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A member of the
Australian Council of Professions

25th February, 2011

Mr. Andrew McGowan
Secretary
House of Representatives Standing Committee on Infrastructure and Communications
PO BOX 6021, Parliament House
CANBERRA ACT 2600

Inquiry into the role and potential of the National Broadband Network

Dear Mr. McGowan,

The Australian Computer Society (ACS) is the recognised association for Information and Communications Technology (ICT) professionals, attracting a large and active membership from all levels of the ICT industry. A member of the Australian Council of Professions, the ACS is the public voice of the ICT profession and the guardian of professional ethics and standards in the ICT industry, with a commitment to the wider community to ensure the beneficial use of ICT.

In fulfilling our charter, the ACS is active on a range of policy fronts and among ICT stakeholders to improve ICT skills, education and training capability and quality in Australia and to promote the responsible and professional use of ICT as it affects almost every aspect of daily life. The ACS also works with key stakeholders to provide annual ICT statistical reporting as well as to explore ways to further improve the measurement of ICT's contribution to the economy, community and the environment so that we can make informed policy decisions. These policy areas have informed our submission to this inquiry.

The ACS appreciates the opportunity to provide comment on the role and potential of the National Broadband Network (NBN). The ACS has been a longstanding proponent of the NBN given the significant contribution the NBN will make to Australian ICT and the region.[i]

In response to the terms of reference for this inquiry, please refer to the ACS recommendations that follow.

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ACS Recommendation 1: Review current ANZSCO/ ANZSIC framework to more accurately measure the ICT sector, its growth and impact

The NBN represents a transformative national initiative that will have far reaching effects on the economy and current business, government and service delivery models. The ACS response to the digital economy future direction consultation paper[ii] encouraged the Federal Government to more broadly consider how the digital economy can be measured.

Indicators such as the number of businesses connected to the Internet, penetration of broadband, and willingness to embrace new technology to sell, shop and access services online, while useful, are not sufficient and do not in themselves indicate 'success'. The digital economy must be seen as being much broader than connectivity and usage.

In the NBN context, Australia needs to effectively measure and report on the growth of its digital economy and the impacts of ICT as an economic sector in its own right, as well as its role in underpinning productivity growth in other sectors.

The Australian Bureau of Statistics (ABS) does measure the ICT sector intermittently but their last report was for the period 2006-7 (cat 8126.0) published in October 2008. With the support of other key stakeholders, the ACS published an ICT Statistical Compendium in 2009 reporting on ICT employment, educational inputs, research spend and other data. This work continued in 2010 and included a series of 'snapshots' of statistical data on the ICT workforce, higher and vocational education, trade, employment, skills and immigration on a national and state basis.

The ICT industry in Australia is a key productivity enabler for other industries, but direct ICT employment, both in total and relative to other industries, shows that the ICT industry is also a major employer with almost 550,000 people employed in the sector.[iii] In 2006, according to the ABS, ICT accounted for 4.9 per cent of economic contribution gross value add (GVA) which, at the time of reporting, was more than many other Australian industry sectors.[iv] The ICT sector itself contributes 4.6 per cent of Australia's Gross Domestic Product (GDP).[v] The ICT industry includes some 30,000 companies, and is characterised by a large number of small businesses employing around 20 per cent of the industry's workers, and a small number of much larger organisations employing a large proportion of the ICT industry workforce.

The ACS maintains the digital economy can be better measured in terms of an input/output framework, its contribution to productivity and its contribution to GDP and to do so we need a sound economic model supported by a strong statistical base with agreed key indicators. Thus, we must clearly define what is included within the digital economy.

As an important step in developing ICT measurement the ACS will engage the ABS, Statistics New Zealand, and the Federal Government to explore how the current coding can be more representative of the ICT sector and the NBN ecosystem.

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ACS Recommendation 2: Greater focus on ICT skills and framework for professionalism

Improved health outcomes will only occur if two systemic issues in the health system are addressed nationally. The first issue is the inconsistent way health information is stored and accessed across Australia, and the ACS draws attention to the discussion of this in the National E-Health Strategy.[vi]

The second issue impacts all aspects of the NBN and will only be exacerbated by the NBN in the short to medium term (NBN implementation) and longer term (NBN ecosystem). This issue is the shortage of ICT skills in Australia now and in the future compounded by skills gaps. In addition to improving health outcomes, the performance of the NBN is highly dependent on a skilled workforce with appropriate capability and capacity. ICT workforce issues can be categorised as chronic[vii] and exacerbated by a lack of clear articulation for ICT careers. Equally important are barriers to retraining and employment for older workers (*ageism*[viii]) and gender imbalances in the workforce.

