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Committee Secretary  
House of Representatives Standing Committee on  
Infrastructure and Communications  
PO Box 6021  
Parliament House  
CANBERRA ACT 2600  
AUSTRALIA

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Dear Madam/Sir,

### **Submission to the inquiry into the role and potential of the National Broadband Network**

Thank you for the opportunity to contribute to this important national dialogue about how to ensure that Australia and its people maximise their opportunities in the digital age.

Australia has many natural advantages that have contributed to our place among the leading group of nations on almost every measure. However many of these advantages, such as our strong economy, based on significant natural resources; a modest population distributed around our coastal fringes, separated by sea from the large Northern Hemisphere nations of Europe, Asia and the Americas; are also potential long-term risks. In many respects, Australia is a nation that triumphed during the agricultural revolution and coasted on the demand for raw materials during the industrial revolution. The digital revolution represents a unique opportunity to lay new foundations for national advancement over the next 100-200 years that is based on value adding and not selling off scarce, finite resources.

The reasons are both social and strategic. Australia is a nation built on its capacity to attract and develop people from other parts of the world. This can produce wonderful cultural interactions, inspire creativity and generate extraordinary economic opportunities; but it also requires that significant attention be given to social inclusion and support. As a large nation with a small population distributed across it, the quality and cost of government services is always under pressure. As our population ages and grows, the challenges of meeting growing demands for services, as well as the challenges of attracting and stimulating new generations of migrants and investment, demand that we be very creative in using new technology.

The digital economy transcends distance and language barriers, creating another frontier of economic, educational and social opportunities. In these respects, the emergence of the digital economy is one of the opportunities of our lifetime – perhaps even a responsibility that our generation has in terms of nation-building for future generations, rather than just coasting on the back of the country's exploited natural gifts.

The purpose of this submission is to offer our enthusiastic support – as well as some critique – of the NBN initiative, since it is through the NBN that we presently have the best opportunity to get to the front row of the digital economy's starting grid.

Our company, Smartnet, and the people who work with us are quite extensively involved in the digital economy, and have been for quite a few years. We provide digital economy advice to government departments at the national and state level, ranging from eHealth, next generation service delivery, and capacity building in the small business and not-for-profit sector. We also work with leading global corporates and overseas governments. We have a good sense of Australia's opportunities and risks and, where we can, Smartnet invests in – and provides incubator support to – promising Australian digital economy start-ups.

In due course we would welcome the opportunity to appear before the Committee and discuss some of these matters; in the meantime, we have structured this submission around the Committee's terms of reference.

But first, a point of clarification: the 'digital economy' is a term that is used to embrace the exchange of information and transactions over the internet. In essence it is about how communications technology using digital data (ones and zeros), is replacing the way that things used to be done using paper, mailed or faxed, and transactions conducted over the counter at a bank, a shop or with a government agency. In some respects, physical transactions will always be with us (and in some cases this is essential), but the digital economy is making these the exceptions and just like all other transactions, is improving the speed, quality and responsiveness of many face to face interactions.

The National Broadband Network (NBN) is a government policy initiative to build a single, national, wholesale, fibre-to-the-premises network that will replace the ageing copper wire phone systems and exchanges presently in use. The NBN will not only replace much of the infrastructure that connects every Australian home and business to the internet, it will be the catalyst of significant change in the delivery and content of online services at the retail level. This will affect education, health, entertainment, government services, telecommunications, science, transport and so forth; basically everything. It is an ambitious project that we fully support, but we also recognise that it may take twenty years, perhaps longer, for all of the changes to take place and that in that time the NBN project will need to respond to political and technology changes, as it should.

Our comments therefore focus on why Australia should commit to – and remain committed to – the NBN project, even though there will need to be regular consideration of how best to achieve the long-term objectives of the project and that this will, inevitably, result in project changes.

