchers state that, although currently incidents with net neutrality are an exception rather than the rule, various forces are at play which may lead ISPs to increasingly differentiate traffic on their networks. These forces include:

1. An increase in internet use – specifically mobile traffic is set to rise sharply
2. An increase in services which undermine current ISP business models (eg. VoIP)
3. An increase in services which require certain QoS (managed services)
4. Potential under-investment in (fixed) broadband networks

[1] Netwerkneutraliteit: stand van zaken in Nederland, Dialogic, 10 juni 2009 (in Dutch) http://www.rijksoverheid.nl/documenten-en-publicaties/rapporten/2009/10/13/netwerkneutraliteit-stand-van-zaken-in-nederland.html

Taken together, these forces may lead to the following outcome: faced with an ever increasing amount of traffic, ISPs decide to actively manage this traffic rather than invest in upgrading their networks. In an attempt to increase revenue, ISPs are inclined to prioritise their own services over competing services, and prioritise managed services (that end users and/ or service providers pay for) over best effort internet.

In the long term, however, the researchers expect these countervailing forces at work:

5. An increase in broadband capacity through the implementation of new technology (fixed and mobile)
6. An increase in transparency of network quality, through the availability of techniques to measure the ISP connection

These countervailing forces are likely to offset the outcome described above. A competitive market, where consumers can make an informed choice, and the availability of high-capacity techniques, give ISPs the right incentives to invest in their networks and present consumers with differentiated offerings. An obligation to be transparent is essential for these countervailing forces to do their work properly.

Particularly mobile ISPs' business models will have to change to take into account the sharp increase in data traffic. The rise in popularity of smart phones combined with the cheap flat fee 'all you can eat' data subscriptions are causing increasing problems on ISP networks. Two of the three mobile operators in the Dutch market have recently announced to implement caps on their mobile data accounts. This way, ISPs may regain some control over their network. These caps raise no net neutrality concerns, as the limit applies per user and does not differentiate in traffic. But these caps may have an impact on the take-up of innovative data-intensive services.

All in all, the entire value chain is looking for new sustainable business models in this quickly changing internet world. Business models will need to be reshaped to answer the key question: who will pay for network upgrades to accommodate this increase in data traffic? We believe all players in the value chain should have enough space to find a suitable solution – within certain boundaries set by the government (such as open wholesale access and transparency).

Question 3: *Is the regulatory framework capable of dealing with the issues identified, including in relation to monitoring/assessment and subsequent enforcement?*

For some years now, NRAs have the power to impose remedies on providers with significant market power (article 12 Access Directive). Furthermore, regulators can impose obligations to ensure end-to-end connectivity (article 5 Access Directive). However, it seems that these two articles are less suited for NRAs to address all possible net neutrality issues (such as discriminatory treatment of certain traffic in case of capacity problems). On top of that, it is often unclear exactly how ISPs manage their traffic.

For this reason, the New Regulatory Framework contains two new articles. With the transparency obligation (article 21 of the Universal Service Directive) it will be easier to observe any restrictions imposed by ISPs on end users' access to or use of services. We believe that sufficient competition, well-informed users and the ability to switch easily are

essential preconditions to deal with issues of net neutrality. Furthermore, the new article 22 of the Universal Service Directive gives regulatory powers to deal with any potential degradation of service and hindering or slowing down of traffic over networks.

With this extension of regulatory powers we think that the current framework is well capable of dealing with net neutrality where it concerns the behaviour of ISPs.

Question 4: *To what extent is traffic management necessary from an operators' point of view? How is it carried out in practice? What technologies are used to carry out such traffic management?*

Traffic management in itself is neither right nor wrong. We believe it is necessary for ISPs to be able to manage the traffic over their networks. This way, they can ensure efficient use of available capacity and a satisfactory end user experience. As the amount of data that flows over fixed and mobile networks increases, it will be even more important to allow ISPs to take appropriate measures.

