



10 May 2024

Jobs and Skills Australia
Department of Employment and Workplace Relations
GPO Box 9828
Canberra ACT 2601

ACS feedback on the DRAFT Core Skills Occupation List

Thank you for the opportunity to provide feedback on the Draft Core Skills Occupation List.

The Australian Computer Society (ACS) is the authorised assessing authority that evaluates the skills of information and communications (ICT) and data science professionals considering migrating to Australia, particularly those interested in migration under the General Skilled Migration categories.

ACS is Australia's leading professional association for the ICT sector. We proudly represent a thriving community of over 47,000 members across the nation's states and territories. Our members span every sector of the economy, putting ACS in a unique position to provide insight into the sector's workforce and skills development landscape.

ACS works to accelerate the growth of a highly skilled tech sector, supporting the development of a diverse and growing workforce by:

- Fostering an innovative and inclusive community dedicated to powering positive change through technology in Australia.
- Setting the standard for assessing, developing and recognising the skills and experience of technology professionals.
- Creating career pathways to guide technology professionals, securing a talent pipeline for our dynamic industry.
- Assessing and supporting technology-skilled migrants, addressing critical skills shortages for industry while we build a more diverse and skilled workforce.

ACS would be delighted to provide more information to the Committee on any aspect of our submission. Please feel free to contact me by email at [REDACTED]



Yours sincerely



Australian Computer Society

ACS submission to Jobs and Skills Australia on the draft Core Skills Occupation List

Australia needs more tech workers than our domestic supply pathways can deliver.

ACS has consistently advocated for increasing the number of skilled IT professionals in Australia to position the country for technology leadership in the 21st-century global economy.

For nearly 10 years, ACS has partnered with Deloitte Access Economics on the annual *ACS Australia's Digital Pulse*¹ reports. Each year, this report quantifies the growth of the country's ICT workforce, projects its future expansion, and explains how Australia is not meeting the necessary demand for innovation in a competitive landscape.

This year, the report pointed to a workforce gap of 205,000 tech workers to match business-as-usual demand by 2030, rising to 237,000 workers if Australia was to match the US's spending on critical technology (proportionate to GDP).

Digital Pulse notes that a 7 per cent year-on-year growth in job advertisements for technology workers has increased the difficulty of recruiting talent and exacerbated labour shortages across the economy. Addressing these skills shortages requires concerted action to increase the number of workers entering the sector, including attracting additional skilled migrants to Australia.

Australia's ongoing need for people with general ICT skills, and the inability of domestic sources of supply to meet the demands of a dynamic and growing industry, suggest that Australia should cast as wide a net as possible when targeting skilled ICT migrants.

ACS recommends all ICT positions be positioned on the 'Confident On' list as an interim measure while JSA pursues options to enhance the CSOL.

At the end of this submission are three tables with ICT roles listed on the Draft Core Skills Occupation List (CSOL). ACS encourages Jobs and Skills Australia (JSA) to include all of them in the final CSOL.

Our recommendation is based on the gap between domestic supply and projected ICT workforce size; how ICT skills and capabilities are transferable and highly relevant to the 21st-century economy; and ACS's research showing that ICT-skilled migrants tend to find applicable work in Australia.

¹ ACS – Australia's Digital Pulse 2023. Available at <https://www.acs.org.au/insightsandpublications/reports-publications/digital-pulse-2023.html>

Considerations around specific roles

ACS recognises that the support roles in Table 2 are typically entry-level and thus may be unsuitable for migration settings aimed at filling gaps in highly skilled occupations. While we strongly recommend their inclusion on the 'Confident On' list, ACS accepts that JSA may decide to maintain their listing on the 'Confident Off' list.

Cyber security and data analytics occupations may have been placed on the 'Targeted for Consultation' list because they are relatively new to ANZSCO classification. Feedback from ACS members suggests increased demand for occupations related to data analytics, machine learning, artificial intelligence, and cyber security. This is partly due to technological adaptation and policy changes affecting the IT sector and the broader economy. Given the dynamic nature of the IT sector, ACS suggests Australia's best interests might be served in adding these newly categorised roles to CSOL.

