**SAP REG & ESOA Comments on**
**The Delivering Super Fast Broadband in the UK**
**Consultation**
**2 December 2008**

SAP REG & ESOA welcomes the opportunity to respond to this Ofcom Consultation, which extends the discussion of NGA, recently informed by the Caio Review and the European Commission's Recommendation, to the broader topic of *super-fast broadband.*

This response has been derived via a consultation process with SAP REG & ESOA, representing the satellite industry, which role is of high relevance to super-fast broadband. SAP REG & ESOA includes all European operators and represents a strong, combined voice in this debate. Its members are also active in various value chain positions and have some insight into the evolution of this value chain in this rapidly moving field.
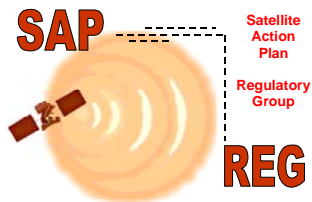
SAP REG & ESOA is supportive of the general statement, as reflected in the Executive Summary, which is well in line with the Caio Review and the BSG messages, that many users are already putting a value on features of alternative technologies which provide them access to broadcast and narrowcast content or which offer the convenience of wireless access (at home and at work).

Given the higher relative cost per household of extending fibre to rural regions, it is particularly important to explore the technology options to identify the best and most cost-effective mix. In fact, future network architectures like LTE, FTTC, FTTH etc. will require unprecedented levels of capital investments in the UK and globally. The business case for these investments is still uncertain and there appears to be a growing consensus that such a mix will be required to control cost and consolidate consumption.

SAP REG & ESOA has identified at least three aspects of the Digital Divide to be overcome:

1. Users in rural communities are too expensive to reach by fibre alone.
2. As fibre rolls out across the country over a ten year period, those connected last may find themselves disadvantaged compared with those connected first.
3. Finally, a growing number of people (particularly but not exclusively the young, the poor and the mobile), who have already chosen to abandon the fixed telephony network for pay as you go or contract based mobile phone services, may prefer to extend this to broadband and avoid fixed network charges altogether. They too will find themselves on the wrong side of the new divide.

Filling the gap of the Digital Divide requires a combined, 'technology neutral' approach to get the best of all efficient technologies that are *available now.* A mix of all technologies appropriate to broadband connectivity will surely involve copper, fibre, cable, satellite and other wireless systems. There is merit in viewing *broadband* as pipe-work bringing services to people at home, at work and when out and about. One needs to consider the whole rather than the parts.

SAP REG & ESOA would like to draw attention to the potential of wireless technologies to provide improved one-to-one broadband in the UK, thanks to technologies enabling a quick roll-out for a large coverage such as satellite. SAP REG & ESOA would also like to draw attention to the role of broadcast networks in super-fast broadband delivery where satellite has steered the market for decades.

The potential role for wireless and wireless broadcast and the regulatory needs for suitable spectrum should then be included in the super-fast broadband technology mix. Given the recommendation of the Caio review that there is time for a measured UK approach there is no obvious need for Ofcom to rush to regulatory remedies to incentivise fibre investment until the technology mix is understood.

We believe the public sector has two important roles in super-fast broadband.

Firstly, it is itself an important provider of services on the existing infrastructure and higher speeds will facilitate further migration to e-provision of public services all over the country. The government can notably act as an anchor tenant to provide e-services in remote (or any other) areas. Satellite is a very appropriate technology to help achieving this goal.

Secondly, the public sector has a role to adopt a well-structured sustainable partnership at community level in rural and remote areas in organizing the aggregation of demand to allow higher cost-efficiency to take place. However, a key problem encountered here is that successful aggregation of demand is difficult with many decision makers. There is an important message that terrestrial systems are poor aggregators of demand, whereas typically a satellite gateway can aggregate demand over many widely dispersed rural communities.

Below Ofcom will find SAP REG & ESOA's detailed answers to the questions posed.

## What will super-fast broadband mean for consumers and businesses?

**Question 1 - Is there further evidence available on the applications and services or consumer benefits that may be supported by next generation access?**

SAP REG & ESOA is not aware of any new work in this area.

