It’s got to be Fibre! The technology behind the NBN

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There has been much debate about the technology underpinning the Government’s National Broadband Network (NBN), particularly with regard to the focus on a fibre based network, however this focus is fundamentally about future proofing the technology, about doing it once and doing it right.

Dr Ian Oppermann, Director of the CSIRO’s ICT Centre, likens the Governments investment in the NBN to the roll out of electricity to Australians in the 19th Century. When this occurred the business case was to power electric lighting in homes and businesses thus making living and working conditions better and safer and helping people to be more productive. At that time, no-one could conceive of the breadth of use of electric power as evidenced by the number of electric appliances the average home now relies on and the potential of the NBN for individuals and for business in the future is just as great.

However, it is important that the infrastructure adopted offers the highest capacity and coverage for the future. There are many technologies already providing access to broadband, including *shared* access technologies like wireless and hybrid fibre coax, however with each of these technologies the connection speed is downgraded as more people connect.

The alternative is a *direct* access technology such as Asymmetric Digital Subscriber Line (ADSL) which transmits through existing phone lines. However, ADSL is by its nature asymmetric, using most of the channel to transmit downstream to the user and only a small part to receive information from the user, which creates difficulties for real-time applications which will underpin emerging ‘smart-systems technologies’.

The other direct access technology is fibre to the premises (FTTP), which is the technology proposed for the bulk of the NBN. Professor Rod Tucker, from the Institute for a Broadband Enabled Society explains that ‘the capacity of FTTP is virtually unlimited. In fact, the capacity of a single optical fibre is more than 10,000 times the capacity of the entire wireless electromagnetic spectrum.’ This implies that FTTP as the core operating in parallel with complementary wireless technologies where appropriate (as in the NBN design) is the logical, future-proof technology for our national network.

This Department recently made a submission to the House Standing Committee on Infrastructure and Communications *Inquiry into the Role and Potential of the NBN*. Minister Carr's IT Industry Innovation Council and Space Industry Innovation Council also made submissions to the Inquiry and these can be found at the Inquiry website: http://www.aph.gov.au/house/committee/ic/NBN/index.htm