Given the current limitations of the ANZSCO framework in measuring ICT, the exact quantum of Australia's ICT workforce skills issue is difficult to quantify. However, current research shows Australia will have a continuing demand side imbalance that will severely impact the viability of the NBN ecosystem[ix] unless current policy settings and paradigms regarding education and skilled immigration change.[x]

A longer term strategy for ICT skills is needed to realise benefits within the NBN ecosystem. A major aspect of the longer term view of ICT skills that Australia needs to consider is the improvement ICT career pathways. Unlike many other professions there is no consistent professional development for ICT graduates in Australia. Medical practitioners, on the other hand, must complete a period of supervised professional practice before registration.

The ACS advocates Work Integrated Learning (WIL) programs to help address this issue. While many higher education providers in Australia have WIL programs for ICT students, they occur in many forms and inconsistently across sectors, states and higher education institutions. They have different administration models, different levels of engagement and different value to both students and industry. Some programs work exceptionally well, others not so well. On one hand, industry says that ICT graduates are not work ready, on the other hand, universities claim their role is not vocational but more about knowledge transfer.

In this matrix the government can deliver real value to the ICT sector – and by extension the investment in the NBN – by bridging and facilitating discussion amongst stakeholders to understand and address barriers to a career in ICT; from secondary school right through to work place learning by reference to the Skills for the Information Age (SFIA) framework.[xi]

As a result of the recent Gershon Review, the ACS has recognised the need for a National Qualification Scheme for ICT practitioners and has consulted with the Australian Public Service Commission (APSC) and the Australian Government Information Office (AGIMO) on the development of a careers pathway and skills framework for Australian Public Service (APS) ICT employees. On advice from the ACS, APSC and AGIMO have adopted the SFIA framework in order to develop internal ICT capability. During this process the ACS introduced the concept of an Australian Capability Framework for ICT and encourages all levels of government to adopt this framework as an initial step in ensuring future ICT skills capability. This work is encapsulated in the contribution of ACS for Milestone 4: Framework for Professionalism, within the Innovation Council.[xii]

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ACS Recommendation 3: The accreditation of e-health and other safety systems specialists

When technology works, it can literally reach the stars. When it does not work, the effects can be disruptive and catastrophic, impacting tens of thousands of consumers, businesses and communities. We have witnessed this recently with Virgin Blue and National Australia Bank incidents. More importantly, many systems have life and death consequences if their systems fail; for example, e-health systems for medical records and diagnostics. These systems are not safe by accident, they require safety considerations to be designed and implemented.

In line with the ACS advocacy of greater professionalism in the ICT sector, the ACS maintains that the people responsible for designing, maintaining and operating e-health and other safety critical systems in the NBN context should be certified to minimise the risk of ICT failure. To this end the ACS supports Australia's National E-Health Strategy but encourages an accelerated focus on the National E-Health Strategy recommendation R-3.3: *Facilitate changes to national care provider accreditation regimes to make the adoption and use of E-Health solutions a core accreditation requireme*nt.

There are many voluntary methods for risk minimisation and currently ACS members are able to be graded as Certified Technologists and Certified Professionals. To maintain their professional status and improve ICT professionalism, the ACS requires certified members to undertake planned and structured professional development to remain up to date with industry trends and technological developments throughout their working lives. The ACS recommends that essential elements of a certification system include:

• Formal study (usually subjects leading to a qualification awarded from institutions such as ACS, universities, TAFE and other providers)

• Learning activities (e.g. structured training; short courses)

• Participation in relevant forums

• Self-directed learning (e.g. reading industry journals & blogs; reviewing online resources)

• Servicing the ICT Profession (including volunteers to ACS working groups; Branch Executive Committees; presenting conference papers; academic research).

Additionally, in early 2010, the ACS Cover of Excellence Scheme was approved by the Professional Standards Council, enabling ACS Certified Professionals to join the ranks of lawyers, accountants and engineers in protecting their personal assets while demonstrating excellence in professional standards and consumer protection.