Ofcom is rightly concerned that the degree of competition at passive and active level is balanced between the needs of consumer and investor. It is also important to ensure that all users have the opportunity to access the new services and then to have the maximum sustainable choice of service provider.

Since networks with NGA characteristics already exist in the UK and elsewhere, it is important that Ofcom both monitors and also encourages the development of new services and applications for these networks.

Changes in the market referred to in the introduction suggest that the number of people unreachable over a fibre network may be much greater than 45% referred to by the Analysys Mason report on fibre costs. Taking into account the mobility issue (and also that urban populations contain a larger proportion than rural areas of poor and itinerant families) with a 15% mobile population, this figure would be at least 55%. If the mobile broadband population reached 30%, then the fibre network might fail to reach almost two thirds of the population.
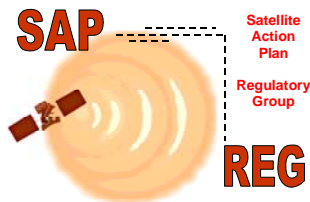
**Question 2 - Who should lead on defining and implementing a process for migrations to and from next generation access networks? What roles should industry, Ofcom and other bodies play?**

SAP REG & ESOA is able to provide a forum for clarification of the characteristics and capabilities of the different satellite based options and to propose a set of options for costing and further debate.

## Our vision for the future and the role regulation should play

**Question 3- What role is there for Ofcom in the ongoing debate on next generation access versus industry's role in progressing this debate through multi-lateral and bi-lateral discussion?**

There are key regulatory roles for Ofcom in encouraging investment in NGA. If incumbents fear to invest then this must be addressed alongside schemes to reduce costs and to provide incentives for new investment by all service providers.

It must be clear to all that the UK requires the definition of wholesale passive products for all of the telecommunications and broadcast networks which will contribute to super-fast broadband across the UK. With open access for all approved service providers these networks can provide competition provided that the principle of equivalence applies so fair competition applies to all NGAs.

**Question 4 - How far does current regulation, including market definitions, equivalence and the BT's Undertakings, need to evolve as result of next generation access deployment?**

It is overly simplistic of Ofcom to say in 4.24 that there is no need for mechanisms to secure widespread availability of NGAs. The areas where the market will provide inferior services are all too evident as are those areas where the absence of a fixed line will further disadvantage many poorer households. Ofcom should actively seek government guidance where this is needed, recognising the potential political unacceptability of a divisive roll out.

It makes little sense to define a separate market on the basis of an instantaneous definition of high speed. In general, a variety of access technologies will coexist and these may be optimised for a specific locality or geotype. In some areas, only one obvious technology solution will exist to provide NGA because the other solutions do not exist or will not exist before long – e.g. islands that are often not connectable by terrestrial means. The important thing for the user is to have access to at least one infrastructure based on a cost-effective technology and then to have choice of service provider and service over that infrastructure.

## Competition remains key to delivering the benefits of next generation access

**Question 5 - How important are passive products such as forms of sub-loop unbundling and duct access? Can the economics of these products support the promotion of effective and sustainable competition at this level? Which passive products should Ofcom pursue?**

SAP REG & ESOA considers that open access to all applicable existing passive infrastructure should be encouraged. Where new infrastructure is required or proposed then replication of
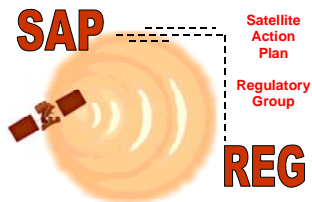
physical infrastructure using the same technology should be discouraged. Further work on the costs and business plans is required before it can be shown that there is any possibility of sustainable competition at this level.

Where economically possible a variety of access technologies should be encouraged to maximise consumer choice and to provide network resilience.

Definition of a wholesale service product or products would be a key step in comparing different technology options for super-fast broadband in the future and in stimulation of interest (and competition) in provision of services. The thorny question remains then as to how to incentivise and reward investors in this infrastructure.

