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# The Future Direction of Australia's Digital Economy

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AllA response to the  
Draft Consultation Paper  
*Future Directions for  
Australia's Digital  
Economy*

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Australian Information Industry  
Association

February 2009

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VALUEICT

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# 1 Background

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This document is AIIA's response to the Draft Consultation Paper on *Future Directions for Australia's Digital Economy* ('the Paper'), provided by the Department of Broadband, Communications and the Digital Economy for industry comment on 19 December 2008.

The submission is made on behalf of the Australian ICT industry and is based on AIIA member input.

The Australian Information Industry Association (AIIA) is Australia's peak technology industry body. AIIA's role is to lead and represent the ICT industry in Australia, to maximise the potential of the Australian economy and society. AIIA's membership encompasses all sectors of the ICT sector including hardware, software, services and telecommunications. It has almost 500 member companies, from individual consultants, small to medium enterprises to the world's leading multinational corporations.

AIIA member companies employ over 100,000 Australians, generate combined annual revenues of more than \$40 billion (approximately 5% of GDP) and export more than \$2 billion in goods and services each year.

## 2 Executive summary

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AIIA applauds the Government for initiating a process aimed at driving higher productivity growth through better engagement with the Digital Economy.

Our members feel that a successful, thriving Digital Economy goes beyond online trading to include the accelerating the innovation and productivity growth of traditional business and industry through engagement with new technology and digital infrastructure.

As such, the successful future direction of the Digital Economy will depend on:

- Developing the digital engagement of Australian Industry through targeted industry sectors and government leadership, including:
  - The development of a definition, vision statement, strategy, clear goals, necessary actions and related timelines that will define the future direction for Australia's engagement with the Digital Economy.
  - Analyses of specific target markets currently engaged in the Digital Economy such as e-health and finance (albeit sub-optimally) and identification of ways to optimise that engagement.
- A thriving ICT industry, including:
  - Strategies to develop and retain high-quality ICT talent in Australia.
  - High quality infrastructure rollout
- Clear policy direction, including:
  - Regional engagement and leadership through an inter-ministerial dialogue on digital development at the Asia Pacific level.
  - Establishing a working group between government and industry to develop clear and realistic policy directions
  - Dovetailing a common vision for the Digital Economy to include all other relevant reviews currently being undertaken in this policy space, such the Bradley and Cutler Reviews.

To establish this approach, AIIA proposes the following priorities:

1. Define the Digital Economy.
2. Develop a working strategy to achieve identified outcomes.

3. Communicate the strategy to targeted industry sectors, business and the wider community.
4. Establish a working group with industry to promote policy development.
5. Develop regional leadership.

A full set of recommendations leading to the realisation of this approach are included on page 25.

## 3 Shaping the Digital Economy

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### 3.1 Defining the Digital Economy

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AIIA members believe that the Digital Economy goes beyond online trading to include accelerating the innovation and productivity growth of traditional business and industry through engagement with new technology and digital infrastructure.

Digital engagement does not translate to online presence, and the Digital Economy is not internet trading. Nor is it the technologies that support the internet. The Paper mistakenly equates the concept of a genuine Digital Economy with uptake of the internet and with 'things' users can do when online.

Developing a thriving Digital Economy means placing Australia in the strongest possible position to improve productivity growth, drive innovation, connect and transform business and industry and take advantage of global trends in commerce, communication and policy development.

Online trading is an essential part of a healthy Digital Economy; however the success of Australia's Digital Economy will be defined by the strength of Australia's ICT industry, the effective deployment of technology and infrastructure, the connectivity of business and industry, the vision of related policy areas such as the national innovation framework, and regional engagement and leadership. In short, The Digital Economy is not about the automation of existing systems, but their transformation.

A viable concept of the Australia's digital future must recognise that the Digital Economy improves productivity by enabling the development of new value-adding and efficiency-enhancing services, processes, products and organisational structures. Policy approaches to the Digital Economy should be informed by recognition that process and business transformation is the key to improved business performance and government agency service delivery.

This approach will not be easily developed – there can be costly adjustments for those embracing the Digital Economy, such as resource re-allocation, re-training, investments in design, development and implementation, and the need for new management skills if

positive gains are to be realised.