Various legitimate reasons exist for ISPs to manage traffic. Particularly managed services may call for set QoS, which require ISPs to treat traffic differently. But also the traffic of ´normal´ internet services needs to be well managed, as the internet becomes more and more entrenched in our every day life. It is crucial that access to, and use of, basic services such as online banking or e-government services is safeguarded. When the internet connection is congested, we need ISPs to manage the traffic in such a way that services and content remain optimally available (i.e. as many end users as possible have decent access to as many services as possible). Furthermore, traffic management measures set for specific users, such as a Fair Use Policy or data cap, can be useful in ensuring that the total capacity is not taken up disproportionately by a small group of users. Not all traffic management measures are desirable. Some have been put in place for less legitimate reasons, such as hindering or throttling of traffic for anti-competitive reasons. It is therefore important to take into consideration the motivation of a measure, and its effect on public values such as innovation, competition and net freedoms.

The Dialogic study found that in the Netherlands, traffic management on fixed networks occurs mostly in cases of congestion (need-based prioritisation). This affects an estimated of max 1/3 of all subscribers. On mobile networks, a variety of traffic management measures were discovered. With certain low-end subscriptions, active prioritisation and straight blocking is applied (for example blocking VoIP or tethering).

Question 5: *To what extent will net neutrality concerns be allayed by the provision of transparent information to end users, which distinguishes between managed services on the one hand and services offering access to the public internet on a 'best efforts' basis, on the other?*

Transparency is a key element in any competitive market. For the telecom market to work, consumers need to have a choice between various offerings, be able to switch providers, and be able to make an *informed* choice. We believe that in the Netherlands improvements can be made regarding transparency: ISPs currently often fail to provide relevant information on their internet traffic policies. One group of users who have contributed to transparency in this

area is the internet community – experts who closely follow ISPs net neutrality policies and bring potential problems to the public's attention. Incidents regarding net neutrality have been brought to light successfully by these expert users, after which ISPs have responded with a policy change (see question 1).

TILEC[2], supported by the Ministry of Economic Affairs, conducted research concerning the effect of transparency regulation on (primarily) ISPs and (secondarily) consumers in broadband markets, with implications for the debate on network neutrality. The key insights from this research are:

- **Transparency works.** More information about the quality of a broadband connection leads to better outcomes for end-users and higher total surplus. End-users are able to make a better purchasing decision when they have more information about the quality of broadband connections.
- **Offered quality increases with the level of transparency.** The availability of transparent information about the quality of broadband connections seems to incentivize ISPs to increase the quality of the service that they offer. Moreover, even as quality of the broadband connection increases over time under transparency, prices are stable or go down gradually.
- **Transparency may not be bad for ISPs.** Transparency requirements do not lead to significantly lower ISP surplus than having no transparency requirements at all does. This does not factor in administrative costs that ISPs face for providing transparent information.
- **Experts make a difference.** If detailed information about the actual quality is available for those end-users who are able to understand and willing to utilize such data, all end-users may benefit from this. It may not be necessary to make sure that the entire population has full information about the quality of broadband connections—as outcomes come relatively close to full information outcomes even with half the population fully informed. The fact that this detailed information is available seems to have a disciplining effect on ISPs.

With these clear findings in mind, we believe transparency is a ´must have´. The question remains what exactly should be made transparent, in what format, and for whom. We are working on these question at the moment, see question 14.

From the phrasing of question 5 we understand the Commission considers a two-lane concept when looking at net neutrality. A distinction between ´the public internet´ and ´managed services´ does seem to give a framework for a balanced approach, whereby different public values can be taken into account. The ´public internet lane´ may warrant principles of open and free access, freedom of expression and privacy, and the ability for service providers to reach a large audience. On the other hand, the ´managed services lane´ supports innovation of services that need a QoS, and network investments. There is a risk though that this two lane concept legitimises an unwanted type of net neutrality breach: by expanding the managed services lane (by moving many 'vital' services in this lane), it can be used to squeeze the

[2] Network Neutrality and Transparency, Tilburg Law and Economics Center (TILEC), August 2010
http://www.rijksoverheid.nl/documenten-en-publicaties/rapporten/2010/09/01/network-neutrality-and-transparency.html

public internet lane. This would deteriorate ‘open’ and ‘free’ services competing over the public internet.

With regards to transparency, we feel that at a minimum, transparency regulation is necessary for ‘the public internet’, including the effect managed services may have on the quality of services on the public internet.