There are, however, two caveats to consider relating to these occupations:

1. As companies seek to navigate the ethical and technical challenges associated with AI implementation, new roles like AI ethics specialist and machine learning engineer have come to the fore. There is an emerging need for data analysts and data scientists, as the National Skills Commission (JSA's predecessor) recognised in a 2020 paper². Whether demand for these roles will remain high or plateau as Australian organisations catch up to the leading edge remains to be seen. We encourage JSA to consider how flexibility might be built into the CSOL for ICT occupations to facilitate responsiveness to changes in the industry, which can occur quickly.
2. Many employers specify "demonstrated experience" requirements when recruiting cybersecurity professionals domestically. This can contribute to shortages in these occupations by establishing a high barrier to entry for young professionals or people retraining to a tech career. Skilled migrants could help bridge this gap provided employers do not prefer *local* experience over international experience, as ACS and Settlement Services International (SSI) noted in our 2023 employer's guide *Billion Dollar Benefit: Welcoming Tech Talent*³. ACS understands that most organisations do, however, require citizenship or permanent residency for cyber security personnel which can be a barrier for skilled migrants and may require additional policy consideration.

² National Skills Commission – Emerging occupations: How new skills are changing Australian jobs. Available at <https://www.jobsandskills.gov.au/sites/default/files/2023-12/Emerging%20occupations%20-%20how%20new%20skills%20are%20changing%20Australian%20jobs.pdf> [PDF]

³ ACS and SSI – Billion Dollar Benefit: Welcoming Tech Talent. Available at <https://www.acs.org.au/insightsandpublications/reports-publications/billion-dollar-benefit-welcoming-tech-talent.html>

ICT migrants bring transferrable and highly relevant skills to a technology-driven economy, but it can take time to find a job.

Earlier this year, ACS produced the first *Skilled Journeys: Navigating IT Migration in Australia*⁴ report based on data from our longitudinal survey of the experience of migrants who have gone through an ACS Migration Skills Assessment.

This report set a historical benchmark by surveying ICT-skilled migrants who completed their ACS assessments from July 2017 to July 2022. ACS and our research partner, The Evolved Group, will continue to survey ICT-skilled migrants every six months to understand their experiences, including their ability to find work in Australia that matches their skill sets.

Responses from the pilot survey suggest that, over the long term, ICT-skilled migrants find relevant work but often face a difficult transition period. Less than half of respondents found their job within six months of completing an ACS skills assessment with nearly a quarter saying it took at least a year. Many ICT-skilled migrants said it was difficult to find a relevant job with a lack of local experience identified as the main contributing factor.

ACS would welcome the opportunity to update JSA as our research produces more insights.

ICT-skilled migrants, like all IT professionals, have transferrable skills that are extremely relevant and desirable in the digitally enabled modern economy. According to the JSA's Australian Skills Classification, the 'Software Engineer' occupation – currently on the 'Targeted for Consultation' list – has a range of transferrable skills and technology tools. It is also an occupation that scores 'High' on three core competencies (including 'digital engagement' and 'initiative and innovation') necessary for local employers to pursue the government's Future Made in Australia policy. ICT skills are transferable, naturally require technological engagement, and are highly relevant to the government's objective of enabling a diverse, high-tech economy.

If Australia is committed to bringing in skilled workers as part of its migration strategy, we should ensure they bring skills for the 21st century.

The CSOL must be flexible and current to capture ongoing technological adaptations, including AI, and their relevant market impacts.

Each new computing paradigm has dramatically changed the effects of computers on business and everyday life. From the vacuum tube to the transistor, the mainframe to the personal computer; from the early internet to the social web and now the rise of AI – the pace of change in this field is rapid. These developments generate and necessitate entirely new market demands and occupations.

Digital Pulse 2023 estimates that generative AI may severely disrupt skills like gathering and analysing information, managing operational budgets, and providing financial advice in the coming years – if they haven't been already.