Investment decisions by government and business aimed at creating greater business value through the transformation of service delivery and new product development is the only way to realise the potential of a Digital Economy. Merely 'going online' risks digitising sub-optimal processes; it will not guarantee innovation, capability development or competitive advantage. The Paper's assertion that 'automation of existing practices' represents a path to the Digital Economy activities (pp 25) is particularly alarming. Overlaying new technologies onto existing, ageing and out-dated business practices is folly.

A true Digital Economy is not the existing economy – including current processes and methodologies – in a new format. It is one in which diffusion of ICT-based innovation throughout current government, industry and community sectors will transform those sectors. This can only happen so long as common strategic directions are clearly understood and policy settings are correct.

As a means of furthering the debate on what the Digital Economy encompasses, AIIA suggests the following characteristics as essential elements of a true Digital Economy in Australia:

- business, government and the community transacting in virtual, not a physical environment
- intelligent systems
- automation of optimal processes and functions
- remote access to information and services that currently require a physical presence
- cashless and paperless transacting
- data manipulation
- real-time transacting.

Digital Economy outcomes include increased efficiency through:

- removal of redundant or unnecessary human manual processes
- reduced duplication, rework and waste
- immediate presence and reach
- variety and choice of service channels
- information sharing, knowledge exchange and collaboration.

## 3.2 The Policy challenge

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Public policy efforts to facilitate increased engagement with the Digital Economy face a twofold challenge. The infrastructure, governance, resources and connectivity of a knowledge-based Digital Economy must be sufficient to support Australia's current industrial structure, as well as to support and promote future growth, the dimensions of which are not yet known.

Conversely, policies to develop a Digital Economy must focus on business creation and support. These policies are *not passive* – governments in those nations that now enjoy vibrant digital economies have been proactive, often mandating specific actions to deal with infrastructure build, access, skills and training issues. In short, Australia must identify opportunities and to address barriers to successfully engaging with a Digital Economy.

Australia's industrial and business structure stands to reap significant benefits from a more sophisticated and integrated engagement with a knowledge-based Digital Economy. However, while isolated improvements and transformational changes have taken place in health and finance, for example, incompatible and uncoordinated systems and platforms have meant that Digital Economy gains cannot be realised across the sectors or enterprises operating within them, such as hospitals and banks.

Current service delivery methods are generally un-coordinated and fail to seize on the opportunities available in the Digital Economy. Our service delivery has not transitioned successfully to a citizen-centric model – information in these sectors must still be collected manually; invoices, forms, letters and other correspondence remain paper-based, physical presentation is still required for identity authentication, and common information is not shared, even where the customer or patient wants it to be.

Such outdated ways of doing business are not sustainable, and a crucial error made by the Paper is assuming that merely automating these types of processes and business modalities will lead to a successful Digital Economy. This is not the case.

Recognising that business transformation is the threshold issue, and successfully managing the current opportunity to correct the policy settings and kick-start an appropriate Digital Economy dialogue with business and the community, is critical to Australia's national

economic interests.

AIIA urges the government to establish an industry/government Partnership to engage in the close and detailed work required to ensure Australia does not lose this opportunities to develop policies for the growth and development of a robust Digital Economy.

The UK's action plan to secure a successful digital future, *Digital Britain*, provides a strong model in the Information Age Partnership, "a partnership for action between industry and Government, comprising Ministers and Chief Executives of the UK's leading IT, Electronics, Communications and Content companies. The aim is to ensure that ICT is effectively deployed to accelerate innovation and productivity growth across the economy."<sup>1</sup>

**Recommendation 1.**

**Establish and Industry / Government partnership to provide a clear focus on business transformation in the development of Digital Economy policies and strategies.**

### 3.3 Vision statement

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A big-picture public vision statement reflecting Australia's goals in the development of a smart Digital Economy is required. For example, Multimedia Victoria set digital objectives for the State some 15 years ago, which have led to Victoria becoming the most digitally innovative state in Australia.

### 3.4 Strategy

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A formal vision statement must be underpinned by a clear description of the goals and actions that will define the future direction for Australia's engagement with the Digital Economy.

