intellect

Response to Ofcom Consultation 'Delivering Super-fast Broadband in the UK' (closing date 2nd December 2008)

Intellect 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.*

Intellect is presently organising a one day workshop at its offices in London for Monday 9th February 2009 on the technology options for the section of the population who may be left behind by a purely fibre-based deployment programme. Intellect hopes that this initiative will bring clarity to the different roles that the technologies can play, and help towards the development of a set of likely hybrid networks for later costing. Contact details are after the end of this response text.

The following response text has been derived via a consultation process among Intellect members who have a broad technology base of relevance to super-fast broadband. Intellect members are also active in various value chain positions and have some insight into value chain evolution in this rapidly moving field.

Before addressing the specific questions posed in the consultation, Intellect would stress the following general points:

Technology neutrality, business models and substitutability

Intellect agrees with the view expressed in the Caio report, that future broadband networks will not be monolithic, either in terms of technology or operator, and that the most likely outcome is a patchwork of local and national networks deploying differing technologies. Within this context, the Ofcom consultation, although paying passing reference to other technologies, seems to be overly focused on national deployments of fibre based solutions. In particular, technologies such as mobile broadband, satellite, DWDM PON and point to point fibre, deserve equal consideration alongside current generation PON, fibre to the cabinet and cable systems.

As part of considering these alternative technologies in an equitable manner, it is essential that sufficient suitable spectrum be made available for the wireless technologies and that this spectrum is made available without undue delay.

In addition, the increasingly blurred boundaries between communications and broadcasting make it difficult to take an overall view on "super fast broadband" without also considering the potential role of broadcast networks.

It is important that regulation is derived in such a way as to be neutral towards these alternative technical solutions and, given that the "winning business models" are not yet clear, it is important that premature assumptions are not made about substitutability between these alternatives.

Regional flexibility

It is highly likely that differences in geography and demographics will result in different technologies being deployed regionally. This may require a flexible regional approach in order to avoid market distortion – for example the availability of suitable spectrum will impact the viability of wireless solutions which have great potential to offer cost effective coverage in some areas.

Interconnection

It is essential that a patchwork of local and national networks deploying differing technologies does not result in a patchwork of isolated islands. To avoid this it will be necessary to develop interconnection standards at all layers of the business model. In particular, it is important to try to prevent economies of scale in interconnection and provisioning from creating barriers to entry.

This point, along with the other issues raised above, becomes even more important given that, in the medium term, the issue of inclusion and universality will have to be addressed.

The following are Intellect's detailed answers to the questions posed:

Question1 - Is there further evidence available on the applications and services or consumer benefits that may be supported by next generation access?

Intellect's members talk regularly to their customers about new applications and services. These discussions highlight some of the new prospective business models that have been identified, for example the Amazon Kindle illustrates a new relationship between a content provider and a network 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.

Since cable already provides 'the mother of all broadband' this qualifies as super-fast and should be subject (along with green field fibred sites and other qualifying NGA capable networks) to the same regulatory principles addressing dominance for new NGA infrastructure. The definition of suitable wholesale products on the cable network would be a good first step to cable access and competition and would then encourage innovation in services to make use of the available speed. This would require structural changes (e.g. formation of a Virgin Media wholesale arm).

It is at this stage uncertain how the market for broadband services will develop. E.G. currently there are some areas of the country with large proportions of households with mobile only contracts even though they typically have copper broadband availability. The impact of these types of consumer decisions and new services is difficult to predict.

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?

Intellect considers that effective migrations processes are essential to protect customers and enable them to switch to, from and between super-fast broadband services provided over next generation access networks. This is evidenced by the focus that is being placed on migrations in the ongoing industry debate, and indeed Intellect believes that the industry itself should play the lead role in defining and implementing the required migrations processes. Ofcom's role should

be to ensure that all industry players adopt and abide by the agreed migration principles and to ensure that end-users are protected effectively against mis-selling.

Where consumers have a choice of networks, they need to know and understand the implications of migration including the likely performance that they will receive at their premises and for their contract price. This will enable fair comparisons to be made and allow an informed choice of technology. Again Ofcom and consumer groups have a strong role to play to ensure this.

Intellect is able to provide a forum for clarification of the characteristics and capabilities of the different technology options and to propose a set of options for costing and further debate. The BSG/Broadband Stakeholder Group is well positioned to inform the policy process on wider issues.

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 roles for Ofcom in encouraging investment in NGA over and above the role of promoting effective competition. However Intellect believes that Ofcom needs to be cautious about inadvertently influencing/making commercial decisions on behalf of private investors. We therefore support Ofcom's recognition that technology choice is best left to the market.

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

With a mix of technologies it is important to define wholesale service sets for comparison purposes. Each technology will have different characteristics and will support different service sets so comparisons can be affected by the choice. Industry can propose the service sets that allow sensible comparison of costs but these should be considered and issued by the regulator.

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?

As mentioned earlier, Intellect's members talk regularly to their customers about new applications and services. The diversity of new services and bundles means that it is far too early to judge market definition. The winning business models are not yet clear.