Question 6: *Should the principles governing traffic management be the same for fixed and mobile networks?*

Just as any other regulation for the telecommunications sector, the principles governing traffic management should be as technology neutral as possible. Both fixed and mobile networks are facing an increase in data traffic coming from innovative data-intensive services. And both need to invest heavily in the coming years in upgrading their broadband capacity. Pressure does seem to be biggest on mobile networks, where capacity shortages due to sharp increases in data traffic are most apparent today. Also, traffic management is most challenging for mobile ISPs, as their end users move about. We do find that traffic management measures are currently practiced most frequently by mobile ISPs (such as blocking of VoIP and tethering, or applying a data cap). However, we believe this does not justify a different treatment. Hence, the basic principles underlying traffic management – what is and what is not allowed – should be the same for both.

Question 7: *What other forms of prioritisation are taking place? Do content and application providers also try to prioritise their services? If so, how – and how does this prioritisation affect other players in the value chain?*

For some services, special streams are reserved within the broadband connection to ensure their quality and other performance factors. Current examples of these are voice services and video services (IPTV). These could either be provided by the ISP itself (own service) or through wholesale access (independent service provider). An increase of these managed services may well lead to a decrease in available bandwidth for the ‘public internet’. At the same time the total capacity of broadband connections grows steadily in the Netherlands. ISPs indicate that at the moment, most of their end users do not come close to using up the full capacity of their subscriptions.

Content Distribution Networks (CDNs) are hailed by some as a solution to traffic management problems. By bringing content closer to the end users, such as local servers in the ISP network, data distribution becomes more effective. We should ensure that any net neutrality regulation we put into place will not deter the emergence of useful traffic management measures like these**.**

Question 8: *In the case of managed services, should the same quality of service conditions and parameters be available to all content/application/online service providers which are in the same situation? May exclusive agreements between network operators and content/application/online service providers create problems for achieving that objective?*

The scope of the rules on net neutrality is the public (best effort) internet. Beyond this basic internet access service, ISPs should be free to offer additional services, so called managed services. For these managed services, the same quality of service conditions to all content/ application/ online service providers does not need to be a general objective.

That does not mean that there are no rules at all applicable for managed services, but the current regulatory framework seems adequate to tackle potential market failures. The potential problems are related to firms who could abuse their Significant Market Power (SMP). One example of this is a vertically integrated ISP with SMP who favours its own content, applications or services in quality or price. NRAs can use the current SMP regulatory framework to discipline the behaviour of such firms to avoid anti-competitive effects.

Another concern often mentioned is that managed services could harm the public internet as they share the same broadband connection and capacity. It is questionable whether this would really happen in a competitive retail market. Customers will punish ISPs whose best effort internet becomes too slow by switching providers. Nonetheless, it is important to monitor how this issue will develop in the future. A requirement on ISPs to make the actual speed of the public internet transparent – enabling customers to make an informed choice – can be of help.

Question 9: *If the objective referred to in Question 8 is retained, are additional measures needed to achieve it? If so, should such measures have a voluntary nature (such as, for example, an industry code of conduct) or a regulatory one?*

It is understood that the objective of Question 8 would in fact be a non-discrimination rule for all managed services regardless of whether a firm has SMP or not. As explained in the answer above, we doubt whether this objective is needed.

However, if that objective would be retained, we believe additional regulatory measures are needed. Past experience has taught us that it is hard to reach voluntary agreement in this market, given the variety of players in the value chain and their vested interests.

Question 10: *Are the commercial arrangements that currently govern the provision of access to the internet adequate, in order to ensure that the internet remains open and that infrastructure investment is maintained? If not, how should they change?*

Peering agreements, transit agreements, and other commercial negotiations between ISPs and content/ application/ service providers have so far not been subject to specific regulations. In a complex ecosystem like that of the internet, which has developed rapidly over the past few decennia without much attention from lawmakers, we believe such negotiations are best left to the parties involved. These parties have to be able to respond adequately to a fast moving market, and adapt to changing traffic flows and demands. Parties in the value chain need to constantly find an acceptable balance for all. The success of this will depend on the

competitiveness of the market. The competitiveness of the transit market on IP backbones appears to be adequate. However, in the termination part large ISPs have control over access to end users. Here problems might occur. A website hosting provider for example voiced its concern that transit agreements with such ISPs may become non-neutral, as traffic from certain customers may be prioritised. The dispute between the Dutch public broadcaster and two ISPs over the delivery of sports coverage streams (see Question 1) may signal potential problems too.