For example:

- 1 Establish and maintain high-speed, wired and wireless, pervasive infrastructure
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<sup>1</sup> Digital Britain, pp 11 – see [http://www.culture.gov.uk/what\\_we\\_do/broadcasting/5631.aspx](http://www.culture.gov.uk/what_we_do/broadcasting/5631.aspx)

- 2 Spearhead the transformation of key economic sectors such as health and finance
- 3 Develop a globally competitive economy
- 4 Educate and make communities and industries aware of the efficiency gains available through digital engagement.

In the international arena, the UK's *Digital Britain* sets out five measurable goals and 22 Action Items that the Government will address to deliver the strategic goal of universal Digital Economy connectivity by 2012. The five goals are:

- 1 Upgrading and modernising digital networks – wired, wireless and broadcast
- 2 A dynamic investment climate for content, applications and services
- 3 Content of quality and scale
- 4 Fairness and access for all, coupled with skills and literacy to enable near-universal participation
- 5 Developing the infrastructure, skills and take-up to enable widespread online service delivery and interface.

Examination of other jurisdictions such as Taiwan and Singapore, whose government initiatives have proactively addressed Digital Economy barriers and opportunities in their strategies, will also be useful. In this regard, Singapore<sup>2</sup> has developed the following approach:

**Vision:** Innovation, Integration Internationalisation.

**Goals:** be #1 in the world to harness digital engagement so as to add value to the economy & society

- realise a two-fold increase in value-add to \$26 billion
- realise three- fold increase in export revenues to \$60 billion
- create 80,000 new jobs
- achieve 90% home broadband usage
- achieve 100% computer ownership
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<sup>2</sup> The iN2015 MASTERPLAN – see [www.ida.gov.sg](http://www.ida.gov.sg)

**Recommendation 2.**

**Establish a high-level vision statement, associated strategy, measurable goals, actions to achieve those goals, and timeline to develop the Digital Economy.**

## 3.5 Metrics

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The development of a strategy linked to the Future Direction of Australia's Digital Economy should be attached to clear measures that will define our success.

Additionally, there is a lack of clear information available across many of the areas that will be essential in the development of the Digital Economy. Existing statistics are delivered by disparate areas of government, infrequently updated, and often based on inconsistent definitions. Evaluation of any activity is critical to effective management. Stimulus investment in physical infrastructure such as roads and rail is regularly accompanied by clear analysis of resulting productivity and employment outcomes. The same is required for the Digital Economy.

AIIA urges the Department to consider the need for clear metrics in this program and to establish a consolidated data analysis and reporting unit to garner the data functions currently distributed across the government. This Unit would be responsible for collection and close analysis of the data to establish trends in Digital Economy developments, as well as assist with predictive modelling of target markets.

Data collected and analysed by this metrics unit should cover:

- 1 business take-up of efficient digital trading
- 2 vertical market engagement
- 3 ICT skills across the education system, VET and tertiary sector
- 4 productivity outcomes
- 5 employment outcomes, including labour market forecasts; and
- 6 innovation measures.

**Recommendation 3.**

**Establish a centralised Digital Economy Data Analysis and Reporting Unit to consolidate data functions currently distributed across government.**

## 3.6 Access to Public Sector Information

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The US experience would indicate that access to this type of information has spurred an increase in innovative developments across the Digital Economy and platform. AIIA supports such an approach in Australia within the following parameters:

- Allow all information to be made available to business and industry, with government withholding any sensitive or inappropriate information on an 'exception' basis only. In other words, if industry has to apply for access to information, innovative developments will not be facilitated.
- Limit burdensome administrative requirements or processes, as these will act as disincentives to the use of public information.
- Ensure open standards for access are adopted so that the widest possible spread of users can have access to the information.
- Undertake a modelling review to ascertain what the possible uptake in access to such information will be and what the increased productivity outcomes might deliver across key sectors.
- Undertake an awareness campaign to alert users to the potential benefits of access to this type of information.

**Recommendation 4.**

**Development of a clear government policy for access to Public Sector Information.**

## 3.7 Confidence

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There are many reasons people choose not to engage with digital technologies – lack of confidence is possibly the most significant factor.

Consumer confidence will be essential to a competitive Digital Economy, as will the

confidence of the wider business community to enter the digital marketplace and adopt digital business models and practices (such as electronic invoicing).

