



Navigating Technology and the Jobs of the Future

How technology is impacting the work, the
workplace and the worker of the future

March 2018 Summit

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Introduction

On 22 March 2018, the Australian Information Industry Association (AIIA) hosted its 7th annual Navigating Summit conference, this year focusing on how technology is impacting the work, the workplace and the worker of the future. Specifically, the Summit examined impacts within the public sector – what work it currently does, what skills employees will need – and potentially how it will transform the way it operates.

The aim of AIIA's 'Navigating' series is to explore opportunities and challenges of technology capability to generate debate and action about how that capability can facilitate Australia's continued economic prosperity and competitiveness.

The 2018 Summit was well attended by over 200 delegates including Ministers, government officials, subject matter experts, industry leaders and media. Discussion centered around policy issues, trends, challenges and opportunities related to new technologies, and how government and industry can develop a practical strategy and action plan to prepare Australians for the jobs of the future.

Research conducted by the AIIA in February last year, showed the Australian people expect government to deliver better digital outcomes. Attendees and speakers addressed the need to balance the role of new technology and the 'human touch' to improve the efficiency and quality of government service delivery.

Themes

With an overarching focus on how digitisation, automation, and advances in artificial intelligence will disrupt the public sector workforce, the Summit program covered themes such as:

- Navigating the jobs of the future – Examining how new technologies will change the work done by public sector employees, the skills they need to have, and the way that staff are recruited.
- Transitioning the workforce – Ensuring the digital literacy of our labour market is aligned with the pace of technological change.
- Architecting an agile workplace for the future – Exploring the architecture and the components necessary to build an effective workplace where pervasive technologies augment the role and activities of people.

Building tomorrow's jobs today

Arising from the Summit, a priority for AIIA is to ensure government and industry cooperate to help Australians upskill and adapt to jobs of the future.

In support of this AIIA proposes policy that:

- Promotes digital literacy as the new norm – Without basic digital competencies, a person will not have the skills to negotiate the digitally connected world.
- Addresses transitional issues like developing opportunities for workers to re-skill and up-skill to ensure potentially disrupted workers are not displaced or dislocated from the broader community. As well as identifying and addressing the needs of vulnerable sectors less able to adapt to changes brought about by technology.
- Evaluates skills, education and training needs of the future. This may include developing strategies to:
 - Encourage young people to develop more 'holistic' skills portfolios.
 - Integrate jobs for tomorrow skills into mainstream learning experiences.

- Provide students with creative and 'doing' learning models.
- Investigate new skill acquisition and employment based learning pathways.
- More agile skill acquisition models aimed to support the re-skilling and up-skilling requirements of the future workforce, including lifelong learning approaches.
- Develop new models of industry engagement with education and training institutions.
- Reviews' Australia's Industrial Relations framework to support workers and workplaces better understand technological developments and their potential impacts.

Insights in detail

Is technological change a threat to jobs?

Participants agreed that Australians need to embrace new digital and technological advances and opportunities to ensure all our industries remain competitive. At the heart of this needs to be a positive and confident narrative about a future in which technology will be integral to the way we work, without the fear of higher unemployment.

We have lost nearly 400,000 administration and clerical jobs over the last 20 years, and 60 per cent of all young Australians are studying for jobs that will likely disappear - but are the rate of job losses today any greater than in previous decades? The answer is no. The difference is not in the number of jobs that are being lost but in the types of jobs being lost. In the past job losses were centred around farms and factories. Today they are in the services sector.

The types of jobs growing and disappearing is only a small part of the story – the biggest impact of technological change is *how* we do the jobs we already have. Australians are doing more interpersonal, creative and decision making tasks and less physical and administration tasks. Machines and automation take away the tasks that are dirty, dangerous and repetitive, and make the work we do more human.

We are on the verge of a move from the information era to the augmented era where machines and minds complement each other. Users of government services expect personalisation and faster resolution of issues, and frontline government staff require automation and data to provide quicker outcomes that are being demanded.

While technology is at the heart of the disruption to the workforce, it is also the key to our future prosperity and we must act now to fully utilise it. Automation will ultimately result in higher productivity and is likely to lead to flatter workforce structures, more flexible, activity-based roles and the emergence of agile teams working across departments.