A more immediate approach could work for provision of wholesale service products in a super-fast broadband access network to the dominant and other service providers. This would need to build on infrastructure which already exists (including wireless technologies / broadcast networks) and extend this to the remainder of the population in a predefined time frame. It is far from clear that those happy with the service from their existing infrastructure (including voice) should be forcibly removed from it until operational costs no longer justify its retention and a suitable alternative is available at lower cost to the user.

The environmental cost also needs to be counted for the passive network, whether this be aerial or underground. In this regard, it is worth reminding that, overall, satellite broadcasting offers a more spectrum efficient and less energy intensive option than terrestrial technology for broadband connectivity:

- The 50 most powerful UHF transmitters in the UK require 54 megawatt that generates 250,000 tons of $CO_2$ a year. Satellites use solar energy generating zero emissions (http://case4space.com/)
- Providing the same high quality broadband service reaching out to rural citizens by terrestrial means requires the installation of enormous lengths of cable, which is not economically attractive for the operators and also risks damaging Europe's fragile landscape.

**Question 6 - What are the characteristics of high quality, fit for purpose active wholesale products? How far can active products with these characteristics support effective and sustainable competition?**

N/A

**Question 7 - Are there other options for promoting competition through regulated access that have not been considered here?**

SAP REG & ESOA urges Ofcom not to weaken access of satellite to spectrum in the UK, bearing in mind products in the superfast-broadband category.

A competitive market for the backhaul products is key to promoting competition in the access networks. Alternatives to fibre should be considered more deeply into the network to provide alternative technology options and promote competition. For example in street cabinet to exchange and even directly bypassing the exchange to go direct from street cabinet to Metro
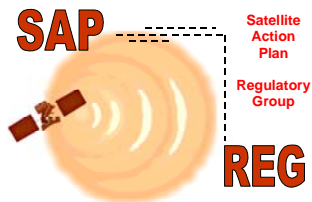
Node, technologies such as satellite and fixed microwave could substantially reduce the direct and environmental costs through avoiding street works to lay fibre.

SAP REG & ESOA also suggests that Ofcom look at allowing differing regulatory regimes in rural and remote areas. In these areas radio spectrum is shared amongst fewer people than in towns. Given the high cost of maintaining existing networks whilst simultaneously introducing new fixed and mobile networks in these areas, it may be beneficial to allow slightly different solutions to increase the supply of spectrum outside the towns.

For example, if Scotland were allowed to choose Freesat rather than Freeview as the means of delivery of its TV content across the country this could create a greater digital dividend than exists in the rest of the UK. Scotland might then be allowed to increase the spectrum available for wireless broadband thus decreasing the cost and increasing the bandwidth available to the end user. The cost of transferring people to Freesat would be small since many have already made that choice and the opportunity value in terms of super-fast broadband may be higher on average in Scotland than in London.

**Question 8 - How far may options for joint investment provide greater opportunities for competition based on passive inputs? Are there lessons that can be learned from similar ventures in other industries? What are the risks and advantages of such approaches?**

Ofcom does not have to look outside its own remit to find examples of co-operative investment. The Freeview and Freesat offerings involve co-operation and common standards amongst a number of content providers.

The risk of this approach is subsidised network  such as the DTT can prove incapable of supporting new services (e.g. HDTV) in face of competition with services using superior technologies (typically satellite).

**Question 9 - What should be the respective roles of Ofcom and industry in defining and implementing product standards?**

SAP REG & ESOA is keen to work with Ofcom to develop product standards in the access and backhaul areas and to improve currently outdated understanding of alternative technologies.