Many consumers lack an understanding of what to do in the case of an experience a negative online experience. Government and industry need to work together to ensure that users can operate with security and confidence. AIIA supports the appropriate efforts to facilitate the establishment of the digital experience in a safe and secure environment. We suggest a government/industry partnership be established to explore solutions to the most serious online breaches of current laws.

Global connectivity and universal broadband brings into sharp focus the need to balance freedom of expression and protection against harmful activities or illegal content. Since content originates from many different sources online, the digital platform cannot be censored or controlled in ways similar to print or other media publications and platforms. Protection mechanisms for users, business and industry must be technology neutral.

The optimal approach is to take the threshold view that effective enforcement of current laws of the land is necessary, supported by an appropriate use of technologies (for example, user-based software to block illegal content) and media literacy campaigns.

**Recommendation 5.**

**Ensure that Australia is up to date with the development of relevant international laws, and engage with international and regional associations such as ASEAN and ICANN.**

## 4 Growing the Digital Economy

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Successfully developing the Digital Economy will require the engagement of key areas across the Australian economy.

### **Recommendation 6.**

**Identify and engage key target markets – such as eHealth – that will maximise the return to the Australian community, while facilitating the development of a robust Digital Economy in Australia.**

### 4.1 E-health – the potential for reform

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Australia is struggling with questions of affordability and efficiency of health care systems while dealing with rising costs, demographic change such as ageing populations, and increases in chronic disease.

Meeting these challenges requires more than merely going online – improving and transforming processes and systems, ensuring co-ordination of those systems and developing new and more effective ways of delivering care are paramount to any reform on health care deliver. Technology alone cannot solve these issues – new business models are required to maximise the returns of technology investment.

Technology solutions can, when coordinated and interoperable, provide electronic patient records, remote patient sensing and diagnostics, imaging services and innovative patient support using creative software that includes music, film and video.

Australia's health care system is complex – service delivery is split between public, private and not-for-profit sectors, and involves large volume transactions between hospitals and healthcare providers. Patients and providers encounter many discontinuities in treatment across sectoral boundaries and between regions. There is an urgent need to integrate new scientific evidence and discoveries into clinical and management practices. Progress has been uneven; there are some astounding applications and successes in the use of digital platforms to alleviate information intensity and support innovative patient care. However, these are frequently uncoordinated and not interoperable.

Some recent successes in this field include depressioNet (web-mediated service for those suffering depression), the Lion's Eye Institute (digital imaging services to aid in high-input screening/diagnosis of debilitating eye disease) and the Howard Florey Institute (imaging data on neurological disorders is shared between researchers at the Institute).

Nevertheless, these are isolated examples. Genuine reform will only be realised when digital platforms are used to share data and lessons learned, engage in benchmarking, and establish cross-border interoperability of patient records. To reach this goal, policy settings must be changed to facilitate more rapid uptake of remote and cross-border opportunities.

There are many impressive case studies of creative eHealth solutions making a huge difference to our health care environment:

- Clinical Hand Over Tool:
- <http://blogs.msdn.com/microsoftinhealth/archive/2008/08/14/iclinix-featured-on-abc-s-the-new-inventors.aspx>
- For a short video on one major breakthrough in hunter region of NSW:  
<http://www.abc.net.au/tv/newinventors/txt/s2324907.htm> -
- Paperless Organs Transplantation Management - saving lives and organs:  
<http://www.australianit.news.com.au/story/0,24897,21633917-24170,00.html>
- Mobile clinics:
- [http://www.mobileclinician.com/story\\_hatrix.html](http://www.mobileclinician.com/story_hatrix.html)

## 4.2 Telecommuting

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Telecommuting is an important driver of Digital Economy take-up. Telecommuting should be encouraged by example through public sector usage – there are hundreds of thousands of public servants who, with good internet connections, audio-visual facilities and telephone headphones, could work much more efficiently, cost-effectively and with greatly reduced carbon impact from home or alternative centres.

This would drive a significant percentage of the workforce into the Digital Economy environment, promote the digital literacy of a large proportion of the economy and update the business models of many government departments operating in outdated modalities.

Many businesses within the technology sector are already developing an important competitive advantage through the adoption of these business models. The key to realising the efficiencies that can be developed through appropriate organisational models is establishing business cases that recognise the breadth of returns on offer. These go beyond environmental impact to consider elements such as real estate and asset bases.