## **1. How can the National Broadband Network contribute to delivery of government services and programs?**

Government services and programs in Australia typically require people to come forward, queue up, fill in a form and ... wait, until they are told whether they will receive a service and when. While these systems are designed to provide a level of equality of access (which is not always successful) they are not particularly responsive and they do not provide an equality of outcome.

Improved, high-speed, nationwide connectivity will allow a new generation of government services to develop. These services will enable people to access information and apply for programs online. In parts of Europe and parts of North America it is already possible to type a few basic details into an online 'service finder' which displays, instantly, all of the government programs available (at the federal, state and local level) to that person according to their location, age, personal circumstances, and so forth. If the person wishes, they can click on a link and complete an online application that is processed virtually immediately. They can also set up a 'tell me' link to one of their email addresses or a mobile phone so that they can apply for other relevant programs or benefits when they become available.

Beyond this, better communications and better government offerings will enable people to consider whether they wish to move to a new model of service delivery where they transfer to government the responsibility for calculating and offering eligible benefits. We anticipate that as a result of better communications infrastructure governments will be able to identify where policy outcomes are not being achieved and offer targeted initiatives to help. We also anticipate much greater use of social media tools to provide communities with the opportunity and resources to develop and propose their own solutions and to provide better and more useful feedback when outcomes are not being achieved. There are examples and technologies already in use in some isolated pockets of Australia, but their widespread adoption and use is not possible because of a lack of access to affordable high speed broadband and the devices and skills that go with this.

For many of us, it would be very attractive for the ATO to submit our tax return to us 'for review and approval' rather than go through the tedious process of attempting to comply with the complex and often irrelevant tax return process as it now operates. For those who wish to complete their own tax return that should always be an option, but, as with many other programs, we anticipate that with better online communications the government can and should lift its game in delivering services.

## **2. How can the National Broadband Network contribute to achieving health outcomes?**

A great deal has already been said and written about eHealth. We think that two fundamental issues that might have been lost are that:

- Australians use health services more today than they did previously and this trend is only going in one direction: up, and
- The supply of health professionals and health services is constrained, unevenly distributed, rising rapidly in costs and will always lag behind demand.

eHealth provides the only feasible answer: it has the potential to overcome many issues associated with access to health services regardless of location and it provides health consumers and health professionals with access to health information that will speed the processes of diagnosis and treatment – reducing costs and demands on scarce tertiary health care facilities such as hospitals. Access to relevant patient data in real time also has the potential to significantly reduce the incidence of medical misadventure and patient deaths.

While there are already initiatives taking place to improve the capacity of health professionals to securely exchange patient information between themselves (such as eReferrals, eDischarge Summaries and ePrescriptions), it will not be possible for health consumers to participate in this equation until there is better, nation-wide access to high speed broadband.

The NBN initiative will enable nation-wide online access by health consumers and, in conjunction with the activities of the National eHealth Transition Authority (NEHTA) and the restructuring of the retail market to deliver content (such as personally controlled eHealth records), which is secure, private and easy to use.

### **3. How can the National Broadband Network contribute to improving the educational resources and training available for teachers and students?**

Several of our senior staff have students in late secondary school or at university. We see our children watching downloaded lectures on their iPads, clicking on links to YouTube speeches, that have been texted to their smartphones by their lecturers and participating in online videoconferences with international thought leaders in Stockholm at 2am in the morning. And this is just the beginning. These same children will have face to face employment interviews with global firms and contribute to fascinating foreign projects without necessarily needing to buy a plane ticket. In the same way our educational institutions will be able to offer global courses, attract international guest lecturers and undertake ground-breaking research using technology that places them in the sweet-spots of great educational opportunities.

Increased educational opportunities coupled with high quality research will have a direct impact on our capacity to improve our national productivity and hence our competitive position in the broader global digital economy.

While the AARNET, an existing digital economy investment of government and educational and research institutions will help make this possible (and where would we be without it!) the NBN will help bring these benefits to the homes and workplaces of students and researchers around the country.

