

The Australian Industry Group

# Submission to the Australian Government Digital Economy Strategy Consultation Paper



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## About Australian Industry Group

The Australian Industry Group (Ai Group) is a peak industry association in Australia which along with its affiliates represents the interests of more than 60,000 businesses in an expanding range of sectors including: manufacturing; engineering; construction; automotive; food; transport; information technology; telecommunications; call centres; labour hire; printing; defence; mining equipment and supplies; airlines; and other industries. The businesses which we represent employ more than 1 million people. Ai Group members operate small, medium and large businesses across a range of industries. Ai Group is closely affiliated with more than 50 other employer groups in Australia alone and directly manages a number of those organisations.

### Australian Industry Group contacts for this submission

**Peter Burn** – Head of Influence and Policy  
02 9466 5566, peter.burn@aigroup.com.au  
**Charles Hoang** – Digital Capability and Policy Lead  
02 9466 5462, charles.hoang@aigroup.com.au

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## Introduction

The Australian Industry Group (Ai Group) welcomes the opportunity to make a submission on the development of a Digital Economy Strategy for Australia. Rapidly advancing digital technologies are producing waves of wider innovation across the economy as businesses and individuals build new social practices and business models upon them. Ai Group's members include thousands of businesses of all sizes across manufacturing, construction, defence, energy, technology, transport, waste and more. They are grappling with these changes in different ways and with different levels of readiness and capability.

We prefer not to distinguish a "digital economy". Instead we have a firm conviction that digitalisation presents opportunity – and risks to be managed – for every segment of the economy. Industry 4.0 and the Internet of Things are in the process of transforming how business does business, enabling greater efficiency and new kinds of product and service. These changes are part of how Australia will compete in a world of shifting advantage, where investment and production are less likely to simply flow to low-cost jurisdictions. But Australia can easily be held back by a lack of skills, by unfamiliarity with the technologies involved, by a lack of collaboration and preparedness in combatting cyber security threats.

In this submission, Ai Group addresses the bulk of the questions raised in the Digital Economy Strategy consultation paper, presenting our own research, our members' research, experience and actions, and valuable third-party insights. The case is clear: Australia does need a Digital Economy Strategy to organise and judge public policy action, to ensure we are doing all we should to lift capability across the economy and seize the digital opportunity. Government cannot and should not do everything, but it has great responsibilities as the developer of critical infrastructure, the guardian of public order, the funder of education and much research, and an influential source of advice and validation. The Government should develop, promulgate and regularly update its Digital Economy Strategy to ensure those responsibilities are faithfully discharged. There is a real chance to lift Australia's performance, to lasting social and economic benefit. We should make the most of it.

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# 1. Digital readiness

## **Question 1: How are advances in digital technology changing the way you work, your industry and your community?**

The Australian Industry Group represents thousands of businesses around Australia, businesses of all sizes and covering many sectors, including ICT, manufacturing, construction, defence, labour hire and medical technology. While in many ways diverse, all our members are impacted by digitalisation.

There is growing discussion among our members of the impact of the fourth industrial revolution on their businesses and workforce. Like previous advances, new technology is enabling improvements in speed to market, quality and cost effectiveness. But the latest revolution also presages more flexibility and individualisation – a customer-oriented approach.

Manufacturing is one of the major sectors that we represent. As manufacturers become more advanced, the traditional delineation between manufacturing and services is becoming more blurred through servitisation of manufacturing.<sup>1</sup> This presents manufacturers with a challenge and opportunity to re-examine their value proposition, discover where they create additional value for their customers and find new customers. They will also need to become more agile to respond to rapid changes in technology, customer demand and expectations, and global and local competitive threats. The Productivity Commission observes this has been further accelerated by access to better information made possible by digital technologies. Such digital applications include: digital performance management; real-time supply chain optimisation; digital quality management; remote monitoring and control; predictive maintenance; and smart energy consumption.<sup>2</sup>

Associated with this, there are global industrial movements such as Germany's Industry 4.0 which is focused particularly on manufacturing, the US-originated Industrial Internet Consortium focused on a number of industry business verticals including manufacturing, China's Made in China 2025 and Internet Plus, Japan's Industrial Value Chain Initiative, and South Korea's Manufacturing Innovation 3.0.

And in construction, unlike many other sectors, government leadership is pushing for digitalisation in the construction industry. In this case, the Australian Government is considering the inclusion of a mandatory requirement for building information modelling (BIM) in all government projects over \$50m.<sup>3</sup>

These transformations enabled by digitalisation will last well beyond 2017, bringing massive change to our industrial structure, the ways we work, and the ways we do business.

Such changes are already receiving a mixture of anticipation, fear and scepticism from business leaders and workers. And this is not limited to the much-publicised concerns about automation, AI and killer robots.

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<sup>1</sup> Productivity Commission, "Digital Disruption: What do governments need to do?" (Research Paper, June 2016), pp. 37-38.

<sup>2</sup> McKinsey Digital, "Industry 4.0 after the initial hype: Where manufacturers are finding value and how they can best capture it" (Report, April 2016), p. 11.

<sup>3</sup> House of Representatives Standing Committee on Infrastructure, Transport and Cities, Inquiry into the role of smart ICT in the design and planning of infrastructure (Report, March 2016), p. 147.

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The modern catch cry for incumbent businesses is to disrupt or be disrupted. This is a particular concern for many Australian business leaders, with 89% in a 2016 GE survey fearing that their businesses will become obsolete from digital disruption.<sup>4</sup> And this threat is growing. Since 2000, “52% of companies in the Fortune 500 have either gone bankrupt, been acquired or ceased to exist”.<sup>5</sup> Capgemini suggests that this has been accelerated by a combination of technological disruption, and the speed, volume and complexity of change enabled through digital disruption.

In terms of the workforce, the Committee for Economic Development of Australia (CEDA) predicts that 40% of current jobs (particularly those requiring only low-level skills) have a high probability of being replaced by automation within 10 to 15 years.<sup>6</sup>

A more positive vision exists but can often become lost amongst alarming forecasts. AlphaBeta’s 2017 report for Google considers the uptake of automation and technology by Australia’s business sector and the likely impact this will have on productivity and employment.<sup>7</sup> Its key findings include:

- Most jobs will change as a result of technology, not disappear. Machines are expected to automate an additional two hours of routine and manual work in an average Australian work week by 2030. As has been the case between 2000 and 2015, most workers between 2015 and 2030 will be spending more time on different tasks within their existing jobs rather than changing jobs.
- Australians’ jobs will be safer, more satisfying, and better remunerated.
- Helping workers who lose their jobs as a result of automation is critical to maximising automation’s economic benefits. If every Australian was able to spend the extra two hours of weekly work time that machines are expected to shoulder over the next 15 years on higher-value activities (rather than simply reduce their work time by 2 hours per week), it could boost Australia’s economy by up to \$1.2 trillion in value (i.e. incremental gains to GDP) over that timeframe.