Participants agreed we need to think ahead. Although predicting what jobs will look like decades away cannot be done accurately, the next 10 to 15 years will see the use of data and analytics and technologies such as automation, AI, augmented and virtual reality and robotics increasingly integrate into the workforce – and at a much faster pace than we have experienced previously.

Predictions about which jobs will exist in the future may not be perfect but we can speculate, with a level of confidence, about some of the new types of roles and skill sets that will be required as these new technologies build momentum.

How can Australia upskill and adapt to the jobs of the future?

It is estimated that by the year 2030, 75 per cent of jobs that will exist have not even been invented yet. If you asked Australians 30 years ago, if there would be a Social Media Manager or a Chief Innovation Officer, for example, the answer would have been a resounding no. The key to adapting is to upskill, cross skill and reskill our people – but speakers said that this feels more like a commentary at present, rather than a structured plan that we can drive together.

Participants underlined that we need a different mind-set – one of makers, doers and life-long learners – and this needs to be supported by new education models. Speakers addressed the need for business, government and academia to collaborate and work in the same direction towards needed outcomes.

There is an urgent need for a practical strategy and action plan for the future of jobs. The policy issues translate to digital inclusion, managing those in transition and more fundamentally, skills, education and training.

Participants agreed that policy makers need to anticipate and respond to issues, to minimise negative or damaging impacts well in advance. We need to be on the front foot and remember that transition has always been part of our social fabric.

What action is required for digital inclusion?

People can't be left behind in the digital revolution. Participants agreed active and practical strategies need to be developed to build Australia's digital literacy capabilities to prevent social and economic dislocation.

Without a minimum baseline of digital knowledge, skills and resources, citizens will have difficulty finding a job in the future. Studies have consistently found that equipping people with digital skills that enable them to participate effectively in the labour market, delivers real economic and social benefits. It reduces unemployment, drives productivity and growth and contributes to broader social cohesion.

ICT and digital leaders intend to work proactively with governments and communities to increase awareness of technology developments on the horizon, and to better understand and anticipate the wider social and economic impacts of these.

Early identification of impediments to digital inclusion, particularly for some groups of individuals or communities, means active and practical strategies can be developed early enough to build Australia's digital literacy capabilities.

How can organisations help workers transition?

Participants agreed organisations should provide opportunities for employees to re-skill and up-skill to ensure potentially disrupted workers are not displaced or dislocated from the broader community. They should also identify and address needs of vulnerable sectors of the labour market.

While participants were optimistic about the outlook for jobs of the future, there is no doubt that some jobs and people will be impacted more than others. For some this may involve simple re-skilling or up-skilling. For others, their jobs may change substantially and at worse, disappear. Providing opportunities for workers to re-skill and up-skill is critical to ensuring potentially disrupted workers are not displaced or worse, dislocated from the broader community.

Finally, participants agreed that more research needs to be done on the impacts of technology change on vulnerable sectors of the labour market such as older workers. Early intervention may lead to greater labour market participation down the line.

What skills, education and training do we need?

Skilling up and reskilling our labour market will be one of the most critical factors in shaping the quality and resilience of our future workforce.

Participants agreed that young people need to develop more 'holistic' skills portfolios. Jobs for tomorrow skills should be integrated into mainstream learning experiences and students should be provided with creative and 'doing' learning models. Meanwhile new skill acquisition and employment based learning pathways should be investigated.

To effectively participate in the workforce of the future, children today (and in the future) need to develop a more 'holistic' skills portfolio. This includes increased general STEM capabilities and, more importantly, creativity, reasoning and complex problem-solving skills, combined with social and cognitive processing skills.

At the tertiary level improved alignment between graduate skills and work readiness and the needs of employers is required. This is one of the greatest areas of opportunity for industry to contribute to future skill development. Studies have shown that 'internship' type work experience undertaken while at university can halve the time it takes for students to find work once they have graduated.

New skill acquisition models are also needed, for example, higher apprenticeship schemes aimed to meet the needs of advanced training outside the traditional university system, and study which provides an employment-based learning path.

