ACS 2016-17 Skilled Occupations List Submission

The following details evidence for the occupations in response to the information within the text boxes of the SOL Online Form which is based on the ACS Digital Pulse report. Access to the full Digital Pulse report is via the following link - http://www.acs.org.au/__data/assets/pdf_file/0006/69720/02062015-Australias-Digital-Pulse-FINAL.PDF

SOL Online Form Text Box 1
Are there any occupations that you represent where there is evidence of imbalances in the demand and supply of skills in the medium to long-term? Please list them. - 0 of 1000 characters

ACS Proposed Submission 1
The Australian Computer Society (ACS) has been conducting annual salary surveys since 1993 and in partnership with Deloitte Access Economics, launched a new report early this year, Australia’s Digital Pulse, which shows that digital technologies is one of the fastest growing parts of Australia’s economy. It found its economic contribution grew in the past three years to a 5.1% share of our GDP – from $50 billion in 2011 to $79 billion in 2013-14.

The report found there has been 5% growth in the number of ICT professionals, with an increase to 600,000 ICT workers in 2014, and demand for a further 100,000 workers over the next six years. Despite the demand, the number of graduates with ICT qualifications has declined significantly since the early 2000s.

The report shows that Australia needs a workforce that is equipped with the ICT skills necessary to fuel its digitally-driven economic growth.

Demand for ICT workers in Australia is forecast to increase by 100,000 workers over six years, from around 600,000 workers in 2014 to more than 700,000 workers in 2020. In particular, growth is expected to be strongest for technical, professional, management and operational occupations.

This reflects the integration of ICT workers across a broad range of industries as digital disruption continues to change the role of technology across the workforce in the future.

Consequently, demand for ICT skills and qualifications is also expected to increase in the future, with the strongest growth projected to be in postgraduate ICT qualifications.

- ICT management and operation occupations are forecast for an average annual growth of 3.1% from 184,907 in 2014 to 222,080 in 2020.
• ICT technical and professional occupations are forecast for an average annual growth of 2.6% from 213,107 in 2014 to 247,919 in 2020.

• Other ICT occupations not listed here are forecast for an average annual growth of 1.7% from 207,738 in 2014 to 230,484 in 2020.

The following list details the main occupations in demand over the medium to long-term for inclusion into the 2016-17 SOL:

1. 262111 - Database Administrator
2. 262112 - ICT Security Specialist
3. 262113 - Systems Administrator
4. 263211 - ICT Quality Assurance Engineer
5. 263212 - ICT Support Engineer
6. 263213 - ICT Systems Test Engineer
7. 263299 - ICT Support and Test Engineer NEC
8. 261212 - Web Developer
9. 261211 - Multimedia Specialist
10. 261399 - Software and Application Programmer

The following occupations are currently on the SOL and are deemed to be in demand over the medium to long-term and proposed to continue on the 2016-17 SOL:

1. 263111 - Computer Network and Systems Engineer
2. 261111 - ICT Business Analysts
3. 261112 - Systems Analysts
4. 261311 - Analyst Programmer
5. 261312 - Developer Programmer
6. 261313 - Software Engineer

ACS has an active role in international markets where examples include being members of the International Federation for Information Processing and the South East Asia Regional Computer Confederation. Through this advocacy we are in a privileged position to meet and develop on-going dialogue with ICT Leaders across the globe. For these leaders, assuring the pipeline of future ICT human capital is the critical challenge to driving productivity and enhancing standards of living for developed economies, and raising standards of living for developing economies.

The digital economy has well and truly arrived. It is hard to imagine any new business, product or service that won’t be delivered either through technology, or achieve scalability and cost efficiency through the use of technology.

There are clear indicators pointing to future skills needs:
• Government and businesses expeditiously re-organising ICT infrastructure to meet customer demand for mobility and access anywhere/any time to services.
• Big data and analytics to underpin the digital economy
• Private and public cloud computing to achieve efficiencies of scale
• Businesses purchasing a plethora of ICT products and services to gain access to innovation and drive efficiencies.

**SOL Online Form Text Box 2**

Is there evidence of imbalances in the demand for and supply of skills in the medium to long-term in non-metropolitan areas? - Please indicate in which part of Australia this imbalance exists.

**ACS Proposed Submission 2**

The demand for ICT workers required by 2020 encompasses the Australia wide labour force including non-metropolitan areas.

There are around 600,000 ICT workers employed in the Australian labour force. Around half of all ICT workers are directly employed in ICT-related industries such as computer system design, telecommunications services and internet service providers. Beyond that core group, ICT workers can be found across a range of areas outside these ICT-related industries, with a particularly large presence in professional industries such as other professional services, public administration and financial services.