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ACS Recommendation 4: Ensure the NBN is fit for the future

The affordable availability of broadband to all Australians via a network that can accommodate future capacity requirements is critical. The experience of the growth of the Internet from dial up through to cable modems in recent years clearly demonstrates that data usage is growing exponentially. It is projected that the digital universe – the sum total of digital data – will grow by a factor of 44 by 2020[xiii] although the ACS believes this is a conservative projection and data will grow much faster.

The NBN is proposing speeds of 100Mbps, evolving up to 1Gbps and beyond, by way of fibre to the home for 93 per cent of the population. These data speeds will unlock extraordinary possibilities in business communications, collaboration and innovation yet applications such as cloud computing, virtual classrooms and e-health will not develop to their full potential unless all Australians have affordable access to genuinely high-speed broadband standardised for performance, capacity and bandwidth.

The ACS recognises there are enormous challenges in providing services to remote communities in Australia. However, non-fibre technology such as HFC, DSL or fixed wireless for the remaining "seven per cent" of the population would be a short-term solution at best; restricting network speeds to a fraction of what is possible with fibre optics. This is especially relevant when considering the delivery of, and access to, online services and the role of the NBN in promoting social and community inclusion.

The rapid evolution of online services and content from one-way 'push' content to a state where content creation is increasingly user driven (evidenced, for example, in social networking) has shown that the NBN business plan to exclude seven per cent of the population from fibre will perversely widen the digital divide for Australian remote audiences.

Non-fibre technologies such as satellite and wireless can be characterised by higher latency – the delay between initiating an action and the evidence of its effect. As the submission to this inquiry by Dr. Marcus Bowles notes: "[…] while satellite broadband may be appropriate for enhancing such activities as downloading videos on demand, latency issues will render it unsuitable for interactive activities requiring synchronous exchanges […]."[xiv]

Not only would this severely limit our ability to compete, innovate and develop globally, it would exacerbate the digital divide between city and regional users, who would be limited to outdated speeds of just 12Mbps and unable to access and benefit from evolving online services including health and education. In this respect the ACS encourages the use of fibre to the home above other existing technologies.

In relation to the remaining seven per cent of Australians who, under the NBN plan, will not have fibre to the home, the ACS maintains that elements of the NBN should be included in the Universal Service Obligation (USO), that the USO be updated to include mobile devices, platforms and communications and public access/service points given the continuing convergence of computing to hand held devices and the ongoing decline in fixed telephony.[xv]

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ACS Recommendation 5: Model project governance at its very best through benefit identification, communication and realisation

A common proposition in submissions posted to the Inquiry website and among ACS stakeholders is that the delivery of all levels of government services and programs will be enhanced through the NBN, and that the NBN will promote community and social inclusion, and improve education, health outcomes, business efficiency, environmental sustainability and regional development. With respect to ICT stakeholders this view is a 'no brainer' – the NBN is a 'game changer' and in implementing the NBN, Australia will lead the world in innovation and drastically improve national productivity.

However, notwithstanding the challenges discussed in this submission – regarding measurement, skills and education, risk minimisation and technological capacity – without appropriate promotion, articulation and reporting of NBN benefits it will be difficult to realise and monitor the impact of the tremendous positives the NBN represents.

Given the recent Gershon Review findings of weak governance of pan-government issues relating to ICT[xvi], the ACS encourages the Federal Government to identify innovative and credible ways in which the government itself can model and exemplify the potential of the NBN and realise benefits from it. This is required to encourage community and business adoption and innovation, and may extend to virtual committee meetings via telepresence and telemetry applications with associated benefit tracking. This will build on, and give momentum to, the recommendations of the Gershon Review and the Government 2.0 focus.

Aside from marketing and communicating the benefits of the NBN, the Federal Government should consider more holistically online service delivery and the implications for stakeholder adoption. Online service delivery can rapidly increase stakeholder adoption but can also bring into focus Australia's 'digital divide'.

The 'digital divide' has typically referred to the disparity of broadband access between urban and regional audiences but increasingly it applies across geographies to specific demographics including low income households, the aged, and other key stakeholder groups of the government. It is not uncommon in Australia for households to be connected to ADSL or fibre to the home but in which the occupants do not access Internet services.