**Key to delivering effective competition and investment is pricing**

**Question 10 - How far do stakeholders consider the pricing approach outlined here of pricing flexibility for active products and cost orientation plus considerations for risk is appropriate at this stage of market development?**

N/A

**Question 11 - Will indirect constraints allow for an approach based on more price flexibility for active products? How will such an approach affect the incentives of different operators to invest and deliver super-fast broadband services to end customers?**

N/A
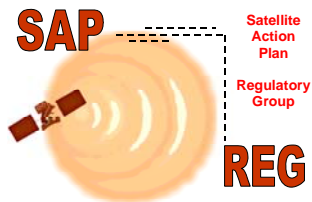
**Question 12 - What period of time would be appropriate for such an approach to ensure a balance between the need for longer term regulatory certainty with the inherent demand and supply side uncertainty in super-fast broadband and next generation access?**

N/A

**Question 13 - What are the key factors that could make a review of any pricing approach necessary?**

N/A

## Eventually there will be a transition from copper to fibre

**Question 14 - How far can the generic model for transition outlined here deliver both incentives to invest in next generation access while ensuring existing competition is not undermined?**

It is far from clear that existing networks should be replaced until the infrastructure owner fails to find sufficient long term agreements to justify the costs of maintaining the network. SAP REG & ESOA is nervous at the idea that fibre could be something other than an overlay and that, generally, 'super fast broadband' paves the way to hype for unrealistic solutions (in terms of costs and environment).

Removal of a network will actually reduce the passive competition which Ofcom seeks to promote. On the contrary, if Ofcom were to find ways to promote multiple networks then this is the best way to ensure that choice is maintained.

**Question 15 - What triggers would be appropriate for the commencement of any transition process?**

N/A

**Question 16 - Once triggers or circumstances for transition are achieved, what would be an appropriate period for the various phases of transition (consultation, notice period, transition)?**
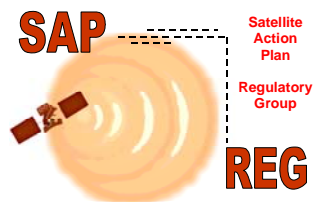
N/A

**Question 17 - Over what geographic area should any process of transition be managed, for example region by region or nationally?**

N/A

## Regulation can play a smaller role in increasing revenues

**Question 18 - What actions, if any, should, Ofcom undertake to support new revenue models from next generation access?**

SAP REG & ESOA believes that the drive for convergence will result in more prudent management of supply and demand for broadband access. This will result in bandwidth aggregation strategies to merge different access technologies in order to deliver and exploit opportunities for consumption.

Ofcom should ensure clarity and fairness in the offers made to consumers. It should therefore make sure that access to spectrum is made taking into account cost-efficiency criterias and speed of deployment.

Moreover, Ofcom should consider the need to regulate the content and content producers in a manner which protects the public from incorrect, pirated, illegal or offensive material in a similar manner to that occurring for other providers of content. This would enable the majority to seek and pay for attractive content in a safe environment.

## What role can the public sector play in next generation access deployment

**Question 19 - What role should public sector intervention have in delivering next generation access?**

Our current belief is that the public sector intervention should be guided by <u>three main principles.</u>

1.  It should define NGA in terms of the quantity and quality of life it should afford citizens
2.  It should consider cost-benefit analysis and business case analysis for NGA deployments, given the European socio-economic context and forecasts
3.  It should remain agnostic to technology ('technology neutral), but an active influencer of the considerations that drive NGA as an infrastructure for economic growth
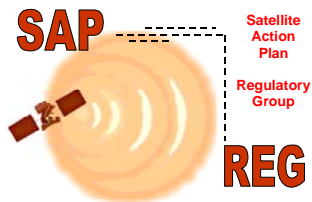
<u>The public sector has two important roles to play in promoting the development of super-fast broadband</u>.

Firstly it is itself a provider of services on the existing infrastructure and higher speeds which facilitate further migration to e-provision of public services. The UK government has a key role to play to facilitate the migration from traditional (public) services towards new forms of electronic delivery, e.g. by procuring adapted capacity from infrastructure operators and support the development of new, competitive business solutions able to address all citizens in all constituencies.  Satellite is definitely an appropriate solution on this regard.

The public sector should be prepared to become a service provider (or rather multiple service providers) on the network as a means of improving access to, and reducing the costs of delivery of, its government services. In particular, since the public sector has duties to the public at a local and regional as well as at national levels, there is a need for support of otherwise uneconomic parts of the network.