**Recommendation 7.**

**Adopt Teleworking as a standard component of the Government Business Model.**

## 4.3 Shared Services

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Shared services frameworks consolidate functions that are common to multiple business units within a single enterprise, and by doing so simultaneously deliver increased efficiency and service quality. Commonly, resources are shared across areas such as Human Resources, Financial Management and Information Technology Management.

According to the English Institute of Chartered Accountants, more than 30% of US Fortune 500 companies have implemented or transferred to a shared services framework – delivering savings of up to 45% across general accounting.

Shared Services are one of the smart ways that businesses can be transformed through the development of a strong Digital Economy. SMEs have the most to gain from a shared services approach.

## 5 Ensuring a sustainable Digital Economy

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AIIA recognises the potential benefits the Digital Economy can deliver in a more sustainable environment – through teleworking, energy measurement and management, and more efficient devices. We are currently working closely with the Department of Environment, Water, Heritage and the Arts to establish appropriate settings for energy efficiency policies and processes, and methods of reducing the impact of technology products on the environment.

### 5.1 Government sustainability initiatives

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Government should now consider strengthening its own procurement clauses on equipment purchases to ensure:

- 1 That the equipment is meeting 'high performance' energy efficiency standards
- 2 That the equipment supplied to government under tenders or panels is provided by a supplier that is taking measures to ensure that at end-of-life, the product supplied will be effectively collected and recycled.

Note also, if equipment is taken out of the government office environment and provided a second life in the community then this requirement will guarantee that the product will be collected and recycled through a community recycling program to which the supplying company belongs. More often than not, ex-government product is provided a second life in the community and ultimately it ends up in landfill unless there are suitable measures in place to deal with the waste. Governments can make sure there is strong commitment to reducing this impact by setting the best example.

- 3 Possible Australian Government commitment to the same (or a slightly modified) EPEAT Standard (IEEE 1680) to address product stewardship issues and other environmental attributes at the same time as achieving improved energy efficiency.

EPEAT is an environmental procurement tool designed to help institutional purchasers in the public and private sectors evaluate, compare and select desktop computers, notebook computers and monitors based on their environmental attributes. At the same

time EPEAT helps manufacturers promote their environmentally preferable products. The EPEAT program has proven success in the USA. This program drives ICT brands to support the voluntary Energy Star Program.

**Recommendation 8.**

**Strengthen Government Procurement to include Energy Efficiency Standards, End-of-Life commitments from suppliers, and adherence to EPEAT Standard IEEE 1680 or equivalent.**

## 5.2 Industry eWaste initiatives

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AIIA and the wider industry can provide input into any process evaluating the adoption of EPEAT or similar standards for government procurement in Australia.

With legislative support in place to ensure a 'level eWaste playing field', IT Equipment suppliers can accept responsibility for branded waste from Government sources and the community. In addition, with the support of Government, AIIA and the wider ICT industry can develop processes to share responsibility for orphan and white-box waste.

**Recommendation 9.**

**Establish national legislation and guidelines for the management of eWaste.**

## 5.3 ICT and carbon reduction

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Existing technology solutions have the potential to significantly reduce carbon emissions across all areas of business and industry. A recent study conducted by the World Wildlife Fund<sup>3</sup> conservatively estimated that 1 billion tonnes of global Greenhouse Gas Emissions can be eliminated by 2020. Establishing an effective Digital Economy provides the opportunity

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<sup>3</sup> *The potential global CO2 reductions from ICT use –*  
see [http://www.wwf.se/source.php/1183710/identifying\\_the\\_1st\\_billion\\_tonnes\\_ict.pdf](http://www.wwf.se/source.php/1183710/identifying_the_1st_billion_tonnes_ict.pdf)

to drive widespread adoption of these solutions in Australia.

**Recommendation 10.**

**Undertake detailed analysis of the benefits of ICT to the sustainability agenda across the economy.**

## 6 Developing the Digital Workforce

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From the perspective of the ICT industry, appropriately skilled people will play an indispensable role in developing and implementing a successful Digital Economy. Skilled people are the most important component of the ICT industry as they provide the genesis, implementation, and support for the technologies delivered by the ICT industry. ICT skills play a vital role in almost all occupations, and contribute to productivity gains, innovation and job growth across all industries.