With increased expectations for more agile and flexible skill acquisition, the role of the vocational education and training (VET) sector is increasingly important. The VET sector already has deep relationships with industry, expertise and experience in middle skill qualification development, and typically provides course offerings that are shorter in duration and directed to specific skill requirements.

How do we encourage workplace and life-long learning?

Speakers noted that more agile skill acquisition models aimed to support the re-skilling and up-skilling requirements of the future workforce are needed, including lifelong learning approaches. In the context of our complex and fast paced digital economy, future demands for talent are changing faster than industry and educational institutions can keep pace with.

Government and industry need to ensure that on-going learning structures and supporting systems are available to enable and empower workers to refresh their skills. This goes beyond mainstream curriculum development to ensuring more agile skill acquisition models aimed to support the re-skilling and up-skilling requirements of the future workforce. This is especially important for middle skill workers impacted by technology who need to keep pace with changing skill demands.

Participants agreed that knowledge transfer from staff ensures continuity and that we must guard and protect against key knowledge leaving departments without a back-up. Knowledge must be centralised as we are now past a position where one person holds domain knowledge.

Again, the ICT industry has a key role in advising of emerging technology and informing the content and focus of these structures and programs.

What is the role of industry in anticipating and informing skills development?

Participants agreed that we need to develop new models of industry engagement with education and training institutions.

Reskilling and retraining efforts are unlikely to deliver the desired result unless their content anticipates impending change. Skills and educational content based only on today's needs will limit our ability to make investment decisions for the skills required for tomorrow. While in the past it has been sufficient to address this lag of skills to jobs over time, today people and businesses that do not keep pace with technological change are disadvantaged. This has broader impacts on our economy.

Industry has a key role in helping inform and prepare educators (specifically those that develop and deliver curriculum content) about how new technology and its application will demand new skill sets and how technology can be used to deliver more agile and flexible skills programs. New models of industry engagement with education and training institutions are also required.

Participating speakers, panelists and moderators included:

- **Senator the Hon. Zed Seselja**, Assistant Minister for Science, Jobs and Innovation
- **Gai Brodtmann MP**, Shadow Assistant Minister for Cyber Security and Defence Personnel
- **Chris Moraitis PSM**, Secretary, Attorney General's Department
- **Gavin Slater**, CEO of the Digital Transformation Agency
- **Professor Elanor Huntington**, Dean of Engineering and Computer Science - Australian National University
- **Elizabeth Kelly**, Deputy Secretary, Department of Industry, Innovation and Science, Jobs and Innovation Portfolio
- **Martin Hehir**, Deputy Secretary, Department of Employment
- **Kathy Leigh**, Head of Service and Director-General, Chief Minister, Treasury and Economic Development Directorate, ACT Government
- **Mukul Agrawal**, Chief Citizen Experience Officer, Department of Human Services **Kerryn Vine-Camp**, First Assistant Commissioner, Australian Public Service Commission
- **Mr David Pattie**, Group Manager Improving Student Outcomes at Australian Government Department of Education and Training
- **Dr Claire Mason**, Senior Social Scientist, Data61/CSIRO
- **John Paitaridis**, AIIA Chairman
- **Rob Fitzpatrick**, CEO, AIIA
- **Greg Boorer**, Chair, AIIA ACT Council
- **Dr Andrew Charlton**, Director at AlphaBeta Advisors
- **Elizabeth Vega**, Founder and CEO, Informed Solutions and AIIA National Board Director
- **Stuart Althaus**, CEO, SME Gateway
- **Jan Owen AM**, CEO, The Foundation for Young Australians
- **Fiona Anson**, Co-Founder and Director JobGetter and AIIA National Board Director
- **Cameron Pitt**, Partner, Human Capital Consulting, Deloitte
- **Jennifer Mulveny**, Director, Government Relations, Adobe Asia Pacific
- **Julian Clarke**, Head of Human Resources, Telstra Enterprise
- **Permenthri Pillay**, Vice President & Partner, Public Sector Leader, IBM ANZ
- **James Hipwell**, Head of ACT Major Accounts, Telstra Enterprise
- **Brad Howarth**, Researcher and Writer