### **4. How can the National Broadband Network contribute to the management of Australia's built and natural resources and environmental sustainability?**

Smartnet has seen at first-hand how smart, internet-enabled devices can help with water and energy management, ensuring that home and business appliances operate efficiently and that their footprint on national power grid and water resources can be minimised without

impacting users – other than to help ensure that utility usage bills are minimised. In Japan and other leading countries smart, environmentally responsive buildings and food crops, managed by smart environmental devices that monitor temperature and light, have been a focus of research for many years. If Australia has the broadband capacity and radio spectrum to utilise these developments it will revolutionise our built environments and the ways in which we manage water usage and greenhouse emissions.

By equipping all citizens to have improved insight into, and a better understanding of their environmental responsibility (through smart tools that enable us to monitor water, power etc usage), the NBN will provide critical enabling infrastructure to support our national effort to be a more environmentally conscious and pro-active global player.

**5. How can the National Broadband Network contribute to regional economic growth and employment opportunities?**

Based on the foregoing comments and our direct experience overseas, a high speed national broadband network will enable regional and remote areas to overcome many of the barriers to growth and employment caused by the physical distance to markets for products and skills. In effect a high speed broadband network will enable regional and remote communities to operate as suburbs in the global economy – without some of the downsides that exist in the big urban centres. Importantly, this will present people in regional and remote Australian communities with choices and opportunities that are not presently available – ranging from shopping and social networking, through to global commercial and employment prospects on the other side of the world.

We are also conscious of the roles and responsibilities of local councils in regional and remote communities. There are many ways in which the capacity of local councils is presently constrained by the size and resource base of the communities that they serve. A high speed national broadband network will enable smaller councils to access and provide services to their communities that are much closer to, if not the same as, those provided in the wealthiest urban areas. This requires councils to have access to an online service delivery capacity (in other words a web site that uses common, high grade features sourced from content providers – so-called 'cloud services') which their residents are able to access from their own homes, businesses and on the move using high speed broadband connections.

**6. How can the National Broadband Network contribute to business efficiencies and revenues, particularly for small and medium business, and Australia's export market?**

Smartnet is a provider of advice to SME's throughout Australia on how to leverage technology and the internet. As access to high speed internet improves small businesses will be freed of many of the constraints that presently keep them from getting off the ground or out of the garage. Among other things, high speed internet access will enable the use of 'Cloud Services' (which are basically sophisticated, very affordable applications that manage everything from accounts through to customers, as well as sophisticated ways to present services and products). SME's with good quality, high speed internet access can be players



in markets well beyond their local suburb – accessing skills, products and customers, as well as the support services and investors – enabling them to grow without many of the physical constraints with which they presently must grapple. This fundamentally underpins our ability to be more productive and competitive globally – which, of course in turn, directly impacts the quality and prosperity of communities and individuals. .

In this regard, as with many other aspects of a fully functioning digital economy, businesses will need to acquire new skills. But this should not be seen as an obstacle – the demand for these new skills will create new jobs for our children and neighbours as well as attractive opportunities for new migrants who will, themselves, generate new businesses and add to our suite of global exports.

**7 and 8. How can the National Broadband Network contribute to research and development and related innovation investments and facilitate community and social benefits?**

Our preceding comments have dealt with many aspects of these issues and we refer the Committee to these earlier points. However there is one very important point that we wish to underline, that goes to the heart of Australia's future. The point is this: much of Australia's future depends on technology, in virtually every aspect of the nation's activities. Our future therefore is closely tied to our national capacity to understand and use technology. While digital technology is only one part of the technology spectrum, it is increasingly important, perhaps fundamental. Therefore, more important than the speed of our high speed broadband connections is the skills and confidence with which we exploit this once-in-a-generation opportunity.

We therefore urge the Committee to consider the other measures that need to be undertaken, in terms of skills, education, and support to ensure that the investment that is made in our national high speed broadband infrastructure is maximised.

We will not attempt to further argue this essential point here and assume that the point is already well-recognised by the Committee. However we will be pleased to elaborate on measures that have been taken overseas and those that we think are well-suited to the particular nature of Australia's research, innovation, creative, community and social circumstances now and into the future.

