Response to Ofcom consultation on 'Future broadband - Policy approach to next generation access'

By the members of the Foresight 'Exploiting the Electromagnetic Spectrum' (EEMS) project
(http://www.foresight.gov.uk/Previous_Projects/Exploiting_the_electromagnetic_spectrum/index.html). All members have been consulted but not all have been able to comment.

Question 1:When do you consider it would be timely and efficient for next generation access investment to take place in the UK?:
As soon as possible - the UK's network is already slipping behind. The primary cost issue relates to the cost of deploying single mode optical fibre which is a technology closer to being future-proof than any other known ITC technology, making this is a comparatively risk-free strategy. Of course the deployed fibre then constitutes an 'aether' that might be used simultaneously by many different terminal systems, which would be likely to be individually much shorter-lived.

Question 2: Do you agree with the principles outlined for regulating next generation access?:
We note that the regulation of 'wireline' (including fibre) systems cannot be separated from that of wireless services both of which are likely to form part of any system actually used. This is more than 'convergence' - any single system is likely to include both elements, and differential regulation should not drive choices in otherwise undesirable directions.

Question 3: How should Ofcom reflect risk in regulated access terms?:
The risk is very different in different component parts of any future deployment, for example as between the installed cable and the terminal equipment. This makes regulating the system as a whole difficult and something to be avoided if possible.

Question 4: Do you agree with the need for both passive and active access remedies to promote competition?:
Yes.

Question 5: Do you consider there to be a role of direct regulatory or public policy intervention to create artificial incentives for earlier investment in next generation access?:
Yes - the success of countries that have used state intervention to encourage NGA and beyond shows that this can work, and the enormous potential economic impact of what would be essentially a national infrastructure (albeit rather an inexpensive one, compared with, for example, roads or railways) justifies government concern.

There may be a role for imaginative public procurement (for example in healthcare), as suggested by Lord Sainsbury in his recent report.

Other comments:-

The team considers that the tone and content of Ofcom's statements are unambitious and even rather complacent. The UK's economic future could be significantly affected, for good or ill, by the development patterns for broadband. The significance of this is hard to overstate - one can imagine similar past debates over railways (who needs them when canals are fine?) and motorways (surely toll roads can cope?). Recent reports show that the UK has fallen behind not only our Far Eastern competitors, but even less developed countries in Europe.

The Impact of Future Developments

The Foresight projects take a comparatively long technological and social view, provisionally 20 years for this project. On this timescale many new technologies are expected (see the reports), but detailed predictions are probably less reliable.

However, what does seem certain is that the communications experience will develop dramatically in this period and broadband in a generic sense will play a major role. This role will be as part of a complete telecommunications infrastructure that will include wireless and mobile. A likely scenario will be that almost all communications over the 'last metre' will be wireless, whereas all core systems will be optical fibre, with the transition point between the two varying with circumstances.

Although people in communications consider, with some justice, that the last decade has seen dramatic developments the team considered that the next couple of decades would see far more dramatic change. This applies particularly to wireless systems but these will be integrated with broadband and developments can only be considered together.

The huge advantage of extending the optical fibre infrastructure close to the home/business is that it provides a bandwidth solution for the foreseeable future, exceeding even the life of the installed cables. No other technology can make this claim. For example, it will be possible simultaneously to stream multiple high-definition (HD) TV channels to the home and match even the most ambitious international roadmap for the development of next-generation video services. It is not a question of if, but of when, fibre to the home/premises will be deployed.

Economic Impact

A large proportion of UK and international commerce depends upon communications, increasingly in internet form. A growing fraction of this uses communications for delivery as well as order management, and this depends upon broadband. The 'content' industry in particular (in which the UK is strong) will come to depend largely on broadband for delivery at the expense of more traditional forms such as broadcasting and physical media (DVD/CD..), as evidenced by the already-observable transfer of advertising revenues.

Services including medical and support services for the sick and elderly may also be dependent on broadband, and will need high quality video.

The difficulty for all communications services, including traditional ones like the post and roads, is extracting even a tiny proportion of the huge values flowing over them

to pay for their construction and maintenance. Such networks may also in many cases be 'natural monopolies'.

Unless there is imminent progress towards broadband 3.0 (beyond NGA), the UK risks being unable to access the consumer services available in other countries. We are already limited by bandwidth in the provision of HD services, despite the widespread availability of HD-capable TV sets.

Social motivations

Despite of concerns over the 'digital divide' in fact more people currently have access to a mobile phone (>80%) than to a car (<80%) and more people will probably have (current first generation) broadband than have a car within 2 years. This means that broadband provides a more, rather then less, socially-fair method of delivery than traditional means such as driving to the supermarket (aided by being cheaper).

It is also in almost all cases a more efficient and less Carbon-generating method.

Strategies available to Ofcom/government

Roadmap

It would help significantly to have an agreed national roadmap for Broadband communications. This is clearly already in hand but Ofcom should proceed only in conjunction with its development.

Technical standards

Broadband 3.0 should proceed along with WWW2.0 and needs to provide an integrated regulatory environment for new and existing providers, and for wireless and wireline systems. There is much more to this than the infrastructure, though of course this is the first and most important step. There is also more to it than data transfer rates, though these do need to increase dramatically and quickly. Simple projections of current demand (based for example on computing or data storage costs) exceed DSL capability alarmingly soon, and in many cases already have.

Ofcom can facilitate this process.

Base infrastructure

This will be largely fibre and Ofcom should give careful consideration to methods by which the cost of this could be recovered by the original installer. This will apply particularly if it is decided to run it as a shared 'aether' infrastructure that might be subject to regulation like the wireless spectrum. It could also apply if there were some national duct network containing private cables, or if access depended on simultaneous use of fibre and wireless space.

Revenue sources

The core issue is recovering the cost of installation. Suggestions here that might require regulatory adaptations are:-

- Linking a requirement for duct installation to other construction (roads, water and gas utilities..). This might cost very little and over time significantly

reduce the cost of new installations. Public intervention might be justified by efforts to reduce disruption.

- There could be differential download speeds paid for on a usage basis by the download supplier (thus tapping into the commercial transaction). The user would see a fast and slow download purchase choice with appropriate pricing. The regulatory input would be to ensure compatibility to allow this.

- Facilitating collaboration between suppliers in various ways - so that shared core resources (like fibre) can be used by many people without necessarily committing to long-term usage. There is some precedent for government involvement in sharing of mobile base stations. There is a possible analogy between spectrum auctions and dark fibre capacity sales.

Many other schemes might be devised.