Although we believe that currently commercial negotiations work well, monitoring remains necessary in this fast developing field.

Question 11: *What instances could trigger intervention by national regulatory authorities in setting minimum quality of service requirements on an undertaking or undertakings providing public communications services?*

The policy objective at stake in the network neutrality debate, as defined in the Framework Directive, is *'… promoting the ability of end users to access and distribute information or run applications and services of their choice'*. National regulatory intervention therefore should be triggered when these net freedoms are threatened, which, in our understanding, is the case when users no longer have a realistic choice on the public internet for a specific service, application or content.

The Commission has already defined its trigger in its New Regulatory Framework, in determining that NRAs should be able to set minimum quality of service requirements *'in order to prevent the degradation of services and the hindering or slowing down of traffic over networks'*. Supposedly, in these instances net freedoms are at stake.

We believe more thinking needs to be done on exactly what that means for the concrete incidents that can trigger the setting of quality of service requirements. This depends on the form of such quality of service requirements (see question 13). A common approach (guidelines) is vital in an internet market that crosses national borders. This should be discussed amongst the Member States on a policy level like COCOM.

To jumpstart this thinking process, one could think of concrete examples of triggers in terms of instances whereby …

1. A majority of ISPs blocks access to a certain service. Consequently, end users can no longer get access to this service of their choice.
2. A majority of ISPs degrades traffic from a certain service. Consequently, end users have access to the service, but at such low quality that the service cannot be deemed adequate.
3. A majority of ISPs charges a premium fee well above a 'normal internet access' fee with similar data-usage, for the privilege of access to a certain service. Consequently, end users have no real choice, as access to this services is financially not feasible.

Taking this thinking process one step further, this also means that if only a few ISPs block access to, or degrade, or charge a premium fee, for a certain service, and are transparent about this, there is no trigger situation. If there is a competitive retail market, with low switching barriers and transparency, then consumers can make an informed choice and punish the ISP in question by switching to a competitor. Only in instances where we find evidence that

competitive forces are not leading to the protection of the 'net freedoms' as defined above, regulatory intervention may be called for.

Question 12: *How should quality of service requirements be determined, and how could they be monitored?*

We believe that relevant market parties should be involved in the process of exploring possible quality of service requirements. So far, we have had individual talks with stakeholders (consumer organisations, content and service providers, ISPs), as well as workshops with all parties. Talking with stakeholders about net neutrality is a rewarding activity in itself, as it clarifies the issues at stake, and concerns that live with each stakeholder. Generally, we find that the thinking on net neutrality in the past year has evolved with all parties. Still, most do not consider net neutrality sufficiently at stake to set quality of service requirements.

Monitoring is likely to occur on the basis of complaints from either end users or service providers about the ISPs treatment of traffic. Past experience has shown how easily press and the political arena pick up complaints from expert users about net neutrality issues (and how responsive ISPs can be). It might however be difficult to get a clear view of the exact traffic management practices installed by ISPs. Technical developments – which enable measuring the performance of the internet connection – do seem to improve on this situation. These measuring instruments provide direct transparency to end users and service providers. This way, an increasing audience can signal any need for further regulations to the government.

In response, the government will have to assess the gravity of a complaint based on its effect on 'net freedoms', and evidence of harm on other public values like consumer choice, innovation and competition. Drawback on regulatory intervention, in the form of setting minimum service requirements, will also have to be taken into account. Assessments will have to happen on a case-by-case basis, as each incidence is likely to be unique in its occurrence.

Question 13: *In the case where NRAs find it necessary to intervene to impose minimum quality of service requirements, what form should they take, and to what extent should there be co-operation between NRAs to arrive at a common approach?*

Stakeholders in this debate have varied ideas about the form these minimum quality of service requirements should take. Some look at minimum quality of service requirements as principles or rules of conduct for ISP, whereas others consider technical parameters that express the quality of the network connection. An element to be considered is to what extent minimum requirements can actually be implemented, monitored and enforced by the NRA. It makes little sense to define a set of minimum requirements, if NRAs cannot realistically act upon them.