On the latter point, there is an unaccounted individual and social benefit of non-work time. Whether people devoted freed-up time to more work or nonwork activities, the digital transformation of work would be a significant boost.

These predictions suggest that the best digital technologies in the world will not deliver their full benefits without the best people with the right skills and the leadership to maximise their potential.

There are common views shared about these future workforce skills. First of all, existing workers will need support to transition to changing skills requirements. Next, the required skills will need to include Science, Technology, Engineering and Maths (STEM), and foundational skills such as digital literacy. (These skills issues are discussed further under Question 20.)

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<sup>4</sup> GE, “2016 Global Innovation Barometer: Detailed findings Australia” (Report, January 2016), p. 24.

<sup>5</sup> Capgemini Consulting, “When Digital Disruption Strikes: How Can Incumbents Respond?” (Report, February 2015), p. 2.

<sup>6</sup> CEDA, “Australia’s future workforce?” (Report, June 2015), pp. 6, 8.

<sup>7</sup> AlphaBeta, “The automation advantage” (Report for Google, August 2017), pp. 6-7.

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**Question 2: What is your vision for an Australia that thrives in a digital economy? Where would you like to see Australia in five, 10 and 20 years' time?**

Ai Group believes that Australia should aim for steady and sustained improvements in benchmarks for global competitiveness and productivity. Our current state of play leaves much to be desired.

Productivity improvement is the long-standing Achilles Heel of the Australian economy (aided and abetted in recent years by equally weak non-mining business investment). Our latest GDP data indicate that in Q2 2017, GDP per hour worked (a very rough proxy for national productivity) fell by 0.3% q/q, while non-farm unit labour costs rose by 1.4% q/q, signalling no improvement in productivity at an aggregate level. This comes after a long period of negative or flat productivity performance over the current economic cycle, dating back to the last Australian recession in 1991.

This failure to generate meaningful or sustainable productivity improvement over a very long period is contributing to persistent weakness in real incomes growth for both employees (wages) and businesses (profitability) in Australia, as in many other advanced economies. Indeed, the IMF recently concluded that weak productivity growth has been one of the key factors contributing to slow incomes growth globally since the 'Great Recession' (or 'GFC') of 2008:<sup>8</sup>

*While accommodative policies can help lift demand and lower headline unemployment rates, wage growth may continue to remain subdued until involuntary part-time employment diminishes or trend productivity growth picks up. Inflation rates will also likely remain low unless wage growth accelerates beyond productivity growth in a sustained manner.*

In Australia, concern about our ongoing productivity problem is widespread among economists, policymakers and the business community. In 2016, the Federal Government tasked the Productivity Commission with examining the causes of Australia's poor productivity performance and to recommend reform priorities. The Commission reported its findings to the Government in August 2017. This will be the first of a regular series of reviews of national productivity, to be conducted at least every five years. This renewed policy focus on productivity enhancement is a very welcome development.

Emerging technologies and the way we use them (or do not) are a key part of our productivity story and will remain central to our policy solutions. As a very broad generalisation, Australian businesses are often active and enthusiastic adopters of new technologies (developed here or more commonly overseas), but not necessarily the most successful at harnessing them to generate direct productivity gains, or the best at spreading the benefits beyond the businesses that are closest to the 'technology frontier'.

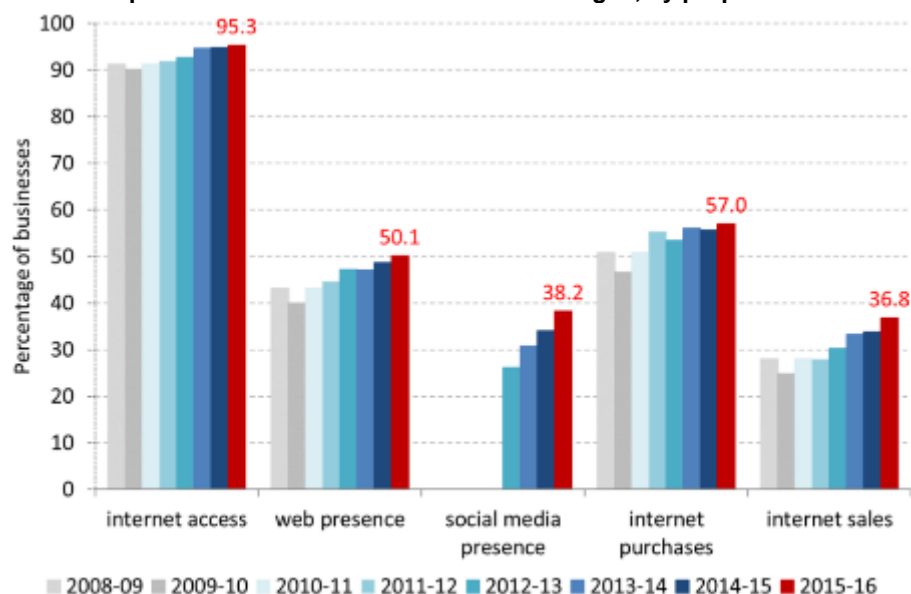
This pattern is illustrated for example, by the headline numbers in the ABS data on 'business use of IT', which show that 95% of businesses had access to the internet in 2015-16 but only half had their own web page and only one third were selling online (Chart 1).

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<sup>8</sup> IMF, "Recent wage dynamics in Advanced Economies: Drivers and Implications" (Economic Outlook, October 2017), p. 73.



**Chart 1: Proportion of all Australian businesses using IT, by purpose**



Source: ABS *Business Use of IT*, 2017.

Our inability to successfully adopt and adapt digital and other new technologies has affected our global competitiveness as well as our own productivity. In 2017, the World Bank ranked Australia at 15<sup>th</sup> of 190 economies for its ‘ease of doing business’ (down from 13<sup>th</sup> in 2016). The World Bank ranked Australia particularly poorly for ‘trade facilitation’ (91<sup>st</sup>), ‘property settlements’ (45<sup>th</sup>) and ‘ease of paying taxes’ (25<sup>th</sup>). All of these are transactional aspects of ‘doing business’ that could be directly improved through better digital technology applications within business and within the government agencies that regulate and facilitate these areas.