The role of ICT workers in facilitating the increasingly important digital economy means that forecast employment growth for the sector is stronger than the economy as a whole. Growth in the ICT sector is likely to be strongest for technical, professional, management and operational occupations. This reflects the integration of ICT workers across a broad range of industries, particularly professional services.

Within the ICT workforce, jobs growth is predicted to be strongest for ICT management and operations (3.1% average annual growth), ICT technical and professional workers (2.6% average annual growth) and ICT sales workers (3.3% average annual growth). ICT workers in the trades fields are expected to see more modest growth; 1.4% p.a. for ICT trades and 0.5% p.a. for electronic trades and professionals. Finally, employment in the ICT industry admin and logistics support employment group is expected to see reasonably healthy growth of 1.6% p.a.

The fact that ICT management, operations, technical and professional roles are expected to drive employment growth in the ICT workforce over the near future is consistent with the trend observed over the past six years. Between 2008 and 2014, these particular ICT occupations accounted for almost 70% of total growth in the ICT workforce. This reflects the integration of technical and operational ICT workers across a broad range of sectors outside of traditional technology industries (such as the professional services industry) – a trend which is
expected to persist as the digital economy grows and digital disruption continues to change the way different occupations use and produce technology.

Importantly, this trend towards continued integration of ICT into business operations means that the definition of ICT workers and the ICT requirements of Australian businesses are likely to expand further over the coming decade. For example, mining that is currently done on-site may be done remotely in the future, which could mean that some traditional engineering roles will merge with ICT-related positions. Because of these trends, the projected growth in demand for ICT workers may be understated as the forecasts assume that the role of ICT in the future will be constrained to similar functions as are performed now.

It is clear that demand for ICT workers in Australia is forecast to increase in future years as the digital economy continues to grow, with almost 100,000 additional ICT workers required by 2020. Skills demand is also expected to steadily increase. This could cause further skills shortages, and a reliance on foreign ICT skills may leave Australia vulnerable to these shortages if the supply of foreign ICT workers is unable to be sustained – for example, due to increasing competition for these workers as noted in AWPA’s 2013 ICT Workforce Study: ‘As Australia competes with emerging economies for this skilled labour, and as the demand for ICT workers across a range of professional, technical and trade occupations increases in coming years, a substantial increase in the domestic supply of ICT specialists will be required.’

Indeed, Australian employers are already showing signs of apprehension about potential skills shortages in the future, particularly in technical capabilities given the forecast growth in demand for higher educational qualifications.

**SOL Online Form Text Box 3**

Is it expected that your employment sector will be impacted by any medium to long-term trends which will impact upon demand and/or supply (excluding costs associated with training, labour hire, and international sponsorship)? - Please provide evidence (e.g. data source, policy document) which substantiates these claims.

For example:

- New benchmarks for childcare centres mandate increased staff-to-child ratios and higher qualification standards for childcare workers.

**ACS Proposed Submission 3**

A common national and global issue is that student interest in ICT subjects has been declining over recent decades. This is consistent with the NSW experience where ‘in 2000 over 17,000 students were studying Computing Studies [the computing subject prior to the separation into IPT and SDD in 2000]. Now, the combined total of students studying IPT, SDD and the VET IDT course has reduced to around 6,000 students.’
The rapidly growing digital economy means that ICT skills have an increasingly important role in Australia’s labour force. Australia needs to ensure that its business practices, policy settings and education system are all working towards equipping our workforce with these skills, to enable us to face the challenges associated with digital disruption in the future.

SOL Online Form Text Box 4
Please provide any additional information you consider relevant evidence to support your submission. For example, you may know of independent studies about your occupation that supports your advice to us.

ACS Proposed Submission 4


- Mar 9, 2015 - Cisco estimates a million unfilled security jobs worldwide. ... polled by ISACA believe there’s a shortage of skilled cybersecurity professionals - [7 Startling Stats on the Cyber Security Skills Shortage](http://www.isaca.org/pages/cybersecurity-global-status-report.aspx)

- ISACA conducted the 2015 Global Cybersecurity Status Report in January 2015 to obtain ... "As the global community faces growing cybersecurity skills shortages ... and the financial impact reaching hundreds of billions dollars worldwide - [http://www.isaca.org/pages/cybersecurity-global-status-report.aspx](http://www.isaca.org/pages/cybersecurity-global-status-report.aspx)


- Building Australia’s Comparative Advantages Report by the Business Council of Australia (Upload PDF)