The answers sought to the questions in the section 'Developing Australia's knowledge and skills base' seem to imply that industry has not been engaged in addressing the skills issues associated with ICT work. Nothing could be further from the truth with a wide range of companies and industry and professional associations engaged in improving the number and quality of Australians with ICT skills and knowledge.

The cases stated in the Paper reflect only a small range of initiatives undertaken (mainly at Federal Government level) in addressing the impact of an ICT inhibited labour force. A number of matters raised in the Paper have and continue to be under active consideration by industry, government and educators.

### 6.1 Promoting careers

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By way of example, on the issue of promoting the attractiveness of ICT related degrees, the industry has been undertaking a number of initiatives associated in encouraging young people to study ICT related courses, such as the National ICT Careers Week.

A national group called the Industry Leadership Group consisting of government, education, industry and professional representatives has the goal of achieving a higher profile and appreciation for ICT careers through a *harmonised* presentation of ICT study and careers to young people.

Organisations interested in participating in promoting ICT study and careers are encouraged to use the *Start Here Go Anywhere* brand in their endeavours to encourage young people to an ICT study and career.

Various companies encourage people into ICT work through their own programs that vary in scope and aim. Companies seeking graduates do engage with education providers.

**Recommendation 11.**

**Provide direct Government support to the Industry Leadership group.**

## 6.2 Developing Digital Economy skills and knowledge

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The Digital Economy offers opportunities beyond the digital and creative media industries. The real value lies in the Digital Economy's transformational impact on a wide range of industries including banking, healthcare, telecommunications, education, transport, resource exploration, manufacturing, tourism, primary and mineral production, security, environmental management, and many other areas vital to the economy and community.

Consequently the skill sets and knowledge required within a workforce embracing the potential of the Digital Economy need to be much broader than digital and media skills. Required skills include developing innovations to move business and government practices towards the benefits of the electronic economy. Equally, people are needed to use these innovations in an applied sense in their organisations to gain improved business performance and government agency service delivery.

While the Paper rightly focuses on developing the current school generation, it is absolutely important that there be a focus on the current work generation. They are the ones in the workplace and are in the best position to transform their organisation to fulfil the benefits of the various manifestations of digital technologies and applications. This is an important feature and needs to be addressed, else Australia will fail to match the developments in our competing nations.

Consideration of digital education and literacy must be given to vocational training and continuing education. In addition to the employees driving Digital Economy success across business, literacy of the key target audiences will be essential in key vertical markets. For example, the effectiveness of digital initiatives in healthcare will be directly related to improving the technology literacy of senior citizens and the population ages.

**Recommendation 12.**

**Develop the digital literacy of current work generation, in addition to the current school generation.**

**Recommendation 13.**

**Develop the literacy of targeted vertical sector audiences as key target markets.**

## 6.3 Constraints on education and training

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Desired skill sets demanded by industry are dynamic and workforce trends are unpredictable because they depend on technological change and on the workplace changes they precipitate.

AIIA's concern is that the structure of university disciplines is constraining the responsiveness of the educational sector to meet Australia's ICT skills needs. This is particularly important when discussing skills and knowledge for the Digital Economy. Improvements are required in the organisation of the frameworks of the discipline-based approach to curriculum development and coursework.

The Paper suggests that industry associations can also have a role in contributing to priority setting and curriculum development for vocational ICT courses by advising Innovation and Business Skills Australia (IBSA) of their needs. AIIA, along with other bodies and companies, is already heavily engaged in assisting IBSA. A strong need by IBSA, and one that could be fulfilled by the Government, is to provide funds to upgrade the ICT industry's vocational education and training packages, which are now over a decade old and considerably out-of-date and becoming of little value to skilling people for the jobs of the Digital Economy.

Australian higher education institutions and vocational education and training institutes face capacity constraints in providing the quantity, and in some instances, quality of graduates demanded by industry — constraints which are principally related to:

- the public funding system to which universities are bound
- trends in the level of public funding, and
- shortages in the availability of ICT teaching staff.