Similarly, the World Economic Forum (WEF) ranks Australia as the 21<sup>st</sup> most competitive economy in which to do business in 2017-18 (of 137 countries). Australia has ranked outside the top 20 economies since 2012-13. This WEF series includes a larger more detailed set of indicators than the World Bank series, many of which help to shed light on Australia’s relative performance – and best opportunities for improvement – regarding digital technologies. In 2017-18 Australia ranked:

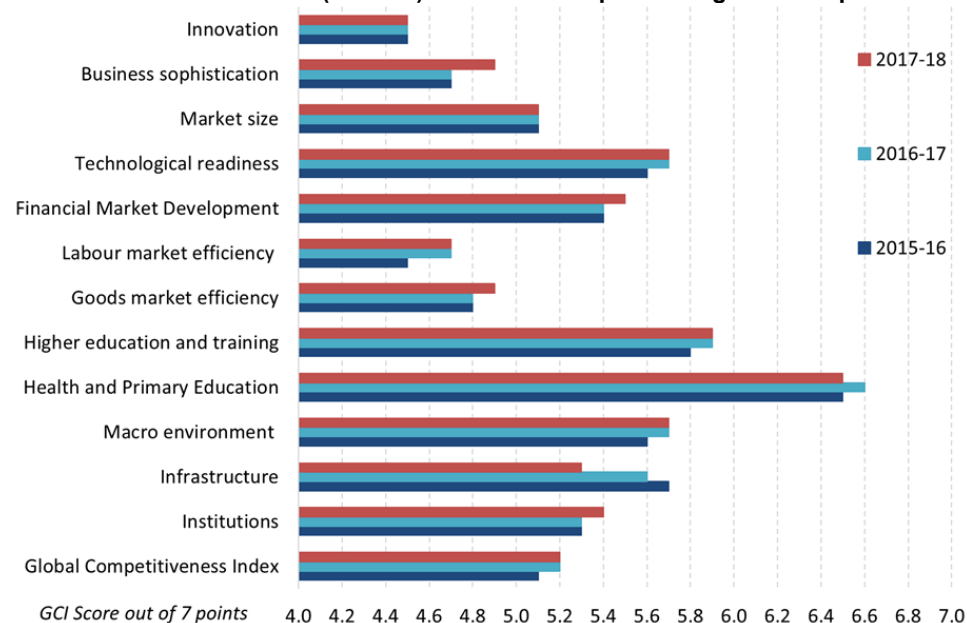
- 86<sup>th</sup> for mobile phone subscriptions but 6<sup>th</sup> for mobile broadband subscriptions (based on subscriptions per capita) (down from 36<sup>th</sup> and up from 10<sup>th</sup> in 2016-17);
- 71<sup>st</sup> for government procurement of advanced technology products (down from 63<sup>rd</sup> in 2016-17);
- 49<sup>th</sup> for internet bandwidth (based on kb/s/user) (down from 44<sup>th</sup> in 2016-17);
- 33<sup>rd</sup> for university-industry collaboration in R&D (even though the quality of our scientific research institutions was ranked 10<sup>th</sup> best);
- 27<sup>th</sup> for our ability to “harness Foreign Direct Investment to facilitate technology transfers” between businesses (up from 39<sup>th</sup> in 2016-17);
- 27<sup>th</sup> for the availability of latest technologies to Australian businesses;
- 24<sup>th</sup> for firm-level technology absorption by Australian businesses; and
- 24<sup>th</sup> for firm-level capacity to innovate.

These indicators combined to rank Australia’s competitive environment 27<sup>th</sup> for ‘innovation’ and 28<sup>th</sup> for ‘business sophistication’ (Chart 2). They weighed down our relatively better rankings on higher education and training (9<sup>th</sup>), financial market development (6<sup>th</sup>) and basic institutions (18<sup>th</sup>), which are our key sources of strength.



These global scores and rankings affect more than national pride or reputation; they are material to our ability to generate meaningful improvements in income – and therefore living standards – for all. They also help to pinpoint our distance from global best practice and the technology frontier on each of these indicators. In order to move closer to that frontier (and closer to real productivity and income improvements), some of these technology indicators require attention and action within businesses and some require a broader policy response from Government, in consultation and cooperation with industry and our education and research communities.

**Chart 2: Australia's scores (out of 7) for the twelve 'pillars' of global competitiveness**



Another useful source is the WEF's Global Information Technology Report, which assesses the factors, policies and institutions that enable a country to fully leverage ICT for increased competitiveness and well-being. The latest data shows Australia is slipping behind, falling from 16th place in 2015 to 18th in 2016. The gap in real-world impacts between a WEF ranking in the top ten and one outside can be quite significant. Australia can achieve a top ten ranking – as we did in 2004 when we ranked 9th in the world.

For Australia to climb up these particular overall rankings, there are clear priorities for business and government. Businesses need to lift their ICT usage (currently 24<sup>th</sup> place) and uptake of new ICT into their operations (ranked 22<sup>nd</sup>). Governments can also increase ICT usage (ranked 22<sup>nd</sup>), increase the efficiency of public services through ICT (currently 42<sup>nd</sup>), and encourage ICT as a means to enhance Australia's growth prospects (ranked 47<sup>th</sup>).

Australia needs to continually review its performance against these global benchmarks. An outcome should be for more businesses to thrive through digitalisation rather than fold – a shift from the global negative trend since the turn of this century. Other aspirations should also be for more businesses to leverage global supply chains and have a domestic environment that encourages more businesses to operate in Australia.

For example, a vision for Australian manufacturing in the medium term should include relocalisation of jobs and increased participation in the manufacturing industry. This will be partly driven by emerging technologies and business models such as combining 3D printing with flexible models for equipment access.

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### Question 3: What is the role of government in achieving that vision?

As we observed in our analysis of the WEF's findings, both government and industry have roles to play to advance the digitally enabled economy. And six of these top ten countries that we identified are already seeing significant economic benefit from high levels of business ICT adoption.<sup>9</sup>

Overall, government's role is to set a vision for the nation, and ensure that public policy is conducive to digital investment and competition that benefits industry and the community in the long term.

Government also has a leadership role to allay business and individual's fears of "digital Darwinism", by preparing the community to prosper in an increasingly technology-driven era.

Returning to the manufacturing example in Question 2, while digital technology may provide benefits to business innovation and productivity, there may be mixed social impacts such as a new division in wealth creation between the technically literate and illiterate. Government has a role in minimising such negative impacts. For example, Government can be a skills enabler through education and training around areas such as digital capability and cyber security. (These skills issues are discussed further under Question 20.)

The Prime Minister's Industry 4.0 Taskforce is a good example of collaborative government and industry leadership, which directly supports the National Innovation and Science Agenda. It is important that initiatives such as these help to leverage the strengths of our global partners to build our domestic economy.

In a report that Ai Group published in May this year, we proposed areas where government and public support could be of value to industry:<sup>10</sup>

- The Australian Government, nbnco and industry could work together to describe and communicate business approaches to making the most of broadband, including through case studies.
- Businesses need to look for opportunities to invest in and maximise the use and benefit of IoT and related digital technologies. Public support may be beneficial, including through: business capability policies such as the Entrepreneurs' Programme and facilitating collaboration with universities, Data61, other research institutions, and other businesses.
- The disappointing closure of the Industry Skills Fund leaves a gap in support for building workforce digital skills and this gap should be rectified.
- Initiatives like the Industry 4.0 higher apprenticeships project – a partnership between Siemens, Swinburne and Ai Group – will certainly help the future workforce. Other public programs targeted at improving employee skills in use of workplace technology and other foundational skills will help businesses and people transition and develop their capability in the immediate term.