Ofcom's view that the existing market definitions remain appropriate for the time being is broadly correct but we would urge that they need to be kept under review. A variety of access technologies will coexist and these may be optimised for a specific locality or geotype. 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.

In respect of Broadband USO regulation it is overly simplistic of Ofcom to say in 4.24 that there is no need for mechanisms to secure widespread availability. The areas where the market is unlikely to provide commercial Superfast Broadband services are fairly evident. Ofcom should

actively seek government guidance where this is needed, recognising the potential political unacceptability of a divisive roll out.

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?

Intellect considers that open access to all applicable existing infrastructure should be encouraged. However the economics of duplicating fibre or duct infrastructure are very difficult and the level of competition and ease of switching etc. likely when access competition is on duplicate physical infrastructures is likely to be limited. Intellect therefore believes that duplicate ducts or fibre is unlikely to be widespread and may impact adversely on existing competing infrastructures. Where new infrastructure is required or proposed, then including the ability to offer competitive capacity at the passive layer may be sensible but issues such as future growth and capacity etc will need to be addressed. 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, including competition at the exchange; however at this stage in the NGA market development there appears to be little economic case to support the introduction of alternative access networks through duct access or sub loop unbundling. This is the general conclusion of analysis work carried out by a number of independent parties across Europe including the BSG in the UK.

Definition of a wholesale service product or products would be a key step in comparing different technology options for super-fast broadband 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.

In other fields Ofcom has allowed monopoly infrastructure owners to be formed. For example Arqiva/NGW delivers the UK DTT infrastructure following a long term agreement with the broadcasters led by the BBC. Ofcom also encourages infrastructure sharing by mobile phone operators.

A similar 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. The issue of how to handle transition from existing infrastructure and services will need to be addressed.

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?

Ofcom's observation that NGAs may offer the ability for greater differentiation for service providers using active wholesale products is an attractive notion which needs to be verified in practice. This will happen in suitable test environments such as Ebbsfleet and the FTTC sites recently announced by Openreach. Further opportunities to progress this model would be presented by wholesale access to the cable network.

If an appropriate Active Line Access (ALA) standard is chosen then service providers will be able to exert significant control over the nature and characteristics of the services provided as well as the price and product packages available. Further innovation may be possible if competition is introduced at the exchange, for example unbundling of point-to-point fibre networks or use of WDM in PON fibre networks. Notwithstanding the economics of duplicate fibre or ducts, it is unlikely that competing infrastructure operators will have significant scope for network innovation given the probable purchase of the same or similar standardised network equipment and the physical limitations which are being reached for the existing copper infrastructure. It is essential that an appropriate Active Line Access product should be based on international standards.

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

Intellect suggests that Ofcom may wish to 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 was 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. This also provide an example of how public funding can be used to provide a subsidy to a network with higher costs (DTT) in the interests of plurality and to accord with legislation which is not technology neutral. The passive network in this case is the DTT infrastructure which is provided without competition by a commercial enterprise.

The much depends on the specifics of any joint investment model and some approaches may actually increase rather than decrease the financial and operational risks; additionally there is a risk of this approach if the subsidised network proves incapable of supporting new services (e.g. HDTV) in the face of competition with services using superior technologies (Freesat, Sky, Virgin etc.

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

Intellect believes that Ofcom should leave the details of product specifications to industry discussions. Intellect and its members are and will be active in those industry discussions, but Ofcom does of course have a role in promoting the development of industry standards. Ofcom

has already been doing very useful work on ALA standards, both in the UK and in Europe, but we also believe there is a wider role to be exercised, in conjunction with existing standards bodies, in promoting standards in the home environment (e.g. CPE and home-wiring) to ensure the end-customer experience is prioritised and the take-up of NGA services encouraged. Intellect is keen to work with Ofcom to ensure these standards are developed and to improve the currently outdated understanding of alternative technologies. For example, the traditional thinking for broadband connection is a computer. However with the rapid development of chips, display technology and touch screen, it will be feasible to terminate in PDAs with projection capability, television sets. In all these technologies wireless will play a critical role.

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?

Intellect believes that the Ofcom proposals are generally the right approach. Given that the investment case is so uncertain, any price regulation ought to be minimal or non-existent.

It is also necessary to consider that there are a number of different types of user requirement which will require a variety of technologies to provide a multiplicity of nationwide network options. The choice will depend on location and will probably be quite geographically specific. The favoured option in a dense village may be more like a block of flats and the sprawling wealthy suburb may be more like a very rural hamlet.

The need for mobility may be greater in a town or city where a user may not wish to commit to a contract at a specific location. As the business plan fragments into a multiplicity of smaller plans it may be that a multiplicity of national networks with attractive features could still be encouraged.

Even if only one network exists (as with DTT) there is then competition from alternative technologies. The BBC and other broadcasters were able to negotiate a satisfactory agreement with Arqiva for that network. It is not obvious therefore that the reward for an investment that results in a monopoly infrastructure should be a limit on the return for that risk. It is up to the larger service providers to establish a market rate for the wholesale product in return for a long term commitment.