By leading the way in negotiating long term contracts for wholesale capacity the public sector will encourage the deployment of the system. Where other service providers are unable to make a business case it may by default become the service provider of last resort at a particular locality.

Secondly the public sector has a role to adopt a well-structured sustainable partnership at community level in rural and remote areas. A key problem encountered here is that successful aggregation of demand is difficult with many decision makers. For instance, there is little

coordination between government departments to aggregate their own demand and procurements. These piecemeal solutions may not support commercial interest, let alone competition, even at service level. They may not all make compatible choices if standards are not set and they may not provide for open access unless regulated to do so.

There is a major disconnection across government and between well-intentioned privately- and publicly-funded initiatives which support community broadband in the UK. SAP REG & ESOA believes that Ofcom should look to models in areas of the world with a larger rural community than the UK to see how aggregation and the cost benefits that accrue can best be facilitated. An example is the National Rural Telecommunications Co-operative in the US, which has invested in the Wild Blue satellite system on behalf of its members, accessing state funds where allowed. A similar scheme may be considered in Europe, and the UK could bring some relevant contribution to this idea in Brussels.

Satellite can aggregate demand over many widely dispersed rural communities if some mechanism is put in place to bring together the hundreds of existing local and regional investors to procure or make long terms service contracts to lower down the costs of the equipment and services. If left to local forces we may see more public money spent on bringing fibre to rural areas than would be needed to fund a satellite.

## A proposed framework for action

**Question 20 - Are these the right actions for Ofcom and other stakeholders to be undertaking at this time? What other actions need to be taken or co-ordinated by Ofcom?**

SAP REG & ESOA is particularly well placed through its membership to help Ofcom and other stakeholders with information on the technology options. Given the higher relative cost per household of extending fibre to rural regions it is particularly important to explore the technology options to identify the best and most cost-effective mix.

SAP REG & ESOA considers that Caio was correct to call for a pause to reflect. It is more important to find ways to reduce the required investment than to find immediate and uncoordinated ways to offload that investment to the public sector. Besides, a roll out based on fibre only would be divisive, failing to provide for the service expectations of three communities.

Content providers who rely on the high bandwidth fibre connection exclusively may be cutting themselves off from a significant fraction of their potential users. A strategy for super-fast broadband must embrace all of the technology options as well as the varying needs of the users. It should be the equivalent of a strategy for improved transport rather than one to introduce a high speed rail network.

The mix will surely involve copper, fibre, cable, satellite and other wireless systems. There is merit in viewing *broadband* as pipe-work bringing services to people at home, at work and when out and about. One needs to consider the whole rather than the parts. All depend heavily on the capacity of the core networks and the servers and other equipment necessary for service delivery.

SAP REG & ESOA draws attention to the potential of wireless technologies to provide improved one-to-one broadband in the UK. If the regulator and planning authorities can
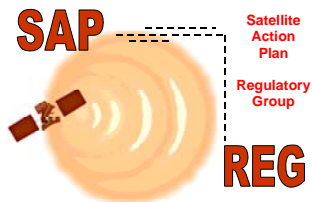
influence the costs of fibre roll-out through easing duct access, planning for new cabinets and allowing aerial fibre, for wireless technology (both terrestrial fixed and mobile and satellite fixed and mobile ), the role is even more important with access to fixed wireless and mobile wireless spectrum, the number one priority, but other issues such as the number and type of antennas per building also require attention.

SAP REG & ESOA also draws attention to the role of broadcast networks in super- fast broadband delivery. The idea that popular downloads (eg IPTV) should be supported on a one-to-one basis needs to be questioned. A broadcast bit stream can deliver TV downloads on a preload or multicast mode and will have a lower environmental impact and cost than many one-to-one sessions. A major increase in the UK broadcast network capacity, both national and regional or even local would free up capacity for one-to-one traffic.

The potential role for wireless and wireless broadcast and the regulatory needs for suitable spectrum should then be included in the super-fast broadband technology mix. Given the recommendation of the Caio review that there is time for a measured UK approach there is no obvious need for Ofcom to rush to regulatory remedies to incentivise fibre investment until the technology mix is understood.