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<sup>9</sup> WEF, "Seven Countries Emerging as Frontrunners in the Fourth Industrial Revolution" (Press release, July 2016).

<sup>10</sup> Ai Group, "Business beyond broadband: Are Australian businesses ready for the Fourth Industrial Revolution?" (Report, May 2017).

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- Complementing this, businesses need to understand better the longer term benefits of digitally upskilling staff. Government initiatives (such as the Entrepreneurs' Programme and Industry Growth Centres) could be avenues of support.
  - Businesses could benefit from Government and industry support in increasing their cyber security skills and capabilities. We welcome working with Government and industry to raise business awareness and facilitate business access to appropriate experts and existing initiatives for cyber security.
  - Incentives could be created to encourage businesses to take risks to determine how investment in technologies can benefit their business and people. Options include grants or tax concessions for investment in digital transformation, including demonstration projects.

Additionally, as an industry partner of the Entrepreneurs' Programme, we have observed that there is a gap around providing non-IT businesses with cyber security and digital transformation enablement. Many SMEs, particularly those outside of IT and digital, say that they find it very difficult to get impartial advice around these topics, rather than promotion of a provider's commercial product or service. There is an opportunity to provide additional resourcing to the Entrepreneurs' Programme to facilitate provision of specialist independent expert advice in this space, similar to the provision of independent business advice.

## 2. Digital infrastructure

### **Question 5: What communication services, and underlying data, platforms and protocols, does Australia need to maximise the opportunities of the digital economy?**

A mix of communication platforms will enable the growth of the digitally enabled economy including the NBN, 5G, and a mix of other IoT communications platforms. Some of these technologies are growing fast, and accommodating them (such as through lower regulatory barriers and increased regulatory flexibility) is challenging for slower-moving government and regulators.

Resuming and sustaining strong growth in the NBN roll-out will be critical to meeting business needs, as will be growth in other emerging communications platforms. Despite recent activity, Australia remains far behind in global broadband speed rankings, and may be slipping further. The deployment of these platforms needs continuing scrutiny against benchmarks including affordability, easing regional constraints, meeting business demand and maximising business benefits.

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### **Question 6: What opportunities do we have to accelerate the development of technologies that will underpin Australia's digital economy?**

In our surveys of Australian CEOs and leading Australian innovators, we have found that Australian businesses are collaborating to innovate more frequently than is often recognised – but that we are still well behind most OECD countries on this front.

But the clearest path to better collaboration is for businesses to learn the practices of those who already collaborate well. As our research shows, these businesses make collaboration a process that is carefully considered and iterated for success.

Their practices include clear-eyed awareness of their own strengths and weaknesses; careful selection of partners that complement their capabilities; shared development of a business vision for mutual benefit; and a commitment to learning from the experience of collaboration.

In addition to the role of business, governments can play a role by improving the incentives for collaboration in public sector research funding to support the development of technologies, and maintaining stable support for innovation overall.

Researchers can help bridge the cultural divide with business and ensure their approach to IP encourages partnerships rather than undermines them. Support for innovation ecosystem including R&D collaboration and start up support, and support for incumbent industry.

Our regulatory environment will also need to adapt to the fast pace of technological change, which is discussed further in the next section.

## **3. Standards and regulation**

### **Question 7: What opportunities do we have in standards development and regulation to:**

- **enable digital entrepreneurship, innovation and trade?**
- **mitigate the risks associated with digital disruption?**

Our regulatory and standards framework is fundamental to promoting investment in digitalisation, innovation and competitiveness. This framework needs to be sufficiently flexible to accommodate rapid changes in technologies that lead to new types of business models and competition, while also protecting consumers' interests.

Standards are also fundamental to promoting a digitally enabled economy because they can promote an ecosystem for technological innovation, competition, international trade and interoperability. Standards when called up by regulation offer a mechanism to quickly respond to changing markets. A great deal of the work in standards that is occurring globally seeks to address what are broad systems approaches to significant challenges, including smart factories, smart grids, smart cities, and IoT. These challenges require a new level of coordination and effort, and development of new ways to exchange knowledge for the public and private sectors, academia, standards and conformity institutions.

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Any proposed laws, regulations and standards impacting digitised businesses, including tax reforms, workplace relations and employment arrangements, need to address current concerns, while still welcoming investment and allowing businesses to remain competitive in a dynamic globally connected environment. Below are examples of areas that need to be considered.

### **International standards development and participation**

We welcome news last year that the German Plattform Industrie 4.0 group and the Industrial Internet Consortium – two independent international bodies for the Industrial Internet – announced a collaboration to set global standards for IoT. This is an important step.

However, there are other areas relating to IoT standards that remains unresolved. In the absence of international consensus (partly driven by a continually evolving landscape), there is a risk of fragmentation and diverging standards in IoT.

For example, KNX is a global standardised network communications protocol for building automation. Without favouring any particular standard, there are also an array of other communications protocols in the international market. Australia needs a roadmap for considering and adopting home and building automation standards. Simply selecting one protocol and elevating it as an Australian Standard without adequate consideration may have unintended consequences such as a reduction in competition, especially as Australian standards are given greater weight under the Commonwealth Procurement Rules.

As noted in the consultation paper, Standards Australia is leading the Reference Architectures, Standards and Norms working group as part of Prime Minister's Industry 4.0 Taskforce. We support such standards being included in this context.

More generally, it is vital that Australian industry and consumers have support and access to all international fora involved in standards development (particularly the International Electrotechnical Commission (IEC)) to ensure our national interests are preserved. This will allow for effective contribution to standards development at an ideal stage in which the product and services are still under development. Australia is generally known to play a strong role in standards development. Accelerating technological change makes this role even more important to facilitate fast adoption of new technology and realisation of its benefits.

### **Emerging and disruptive technologies**

Disruptive technologies challenge both existing ways of doing business and how business is regulated.

For example, drones are becoming more ubiquitous and play an important role as part of the industrial IoT ecosystem for observation, data gathering, and increasingly logistics. Gartner predicts drones will reach mainstream adoption in five to 10 years.<sup>11</sup> And Goldman Sachs estimates that total spending on commercial drones in Australia will be around \$3.9 billion USD over the next five years.<sup>12</sup>

It is therefore no surprise that in 2016 the Civil Aviation Safety Authority amended and modernised outdated regulations around commercial drones. CASA recognised that this was a necessary decision that reflects a modernisation of outdated regulations to keep up with rapid advances in

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<sup>11</sup> Gartner, "Gartner's 2016 Hype Cycle for Emerging Technologies Identifies Three Key Trends That Organizations Must Track to Gain Competitive Advantage" (Press release, 16 August 2016).