We believe, that in a fast moving ecosystem like that of the internet, it makes little sense to set anything in stone. A definition of minimum service requirements in absolute numbers, such as a minimum speed or capacity, may be sufficient for basic services today, but may seem painstakingly slow tomorrow. To be future proof, we prefer guiding principles, which give direction to all market parties regarding what is and what is not allowed in terms of traffic

management. Principles such as those defined by the Norwegian authority give good insight into the possible elements that can be involved in such guiding principles, and could form a basis for discussion with stakeholders.

A common approach to such guiding principles is vital in an internet market that crosses national borders. Because of the variety of possible forms that the quality of service requirements can take, this should be discussed amongst the Member States on a policy level such as a subgroup within COCOM. These discussions should focus on what can be considered reasonable traffic management in the light of policy objectives we want to achieve. Some traffic management measures may be justified as they are in the end users' interest, others may cause concerns for competition and society at large.

Question 14: *What should transparency for consumers consist of? Should the standards currently applied be further improved?*

Specific parameters are needed to make transparent how ISPs treat the traffic on their networks. A study by Dialogic has found that currently, transparency on this issue can be improved upon in the Netherlands[1]. Also, a study conducted by TILEC has given insight into the value of transparency[2]. With these clear findings in mind, we have started the process of filling in the transparency obligation (article 21 of the Universal Service Directive) into national legislation. The key questions we need to answer are: exactly what should be made transparent, in what format, and for whom? One option is to make information available in a form which is understandable for all end-users; a simplified translation of the expected impact of traffic management on service quality. Another option, supported by the research mentioned above, is to make factual technical information available for all, which only a smaller portion of the population can fully understand. The influence of these expert users amongst the public opinion may be enough to discipline ISPs. We are currently exploring these options with stakeholders (through various workshops), to ensure a balanced approach in setting the transparency obligation.

We are also actively looking into the topic of transparency of realistic internet speeds. ISPs commonly advertise their broadband internet access offers in terms of speeds ´up to XMbps´. The actual speed reached is oftentimes only 60% of the advertised speed – depending on the network technology used (coax or copper). Transparency of the realistic speed will also help to ease the concern that managed services could harm the public internet as they share the same connection (see question 8).

Question 15: *Besides the traffic management issues discussed above, are there any other concerns affecting freedom of expression, media pluralism and cultural diversity on the internet? If so, what further measures would be needed to safeguard those values?*

Freedom of expression, media pluralism and cultural diversity are important values that should be safeguarded in our society. As described in our introduction, there is a (thus far theoretic) risk that a high-speed lane for managed services might grow at the expense of quality of services in the open public lane. This might favor the interests of popular and main stream media and cultural products, reduce real audience choice, and make it more difficult for other voices and niche interests to gain access to the wider public. This is not only a possible risk for media pluralism, democratic debate and cultural diversity. Other sectors

which are vital to our society might be affected too, such as science and (higher) education. A possible remedy is already provided in the new regulatory framework, which determines that NRAs should be able to set minimum quality of service requirements *'in order to prevent the degradation of services and the hindering or slowing down of traffic over networks'*.

It is also worthwhile noting that article (31) of the Universal Service Directive enables Member States to lay 'must carry' obligations upon operators of electronic communication networks to ensure distribution of certain radio and television channels. It may be useful to explore what kind of regulation is needed in an internet world to safeguard the same goals the "must carry" obligation was designed to safeguard in the broadcast world.

The traffic management issues discussed in this questionnaire focus mainly on the behaviour of ISPs. However, the protection of freedom of expression, media pluralism and cultural diversity depend on the behaviour of far more players. Attention for openness and competition is important within the entire internet value chain, including service providers and manufacturers of smart phones and other terminal equipment. Competition authorities (on a European level) can play an important role because often this will concern large worldwide operating companies. For example, EU Commissioner Kroes announced she may launch a probe into interoperability between various smartphone platforms. She named Apple's App Store as an example of a closed environment.