The way that this anchor product or variations on it are packaged by the end service provider is up to their plan and position in the retail market place.

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?

There is a danger with any price setting that the decision is based on an erroneous perception of the business case behind the price.

Intellect suggests that existing networks should provide the opportunity to test out these issues. An existing network which has been built through private investment would need to be rewarded for long enough to get the return that justified the investment.

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?

This pricing flexibility needs to remain as long as there are overlay products acting as a base. Once these cease to be available there is a case for review of this mechanism. The period of time over which the investment achieves a return should be sufficiently short to attract that investment. Long term agreements with service providers should reflect that period. Service providers should accept this market based approach as they need certainty of access to the infrastructure to justify their other investments in a retail business.

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

Ofcom is only forced to intervene on pricing if the interests of the consumer fail to be met. These consumer interests need to reflect both investment levels and excess profitability. E.G. low investment levels might imply pricing regulation is too onerous whereas excessive profitability would imply a need to revise the pricing approach.

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?

The principles outlined by Ofcom here are acceptable, however the transition process must work in practice and the detail of the arrangements will be vital in ensuring this. This detail is an area that should be left for industry to agree and manage. Ofcom may well have a role to facilitate this.

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

The issues of transition from one network to another are complex and will be dependent on speed of take up on the new network and the ability of the old network to continue to deliver services cost effectively. None of these issues is likely to be defined in advance. It is therefore important that the UK industry focuses on establishing process and agreements for defining and managing this transition process rather than pre-judging what the triggers may or may not be at this time.

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)?

This detail would need to be agreed by the UK industry in conjunction with Ofcom, as plans for geographic roll out are made.

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

This detail would need to be agreed by the UK industry in conjunction with Ofcom, however it seems likely that relatively small geographic areas for this transition would be appropriate, as alternative networks are likely to be deployed on a cabinet by cabinet or small area basis.

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

Ofcom should ensure clarity and fairness in the offers made to consumers at retail and wholesale level. It should also ensure that content is traded fairly including wholesale access and provide opportunities for content producers to sell their wares directly to an end consumer.

A *pay-as-you-go* mode of operation and legal opportunity to change one's mind as with many transactions could provide the protection required by the user.

Ofcom will find stiff resistance to behavioural advertising and should probably consult specifically on this issue across all of its forms.

Ofcom should seek to resist the introduction of misplaced U.S. notions of "net neutrality" subject to effective non discrimination where there is SMP. The importance of traffic management in potentially creating new revenue streams needs to be maintained.

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

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.

Since the public sector has duties to the public at a local and regional as well as at national levels, there is a mechanism for support of otherwise uneconomic parts of the network.

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. 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. Intellect notes that so far in the debate relating to public investment, there has been little consideration of environmental issues. Investors can be expected to be incentivised to consider environmental issues and take into account carbon costs.

There is a major disconnection across government and between well-intentioned privately- and publicly-funded initiatives which support community broadband in the UK. Intellect believes that Ofcom should proceed with the recommendation in the Caio review to consolidate and standardise local initiatives to ensure best practice and consistent services.

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?

Intellect answers this question under the following sub-headings, as used already in our introductory comments:

Technology neutrality, business models and substitutability

Intellect agrees with the view expressed in the Caio report, that future broadband networks will not be monolithic, either in terms of technology or operator, and that the most likely outcome is a patchwork of local and national networks deploying differing technologies. Within this context, the Ofcom consultation, although paying passing reference to other technologies, seems to be overly focused on national deployments of fibre based solutions. In particular, technologies such as mobile broadband, satellite, DWDM PON and point to point fibre, deserve equal consideration alongside current generation PON, fibre to the cabinet and cable systems.

As part of considering these alternative technologies in an equitable manner, it is essential that sufficient suitable spectrum is made available for the wireless technologies and that this spectrum is made available without undue delay.

In addition, the increasingly blurred boundaries between communications and broadcasting make it difficult to take an overall view on “super fast broadband” without also considering the potential role of broadcast networks.

It is important that regulation is derived in such a way as to be neutral towards these alternative technical solutions and, given that the “winning business models” are not yet clear, it is important that premature assumptions are not made about substitutability between these alternatives.

Regional flexibility

It is highly likely that differences in geography and demographics will result in different technologies being deployed regionally. This may require a flexible regional approach in order to avoid market distortion – for example the availability of suitable spectrum will impact the viability of wireless solutions which have great potential to offer cost effective coverage in some areas.

Interconnection

It is essential that a patchwork of local and national networks deploying differing technologies does not result in a patchwork of isolated islands. To avoid this it will be necessary to develop interconnection standards at all layers of the business model. In particular, it is important to try to prevent economies of scale in interconnection and provisioning from creating barriers to entry.

This point, along with the other issues raised above, becomes even more important given that, in the medium term, the issue of inclusion and universality will have to be addressed.

----------**end of 9-page consultation response**----------

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