<sup>12</sup> Goldman Sachs, "Drones: Reporting for Work" (2016), <http://www.goldmansachs.com/our-thinking/technology-drivinginnovation/drones/>; MarketWatch, "This is how most of the world's businesses will use drones" (18 March 2016), <http://www.marketwatch.com/story/this-is-how-most-of-the-worlds-businesses-will-use-drones-2016-03-18>.

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drone technology. This is a challenge not only limited to the regulation of drones, but also for other old regulations and legislation that need to keep up with other disruptively innovative technologies.

However, two weeks after those streamlining amendments commenced, a Senate inquiry was called to investigate the case for further regulation to ensure the safe use of drones. This has inspired responses – not least from us – that emphasise both the immense public and industry benefits of drone technology.

While there may be legitimate public concerns around drones, the alarm and reactive response from parts of government and the public highlights a bigger issue: the role of government in managing the social risks and disruptions associated with new technology.

It is important for regulators to be mindful that we have been through similar experiences before with other technological advances like automobiles, telephones and cameras, and more broadly industrial revolutions. As history and experience has shown with these technologies, as the public became more exposed to their presence and practicality, they not only accepted it, but embraced the positive impact that these technologies have had to their lives. Many initial concerns and fears were resolved or proved groundless, and regulation focussed on specific genuine and continuing risks, such as traffic safety or interception of telecommunications. Drones are yet to reach that full public comfort, and similar concerns are being expressed about other emerging technologies such as AI, robots and driverless vehicles.

While regulation has a role in addressing reasonable public concerns around security, safety, privacy and environmental issues, there are also often alternative approaches to the regulatory “stick”. In the case of drones these include technology-based responses such as geo-fencing and collision avoidance. Regulatory barriers should only be introduced where there are clear net community benefits.

### **Copyright regulation**

Copyright regulation plays an important role in determining the level of innovation that can occur in the digitally enabled economy and the type of activities that are permitted. Australia needs a more flexible and less technology-specific model for copyright law, whilst also respecting the rights of copyright creators and rights holders and avoiding undercutting the commercial incentive to create.

For instance, Ai Group’s February 2016 submission to the Federal Government’s draft Copyright Bill supported the expansion of the safe harbour provisions of the *Copyright Act 1968* (Cth) to cover a broader range of entities, including online service providers (such as online search engines and cloud storage services). We believe this will provide important regulatory certainty to such providers to underpin their burgeoning role in our increasingly digitised and globally connected economy and the new markets growing within it. This has been subsequently supported by the Productivity Commission in its own separate review. However, in April this year, the Government decided instead to conduct further consultations on the safe harbour provision. We would encourage the Government to elevate this as a priority for reform.

### **Taxation reform**

Taxation reform offers substantial national benefits and for several years Ai Group has argued that this should be the highest national reform priority. A more digitised economy presents additional challenges to Australia’s tax system.

Our overall tax priorities support growth and efficiency across the digital and traditional sectors of the economy. These include the importance of reducing the company tax rate, decreasing Australia’s reliance on income taxation, removing inefficient taxes – particularly those levied by

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State and territory governments, and reducing compliance costs on businesses. In addition, Ai Group has a long-standing record of support for the R&D Tax Incentive.

### **Workplace relations and employment arrangements**

Without appropriate workplace relations structures, it is difficult to maximise the benefits of digital technology. Teleworking and ride sharing services both demonstrate the potential for digital technology to change work practices.

Digitally driven businesses challenge and are challenged by the existing regulatory framework of relatively inflexible awards, entitlements and practices. For example, most employees working for these businesses are employed under common law contracts; the Fair Work Act inappropriately gives primacy to collective bargaining and collective agreements over such common law contracts.

Transfer of business laws impedes the transfer of employees to other entities within a corporate group, including outsourcing of ICT activities to specialists.

There are also limitations in long service leave laws in some States, which appear to require recognition of overseas service, and this presents a significant problem for digitised companies who often transfer employees from overseas to Australia. These businesses have also had claims pursued against them by unions and portable long service leave schemes in the construction industry on the basis of the false assertion that ICT work is in essence “electrical contracting” work.

## **4. Trust, confidence and security**

### **Question 9: What opportunities do we have to build trust and community confidence through resilience to cyber threats, online safety and privacy?**

The new data breach notification law is due to commence in February 2018. While well intentioned, this may only promote a compliance culture, as opposed to a proper proactive leadership and risk management culture.

It is critical that there is better collaboration between government and industry to tackle cyber security. Collaboration enables sharing of information about threats, and helps build an innovative industry.

With respect to threat identification and management, traditional forms of regulation have been criticised for being inflexible and slow to respond to rapidly evolving threats. Governments tempted to over-use these regulatory sticks need to consider a different approach.

In responding to modern cyber security threats, it is therefore important that collaboration is encouraged in a safe environment where businesses can share threat information without being punished.

Cyber crime is also a global issue, requiring governments to work together more frequently – while managing their different values and approaches to issues like privacy and national security. We were therefore pleased to see global issues like digital trade and cyber crime, with an emphasis on partnerships, included as priorities in the Federal Government’s recently launched International Cyber Engagement Strategy.



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**Question 10: What roles should government, business and individuals play in protecting the community in a digital economy?**

The revised national cyber security strategy released in April 2016 set an overarching framework which included the establishment and allocation of resources for a number of key government responsibilities. These include the Minister Assisting the Prime Minister for Cyber Security, Special Adviser to the Prime Minister on Cyber Security, Ambassador for Cyber Affairs, Australian Cyber Security Growth Network, and Australian Signals Directorate.

However, everyone has a role to play in tackling cyber security. Again, this will require ongoing collaboration and coordination between government, industry and the community.

Both industry and individuals need to be better informed about good cyber security hygiene. It is encouraging that the education sector is reviewing how cyber security skills could be incorporated into their curricula.

**Question 11: What integrity and privacy measures do we need to ensure consumers can protect their data?**

As mentioned above, education will be key to helping consumers understand how to protect their data.

While the new data breach notification scheme was introduced with an intention to reduce data breaches, this still raises questions as to how integrity and privacy measures can be put in place to mitigate data breaches from occurring in the first instance. Rather than automatically reaching out for new regulatory instruments, further collaboration will be needed between industry and government to explore workable and practical remedies such as technological solutions.

**Question 12: What are barriers for business, particularly small business, in adopting cyber security and privacy practices?**

In partnership with industry experts, Ai Group runs cyber security awareness events for businesses from time to time. Based on the anecdotal feedback, there appears to be a range of reasons for why there may be perceived barriers which can be categorised into three areas: cost; resources and capability; and awareness and education.