⁴ ACS – Skilled Journeys: Navigating IT Migration in Australia. Available at https://www.acs.org.au/insightsandpublications/reports-publications/Skilled_Journeys_Navigating_IT_migration_in_Australia.html

Computer network professionals, software developers, and web developers are expected to have at least 70 per cent of their work time impacted by generative AI. That proportion rises to 80 per cent for business and systems analysts, and 90 per cent for support engineers by 2030.

The current ANZSCO duties for technology-related occupations have not kept pace with the sector's rapid evolution, leading to a mismatch between the skills and experience required by employers and the skills and experience outlined by the ANZSCO classification of occupations.

ACS has previously worked with the Australian Bureau of Statistics on updating the ANZSCO codes. Our full submission to ABS's recent ANZSCO comprehensive review is included as an appendix to this submission.

We encourage JSA to investigate and explore ongoing changes within the IT profession and to build a mechanism for regular and data-informed reviews and refreshes of the CSOL. Methodologies that can better combine skills- and jobs-based approaches to understanding the IT workforce will help ensure Australia has a responsive and relevant CSOL.

ACS is developing an IT Occupational Framework to support a better understanding and reflection of the IT profession's elasticity.

We have marked some occupations in the tables below that appear on the draft CSOL but do not appear in ACS's current draft framework. Some have been omitted from our framework because they are either obsolete (for example, 313113 – Web Administrator) or can be consolidated (Web Developer and Analyst Programmer could both be captured by the Software Engineer occupation, for example).

ACS is creating this framework considering other lists (like ANZSCO) used by organisations in Australia, and globally, to facilitate greater interoperability between these IT jobs lists. ACS has examined the commonalities, differences, and vernacular used by other job lists and combined that analysis with our unique IP to further break those roles into individual skills. The ACS IT Occupational Framework is not intended to replace other lists but as a nexus for transferability between them.

Once we have standard definitions built out, ACS will actively invest in a deeper data-driven understanding of those occupations including the number of people employed in those roles, occupational changes, salary guides, and indicative demand.

ACS would welcome the opportunity to share and discuss our proof-of-concept list and other information about the ACS IT Occupational Framework with JSA.

ACS does, however, appreciate that JSA is working within the limitations of ANZSCO. As such, we recommend JSA use a higher level 4-digit code for the ICT occupations as they are more likely to stay relevant over time. In the absence of a more flexible and responsive system, higher-level codes may better account for the elasticity of the IT profession while also recognising the transferability and relevance of many ICT skills. Using 4-digit codes would also simplify the process for employers and skilled migrants, improving their experience with the skilled migration system.

Table 1: ICT occupations on the ‘Confident On’ list.

ANZSCO Code	Occupation Title
135111	Chief Information Officer
135199	ICT Managers not elsewhere classified
225212	ICT Business Development Manager
261312	Developer Programmer*
261399	Software and Applications Programmers*
262111	Database Administrator
263112	Network Administrator
263113	Network Analyst
313111	Hardware Technician

Table 2: ICT occupations on the ‘Confident Off’ list

ANZSCO code	Occupation Title
135112	ICT Project Manager
263212	ICT Support Engineer
313112	ICT Customer Support Officer
313199	ICT Support Technicians not elsewhere classified

Table 3: ICT occupations on ‘Targeted for Consultation’

ANZSCO code	Occupation Title
212415	Technical Writer
224114	Data Analyst
224115	Data Scientist
225211	ICT Account Manager
225213	ICT Sales Representative
232414	Web Designer
261111	ICT Business Analyst
261112	Systems Analyst
261113	User Experience Designer (ICT)
261211	Multimedia Specialist
261212	Web Developer*
261311	Analyst Programmer*
261313	Software Engineer
261314	Software Tester
261315	Cyber Security Engineer
261316	DevOps Engineer
261317	Penetration Tester
262113	Systems Administrator
262114	Cyber Governance Risk and Compliance Specialist*
262115	Cyber Security Advice and Assessment Specialist
262116	Cyber Security Analyst
262117	Cyber Security Architect
262118	Cyber Security Operations Coordinator
263111	Computer Network and Systems Engineer
263211	ICT Quality Assurance Engineer
263213	ICT Systems Test Engineer*
263299	ICT Support and Test Engineers not elsewhere classified*
313113	Web Administrator*