The NBN Co Corporate Plan[xvii] does not specifically outline its role in articulating and promoting the benefits of the NBN. Although NBN Co has identified targeted product development as part of its work, NBN Co does not have an explicit mandate on front-line benefits realisation: it is not a prudent duty of NBN Co to *market directly to End-Users.* As benefit realisation is not NBN Co's responsibility, the Federal Government as the sole shareholder and in effect, the project sponsor, must be accountable for this.

The recent Greenhill Caliburn Review of the NBN business plan also acknowledges the need to promote benefit realisation and recommends the Commonwealth establish an ongoing review function.[xviii]

Regardless of the initial cost of the NBN to Australia, the social, environmental and economic impacts across Australian life will be such that NBN project benefits must be identified, reviewed and monitored with public benefit tracking. Valuable policy settings that have assisted in the success of Korea's current ranking as the world's broadband 'poster child' are also worth considering in Australia. These were recently captured by the Australian Trade Commission Digital Economy and Broadband Applications Mission to Japan, Korea and Singapore[xix] and include Internet literacy programs, policies supporting consumer PC adoption, free Internet penetration in schools, broadband certification systems for new dwellings, fixed charges for unlimited Internet usage and e-learning services.

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The ACS believes that the benefits of the NBN will be lost on many key stakeholder groups unless the Federal Government takes a more educative role regarding the NBN by itself modeling and exemplifying NBN applications.

The ACS is a strong supporter of the NBN and welcomes further discussion. If you have any questions regarding this submission or seek further information from the ACS in relation to this important inquiry, please contact the ACS Government Relations and Policy Manager, Mr. Adam Redman or   .

Yours faithfully,

Bruce Lakin MACS Snr
Chief Executive Officer

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FOOTNOTES:

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[i] 82 policy positions and public statements, as well as numerous media comments regarding the NBN are available on the ACS website:
https://www.acs.org.au/index.cfm?action=load&temID=search&seachtxt=NBN&pageno=1&display=1

[ii] http://www.acs.org.au/index.cfm?action=show&conID=200902110929590148

[iii] http://www.acs.org.au/index.cfm?action=show&conID=201011180903478965

[iv] http://www.acs.org.au/index.cfm?action=show&conID=201011180903478965

[v] http://www.dfat.gov.au/facts/snapshot.html

[vi] […] First and foremost the complex and fragmented nature of the service delivery landscape has resulted in the creation of a vast number of discrete silos or islands of information across all parts of the health system. This has created significant barriers to the effective sharing of information between health care participants and poses real challenges when trying to understand and report what is really happening in the Australian health care system.
http://www.health.gov.au/internet/main/publishing.nsf/Content/e-health_strategy_toc~e-health_strategy_ch2

[vii] http://www.clarius.com.au/news_centre/clarius_skills_index.aspx

[viii] http://www.acs.org.au/attachments/2010/Improving%20Age%20Diversity%20in%20the%20ICT%20Workforce%20FINAL.pdf

[ix] http://www.ibsa.org.au/Portals/ibsa.org.au/docs/reports/IBSA%20Telecommunications%20Industry%20Final%20Release%20Research%20Report%2017.12.09%20%20v1.pdf

[x] http://www.acs.org.au/attachments/ICTSkillsForecastingReportAug2008.pdf

[xi] http://www.sfia.org.uk/cgi-bin/wms.pl/2695

[xii] http://www.innovation.gov.au/Industry/InformationandCommunicationsTechnologies/ITIIC/Documents/ITIICUpdateforStakeholders.pdf

[xiii] http://www.emc.com/collateral/demos/microsites/idc-digital-universe/iview.htm

[xiv] http://www.aph.gov.au/house/committee/ic/NBN/subs/Sub042.pdf

[xv] http://www.acs.org.au/index.cfm?action=show&conID=nbnenvironment

[xvi] http://www.finance.gov.au/publications/ict-review/chapter4.html

[xvii] http://www.nbnco.com.au/wps/wcm/connect/eea11780451bd3618ebfef15331e6bbb/101215+NBN+Co+3+Year+GBE+Corporate+Plan+Final.pdf?MOD=AJPERES

[xviii] http://www.dbcde.gov.au/__data/assets/pdf_file/0015/132711/Review_of_NBN_Co_Limiteds_Corporate_Plan-Executive_Summary.pdf

[xix] http://www.austrade.gov.au/ArticleDocuments/1358/Digital-Economy-Mission-2010-Report-Summary.pdf.aspx

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