Some businesses have told us that the cost to invest and implement cyber security measures is expensive compared to the risk of an attack. For example, for medium-size to larger businesses, the cost of insurance against attacks may be disproportionately more expensive than the option of paying for a ransomware attack.

For smaller businesses, the resources and capability to manage cyber security are likely to be limited – often little more than the use of basic cyber security technology, allocation of responsibility to an employee with general IT skills or an outsourced IT service provider.

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The problem may be further exacerbated by the lack of awareness about good cyber security hygiene. A recent example was about a local defence subcontractor who was infiltrated by a hacker, which made global news. According to reports, this local company lost a significant number of commercially sensitive documents for defence-related projects including the Joint Strike Fighter program. This incident had three particularly alarming features. Firstly, the company was made more vulnerable by a combination of several poor cyber hygiene practices, including use of very basic default passwords and old unpatched software. Secondly, the breach began in July 2016, was not discovered until November 2016, and only publicly reported in October 2017 (almost one year on). Thirdly, and of most concern, the company in question is a small engineering firm of about 50 employees, with just one IT staff member, which could describe a great many Australian businesses. They may have thought “my business is too small to attract the attention of hackers”, which is a common response that we hear from smaller businesses.

Ai Group is working with our members to help them overcome these barriers, and we are open to working with industry and government to this end.

**Question 13: What integrity measures do the Australian Government and the private sector need to take to ensure business–consumer transactions are secure?**

Firstly, industry clearly has commercial interests in ensuring that their business and customers’ transactions are protected.

There are currently regulatory measures in place to tackle cyber security including the Telecommunications Sector Security Reform, Mandatory Data Retention, and forthcoming Mandatory Data Breach Notification Scheme.

While these laws are well intentioned, we suspect that many businesses will likely treat these as compliance issues, as mentioned earlier. Based on anecdotal feedback, compliance with these new laws is a big concern for many businesses. However, it does not address the underlying issue of providing businesses with the adequate capability and resources to ensure their systems are secure. Law enforcement resources are an especially critical constraint.

For example, we have also heard directly from SMEs who have lost significant amounts of money from more sophisticated and targeted cyber attacks. Some of these incidents arose from business emails that were compromised through fraud attempts.

In one example, the business reported the incident to a law enforcement agency (who registered the matter on the Australian Cybercrime Online Reporting Network). They were told that this type of crime happened all the time and it would take up to 18 months to investigate the matter which had cost the company up to a quarter of a million dollars, not including the psychological impact of such a loss. As can be imagined, 18 months is ample time for a cyber criminal to convert the money and disappear, and potentially commit the same criminal act numerous times just by the click of a mouse button.

These incidents are becoming more frequent, partly enabled – ironically – by advances in technology, leading to innovative criminal business models like Ransomware-As-A-Service and use of cryptocurrency to enable payment to hackers who can shield their identity. It has also been argued that cyber criminals are more responsive compared to enforcement bodies who have limited resources to address these threats.

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Experts also suggest that global cyber crime is more lucrative than the narcotics trade.<sup>13</sup> Unfortunately, law and enforcement resources expended for tackling cyber security is significantly less than against narcotics.

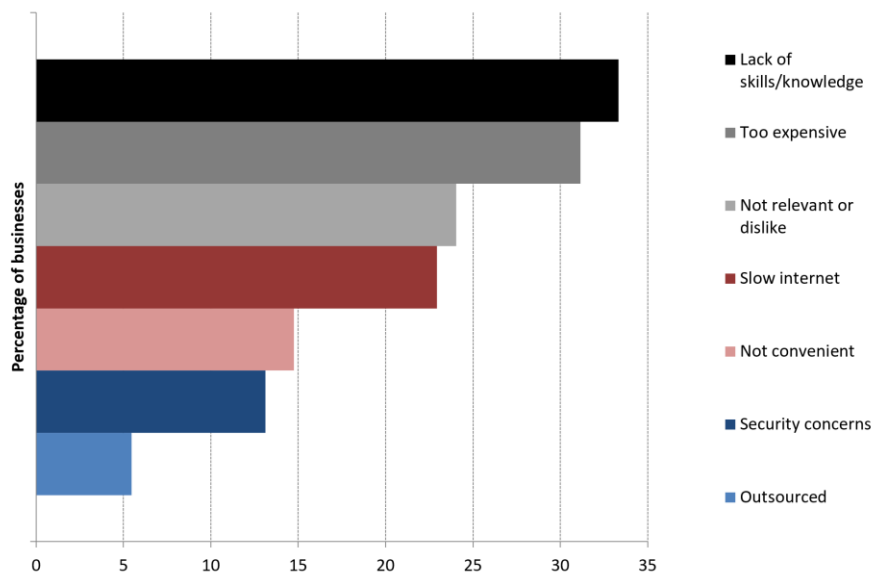
Given the rapidly evolving state of cyber threats and attacks, it is essential that our law enforcement bodies are sufficiently resourced, not only for protecting our national security, but also to protect business and consumers against global cyber crime.

## 5. Building on our areas of competitive strength

### Question 14: What is holding Australian businesses back in terms of benefiting from digital technologies?

Ai Group surveyed 248 Australian businesses about their use of and investment in digital technologies, as well as barriers to this investment. We found that the main barriers to business investment in digital technologies were lack of employee skills (33%), costs (31%), perceived lack of relevance (24%) and slow internet (23%) (Chart 3).<sup>14</sup>

**Chart 3: Barriers to business investment in digital technology (% of businesses)**



Drilling down into skills, we found only 15% of businesses believe they have a high level of digital skills. While it was positive that businesses were generally digitally upskilling their workforce through training or recruitment, 17% of businesses expected to do nothing to improve skills. That is not insignificant.

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<sup>13</sup> Cybersecurity Ventures, “2017 Cybercrime Report” (Report, November 2017), p. 3.

<sup>14</sup> Ai Group, “Business beyond broadband: Are Australian businesses ready for the Fourth Industrial Revolution (Report, May 2017).

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We have also heard anecdotally from members about possible reasons for the slow adoption of digital technologies, particularly among SMEs:

- They do not have the time to assess digital technologies to know what's relevant to them and what the benefits may be;
- They do not know where to start;
- They would like to know what others are doing to determine the benchmark; and
- The speed of change makes it hard to keep up and adapt, even for innovative manufacturers.

We have also heard from both end users and suppliers that while there may be interest from businesses in digital technologies, development and implementation of a real business case is the real challenge.

**Question 16: What efforts are you or your organisation making to respond to digital transformation? Why?**

On Ai Group's part, we have been running a successful series of peer-to-peer thought leadership events, drawing expertise from other industry players to hear about business journeys in innovation and digital transformation for the manufacturing industry. There are also opportunities to explore similar activities for other industry sectors.