Tertiary studies in ICT are relatively new compared to other well-established disciplines with most universities still without a dedicated ICT faculty. For some universities, ICT is found within the engineering departments, in others within business and other departments, and being shared across departments in other universities.

The departure of academics will be compounded by the lack of enrolments to universities and so will result in loss of university staff and lead to reduced capabilities. This is further compounded by the evident reduction in the number of PhD students enrolling in ICT, and being available for teaching and tutoring roles.

The teacher shortage is attributable to several factors, not least of which are the income disparities between teachers and industry practitioners (partly related to limited practical teacher training), and the reduced quality of academic life as workloads and class sizes increase to unsustainable levels.

Downsizing and even closures of ICT academic departments are already taking place throughout the university sector. This diminishing capacity to provide the necessary graduates, in quantity and quality, will become unrecoverable, or at best, remain inadequate for meeting present and future industry requirements.

**Recommendation 14.**

**Review of current approaches to education and training in both the Higher and vocational Education sectors.**

**Recommendation 15.**

**Development and funding of an approach that more accurately reflects industry needs.**

## 6.4 Research skills

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A vital requirement for a vibrant Digital Economy is the development and commercialisation of associated innovations. The Association sees the Australian Government playing an integral role in maintaining a high level of support for public sector R&D, focusing on the commercialisation of public sector research investment and ensuring policy mix is such that investors view Australia as a competitive place to invest in R&D.

In terms of skills, Australia needs to build the capabilities of research students through university/industry collaborations that support today's postgraduate students. This will be essential if Australia is to remain competitive on the global innovation stage.

**Recommendation 16.**

**Improve the financial viability of R&D activities in Australia for local and international investors.**

## 6.5 Small business skill development

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Small enterprise needs assistance to leverage competitive advantage through the Digital Economy and improving the skills and knowledge in these companies to understand and to adjust their operations to take advantage of the benefits associated with the Digital Economy is a key task.

Targeted assistance will encourage small business operators to take on this transformation as part of their business growth. A key element in this assistance is improving the knowledge and capabilities of management and staff in these businesses. Without appropriate knowledge and skills, other measures of assistance are unlikely to optimise success.

**Recommendation 17.**

**Create a program to promote the take-up of SME engagement in the Digital Economy.**

## 7 Summary of Recommendations

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- Recommendation 1.** Establish and Industry / Government partnership to provide a clear focus on business transformation in the development of Digital Economy policies and strategies. 9
- Recommendation 2.** Establish a high-level vision statement, associated strategy, measurable goals, actions to achieve those goals, and timeline to develop the Digital Economy. 11
- Recommendation 3.** Establish a centralised Digital Economy Data Analysis and Reporting Unit to consolidate data functions currently distributed across government. 12
- Recommendation 4.** Development of a clear government policy for access to Public Sector Information. 12
- Recommendation 5.** Ensure that Australia is up to date with the development of relevant international laws, and engage with international and regional associations such as ASEAN and ICANN. 13
- Recommendation 6.** Identify and engage key target markets – such as eHealth – that will maximise the return to the Australian community, while facilitating the development of a robust Digital Economy in Australia. 14
- Recommendation 7.** Adopt Teleworking as a standard component of the Government Business Model. 16
- Recommendation 8.** Strengthen Government Procurement to include Energy Efficiency Standards, End-of-Life commitments from suppliers, and adherence to EPEAT Standard IEEE 1680 or equivalent. 18
- Recommendation 9.** Establish national legislation and guidelines for the management of eWaste. 18
- Recommendation 10.** Undertake detailed analysis of the benefits of ICT to the sustainability agenda across the economy. 19
- Recommendation 11.** Provide direct Government support to the Industry Leadership group. 21
- Recommendation 12.** Develop the digital literacy of current work generation, in addition to the current school generation. 22
- Recommendation 13.** Develop the literacy of targeted vertical sector audiences as key target markets. 22
- Recommendation 14.** Review of current approaches to education and training in both the Higher and vocational Education sectors. 23
- Recommendation 15.** Development and funding of an approach that more accurately reflects industry needs. 23
- Recommendation 16.** Improve the financial viability of R&D activities in Australia for local and international investors. 24
- Recommendation 17.** Create a program to promote the take-up of SME engagement in the Digital Economy. 24