**9. What are the optimal capacity and technological requirements of a network to deliver these outcomes?**

The NBN investment needs to be seen in context and governed and supported accordingly. Our view on this issue is that, as a nation Australia is underinvested in technology and technology infrastructure. As a nation with only 6% debt, and a future of many, many generations ahead of us, we believe that careful investment in our technology infrastructure is more than justified and would only be opposed by those who have a very short-term view of the future.

To this end, we believe that a major weakness of the current NBN program is its lack of recognition that Australia's internet access depends on a handful of international submarine cables, most of which terminate in Sydney. The majority of all current and foreseeable internet traffic travels through these cables, including many of the services that the NBN

plans to deliver. There are not enough of these cables and their capacity is limited. We believe that any serious analysis of how best to ensure that the NBN is physically able to supply its promised services would have identified the need to augment the submarine cable capacity and that at relatively minor cost, NBN Co should ensure that one or more cables are laid now, in anticipation of growing need. In terms of risk management and critical national infrastructure, we encourage the inclusion of one or more submarine cable runs to be made part of the NBN scope.

We also have some concerns about the emphasis that has been placed on fibre to the premises, or at least to 93% of them. This is an arbitrary figure and in all probability technology and the need for 'internet on the go' will result in wireless services playing a significant role in how we access the internet of the future. This is already becoming evident overseas. For the moment, we would caution against a fixed objective to connect 93% of premises with fibre and instead encourage the Committee to recommend that the government and NBN Co focus on connecting regional communities and blackspot areas with high quality, high speed broadband now, rather than making this conditional on a sequence of events that is connected to the extension of fibre to each of these locations from some other location.

In this regard, we think that the priority for connecting fibre to virtually all premises has been somewhat oversold and the potential of wireless has been undersold; to the point where we have heard people in country areas on the fringe of the proposed NBN rollout plan decry the prospect of a 'second-rate' wireless connection and demand that they too should have fibre services. The reality is somewhat different.

Wireless technology is changing rapidly and we are likely to see that over the next five years wireless technology, data compression and networking innovations produce performance approaching the 100Mbps a second presently promised by NBN Co. Nonetheless, all wireless solutions will ultimately track back to a Point of Interconnection and fibre backhaul. We therefore encourage the Committee and NBN Co to exercise care in advocating (or excluding specific technologies) at the premises; instead we reiterate that submarine cables, high performance backhaul and connections to underserved regional and remote communities should be the national priorities.

Distributing services to some regional and urban communities may well be most effectively achieved using wireless technologies and in this respect, these communities need to better understand that they will be getting access to next generation services that are not second rate. We are already seeing the telcos starting to market high performance mobile broadband (so-called 4G, which includes LTE and WiMAX). There is going to be a significant global focus on using 4G wireless technologies in the years ahead (much of it driven by telcos) and NBN Co needs to avoid a situation where the case for a national broadband network is undermined because the NBN is seen as too heavily fibre-to-the-premises focused.

Aside from these technology issues, there are four other areas that impinge significantly on the capacity of the NBN to achieve the outcomes which we all seek. These are:

- Protection against interference from spammers and various other threats to our use of the internet for critical services
- Protection of our personal information from internet access, abuse and theft
- Better skills and confidence within the community to be able to capitalise on the NBN investment, and
- Content and services that deliver on the transformative, productivity improving potential of the NBN.

While each of these matters is potentially beyond the current scope of NBN Co's mandate and funding, we all need to recognise that a 'build it and they will come' approach rarely works and, in any case, if we are to gain the true benefits of the NBN, we should not pursue such a strategy. The dividends that will result from investing in these other elements will improve the outcomes and return from the NBN. It would be foolish to take a short-term view and not complete this project to the best of our national ability. Future generations will depend on it.

We wish the Committee well in its Inquiry and would be pleased to appear before it to expand on this submission.

Yours sincerely,

James Kelaher  
Director