We are the lead industry partner in the Innovative Manufacturing Cooperative Research Centre (IMCRC). The aim of the IMCRC is to encourage and help manufacturers to invest in collaborative research to exploit innovative technologies, and to foster a broader industry transformation through increased SME capability in Industry 4.0, business model innovation and leadership development.

We have embarked on a major collaborative project that could reinvent apprenticeships in Australia, working with Siemens and Swinburne. This is an innovative project outside the traditional university system, aimed at strengthening the link between training and jobs, as well as boosting the profile of the vocational education and training sector. The pilot initially involves 20 participants, and based on its success should lead to a larger initiative.

Ai Group provides the online Digital Business Kits (DBK) service, originally developed in partnership with the Australian Government. DBK provides SME manufacturers with a resource of information on building capability in digitalisation. While public funding for this initiative has now expired, industry demand persists – as reflected in use of the web resources and attendance at events supported by the DBK funding. This suggests that more could be done and we would welcome exploring further opportunities with government.

As mentioned earlier, Ai Group is also a partner of the Entrepreneurs' Programme, which includes the ICT and professional services sector that are suppliers to the digital economy. While not necessarily focused on digital enablement, the Programme aims to improve competitiveness, productivity and growth opportunities for this sector.

B&R Enclosures is an Ai Group member that we have used as a business case example of demonstrated leadership in digital transformation in manufacturing. B&R Enclosures has proactively explored opportunities in Industry 4.0 in collaboration with its industry and research

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partners. This led B&R to review its overall business strategy, undertake overseas study tours of digital leaders and increase engagement with industry partners. They have embraced the concept that Industry 4.0 is a global and economy based revolution. And as a member of the community, they recognise a social responsibility to bring people along on the journey.

**Question 17: What opportunities do we have to use digital technologies to improve linkages into export markets and global supply chains?**

According to research by Oxford Economics, SMEs utilising online services are four times more likely to export than offline businesses.<sup>15</sup> In the recent past, would-be SME exporters faced steep costs associated with research, translation services, trade missions, brand development, and distribution. Most of the barriers associated with access to export markets can be lowered through the increased use of online services between businesses and customers and cost reductions from doing business over the internet.

SMEs with high levels of digital engagement are more likely to find new customers and to access new sources for products and services at the best prices. Online reviews have also helped level the playing field for SMEs to compete against larger companies in terms of brand and reputation.

However, most SMEs are not yet exploiting these opportunities. Oxford Economics report that more than 90% of SMEs in Australia are not taking full advantage of digital tools. This is consistent with Ai Group's own research findings.

**Question 18: What opportunities do small and medium-sized businesses have to embrace digital innovation to drive customer value, improve their services and unlock their potential?**

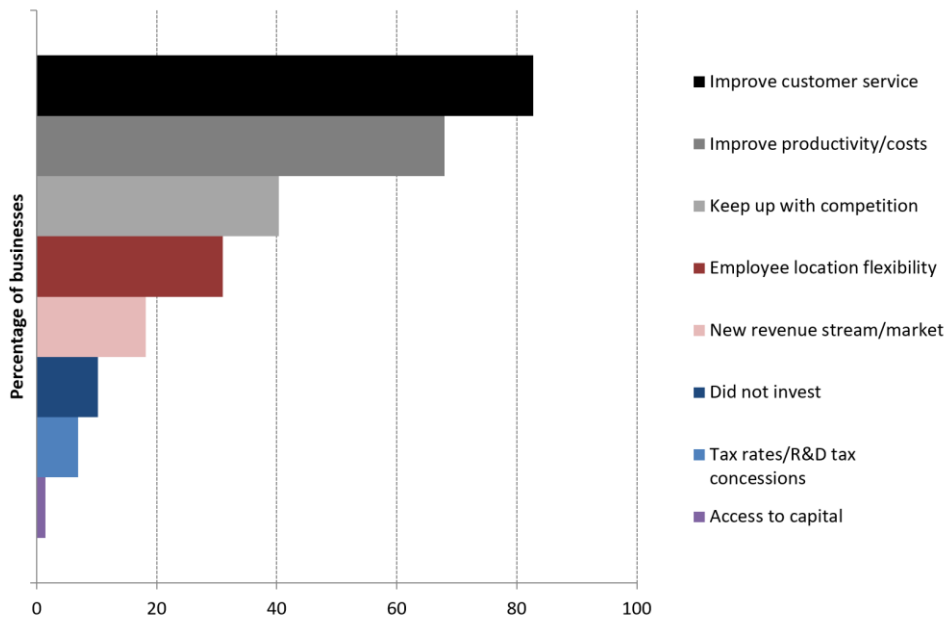
Ai Group's research found that the top objectives of businesses when they invest in digital technologies are to improve: (1) customer service; (2) productivity; and (3) competitiveness (Chart 4).<sup>16</sup>

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<sup>15</sup> Oxford Economics, "Local business global ambition: How the internet is fuelling SME exports in Australia" (Report for Google, June 2017).

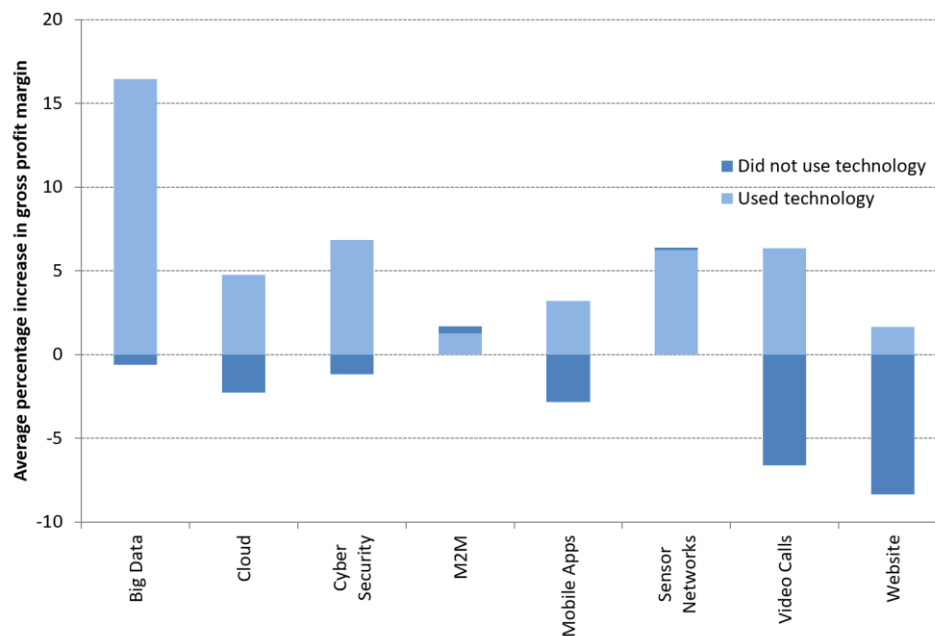
<sup>16</sup> Ai Group, "Business beyond broadband: Are Australian businesses ready for the Fourth Industrial Revolution (Report, May 2017).

**Chart 4: Reasons for investment in digital technology in 2017 (% of businesses)**



Our survey results also showed a close association between digital investment and higher business performance (Chart 5).

**Chart 5: Impact of digital technology investment on gross profit margins**



We found that businesses that maintained investment showed increasing revenue (5%), as did those that increased investment (4%). Businesses that did not invest in digital technologies saw an average 3% decline in revenue.

Our analysis shows an association, but does not prove causation. And while our analysis suggested a link between digital investment and revenue growth, there was still a disconnect amongst business respondents in realising these opportunities and implementing strategies to achieve growth.

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**Question 19: What are the key new growth industries that Australia should be tapping into? In what technologies and sectors should Australian businesses take the lead, and where should we be a ‘fast follower’ of international trends?**

The current focus by the Government is its industry growth centres in: Advanced Manufacturing; Cyber Security; Food and Agribusiness; Medical Technologies and Pharmaceuticals; Mining Equipment, Technology and Services; and Oil, Gas and Energy Resources. Support for developing these industries are important and should continue.

However, there are risks that other sectors impacted by technologies and digitalisation may not receive sufficient attention because they may not clearly fall under the listed industry growth centres.

Emerging technologies (including driverless vehicles, AI, blockchain, drones and IoT), and associated industries and smaller businesses (with less than \$1.5 million turnover including start-ups) may need more attention. Like advanced manufacturing and cyber security, these emerging technologies can be applied across industries.

## 6. Empowering all Australians through digital skills and inclusion

**Question 20: What opportunities do we have to equip Australians with the skills they need for the digital economy, today’s jobs, and jobs of the future?**

Ensuring our youth has the necessary skills is fundamental to industry success in the long term.

Digital literacy is becoming a foundational skill in workplaces. With the digital economy changing the way work is carried out, digital skills are increasingly being integrated with the capabilities to process complex information, communicate with co-workers, solve problems, plan in advance and adjust quickly.

We need to improve digital literacy across all education sectors and the workforce itself.

In our schools, Science, Technology, Engineering and Maths (STEM) education is a prerequisite for the current and future workforce. We need more coordination of STEM activity with greater industry participation and a bigger workforce of qualified STEM teachers. Those teachers in turn need to work from a more engaging school curriculum and with pedagogy developed to attract students to STEM.

At the higher education level, our research suggests that graduates will be better equipped by improved practices around work integrated learning (WIL) for both undergraduate and research students, and closer connections between universities and business. We have also found that partnerships in WIL can lead to greater support for collaborative innovation.



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The VET sector needs to be part of the government's innovation initiatives. All VET qualifications will need to be re-examined for their capacity to incorporate both STEM and higher order skills that may provide a pathway to higher education and a career for the future. A 2017 National Centre for Vocational Education Research (NCVER) report found that the VET system contains a significant amount of digital training content, although much of this is elective rather than part of the core.<sup>17</sup> The training is also geared towards the development of lower levels of skills. This is counter to the growing evidence of the increasing need for higher-order skills in data analytics, cyber security, social media and mobile-related digital skills. Ai Group is piloting a higher level skills approach in our partnership project with Siemens and Swinburne University on the Industry 4.0 Higher Apprenticeships Project.

In addition to developing the future workforce, a crucial contributor to industry's success will be the re-skilling of Australia's existing workers to possess the digital skills needed for today's jobs. Support is needed for industry to assess existing workers' digital capabilities and train where necessary, resulting in employees who are more capable of undertaking productive and engaged roles and better able to contribute to innovation in the workplace.

**Question 21: What opportunities do we have to bridge the 'digital divide' and make the most of the benefits that digital technologies present for social inclusion?**

The history of previous industrial revolutions suggests that if factors related to social inequality are not appropriately addressed, there is a risk that Australia will be one of the unlucky countries that falls behind. Public policy such as around government inclusiveness and education contributes to the social divide as well as the digital divide. And we are already seeing the effects of poor management in other countries where these divisions are growing.

According to the 2017 Australian Digital Inclusion Index report, the socio-demographic groups that were most digitally excluded in Australia in 2017 were: people in low income households; people aged over 65; people with a disability; people who did not complete secondary school; Indigenous Australians; and people not in paid employment.<sup>18</sup> While there appears to be improvement in some areas (such as digital access, digital ability, value of internet services, and disability and Indigenous inclusion), there still remains a gap between the digitally included and excluded.

We, as a community, need to re-examine how change is managed. We should neither hold back the tide nor be indifferent to change. However, the ultimate benefits of technological change do not erase the transitional costs to disrupted industries and displaced workers.

Businesses have responsibilities to recognise and respond to transitional costs, not just the benefits of an exciting new direction. And some are already demonstrating leadership in this area.

For example, SAP Australia and The Smith Family have partnered to narrow the digital divide by supporting disadvantaged students to participate in an innovative digital challenge through the Young ICT Explorers program. This initiative aims to foster life-long digital literacy skills in school-aged children.

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<sup>17</sup> NCVER, "Developing appropriate workforce skills for Australia's emerging digital economy" (Working paper, September 2017).

<sup>18</sup> RMIT University, "Measuring Australia's digital divide: The Australian digital inclusion index 2017" (Report, August 2017), pp. 5-6.

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Another positive example of business leadership in digital inclusion is Telstra's Everyone Connected programs, which aim to empower all Australians to enjoy the benefits that new communication technologies bring. In the last financial year, Telstra reached more than 63,000 people through their digital literacy programs, including: Tech Savvy Seniors training sessions for older Australians; the InDigiMob network of Indigenous digital mentors supporting remote Northern Territory communities; the Access for Everyone program helping people facing financial hardship to stay connected; and Kids Digital Futures, supporting young people in regional areas to build the skills they need in the future.

Government also has a leadership role. Based on our research, areas that still need government attention include:

- Education and training of the workforce including targeted socio demographic groups with the essential skillsets for the future.
- Accelerating and enabling access to all regions in Australia with digital infrastructure that is fit for purpose.
- Providing globally competitive conditions for business to invest in Australia.

**Question 22: What opportunities do we have to ensure digital technology has a positive impact on the cultural practices and social relationships of Australians?**

In addition to addressing social issues such as the digital divide, there are opportunities whereby society can be positively improved through digital technology. For example, digital technology enables for more social interaction and formation of social communities. In the workplace, this may translate to a more relationship-focused organisation and positive teamworking environment.

There are also industry initiatives that demonstrate how digital technologies can improve the cultural and social well-being of the Australian community. For example, the Google.org Impact Challenge is an initiative supported by Google, which offers innovators in the not-for-profit sector the opportunity to pitch solutions using digital technology to address specific social problems, with the Challenge winners receiving Google funding to further boost their ideas.