



**SOCIAL
CYBER
INSTITUTE**

AI CONSEQUENCES FOR AUSTRALIA

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Strategic Infrastructure

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Biological Warfare

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Workforce Impacts

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ANALYSING WORKFORCES IN AI

- What sort of information society do we want: balancing AI threat and opportunity
- **DATA DEFICIT:** Establishing the evidence base for national and sub-national skills policy for AI
- AI sub-fields have to be central to they analysis: machine learning, computer vision, natural language processing (NLP), generative AI, neuromorphic computing (brain-inspired hardware)
- Education policy choice points beyond curricula for AI (immigration, urban planning, economic settings)
- Promoting maturity in education systems for AI
- Focusing on resilience and dependency for AI (a missing link in education and training)
- Managing offshore workforces for AI
- Cost transfer for training and skills between the globalised private sector and nationally-focussed public sectors for AI
- Online education (international and domestic) for AI
- Managing new disruptive technologies in AI
- Formal knowledge versus self-taught informal knowledge for AI
- Critical thinking, personal resilience and individual ethics as the core abilities of AI cyber workforces

POLITICAL ECONOMY OF AI

- The US private sector is the current pace setter on the global scene in AI
- When it comes to government capability, the US is the single most capable country
- The single country with most impact on the global education and skills ecosystem for AI is also the US
- This broader political economy matters because national workforce systems do not operate in isolation. University capacity, enterprise demand, immigration flows, cloud concentration, and the global market power of major technology firms all shape what kinds of ICT capability can realistically be developed domestically, and at what speed

TWO VECTORS, FOUR LEVELS

TWO VECTORS

- technical
- socio-political

FOUR LEVELS

- individual
- sub-national
- national
- international

THREE SCENARIOS

- Conservative – a low appetite for reform of the workforce and the labour market
- Moderate – a variable appetite for reform of the workforce and labour market
- Radical – a high appetite for reform of the workforce and labour market.

EMPLOYER BY DEPARTMENT (2020-26)

	Agency	AI/ML Roles (2020–2026)	Share
1	Department of Defence	215	21.4%
2	Bureau of Meteorology	64	6.4%
3	Department of Home Affairs	64	6.4%
4	Australian Signals Directorate	52	5.2%
5	Dept of Climate Change, Energy, Environment and Water	38	3.8%
6	Australian Institute of Health and Welfare	34	3.4%
7	Geoscience Australia	31	3.1%
8	Dept of Industry, Science and Resources	29	2.9%
9	Office of the eSafety Commissioner	29	2.9%
10	ASIO	21	2.1%

SUB-FIELDS BY SHARE OF AI ROLES (2020-26)

Sub-fields	2020 (%)	2022 (%)	2025 (%)	Trend
Python	15.9%	17.8%	15.1%	Stable
Cloud platforms	10.1%	17.8%	19.6%	Rising
SQL	8.7%	5.4%	9.5%	Stable
NLP	15.9%	5.9%	2.2%	Declining
Computer vision	8.7%	5.4%	1.7%	Declining
TensorFlow/PyTorch	0%	1.5%	2.2%	Low
Regulation/regulatory	2.9%	7.9%	34.6%	Surging
Ethics	8.7%	3.5%	10.6%	Rising
Privacy	2.9%	5.0%	11.2%	Rising

SOME KEY JUDGMENTS

- Which scenario? Conservative to moderate
- Australia can be characterised as strong on high-level AI and digital workforce framing but relatively under-developed in explicitly articulating AI workforce development. As of 2026, in terms of the economy as a whole, there is limited publicly available detail on AI roles, training coverage, and progression pathways, suggesting an opportunity for more systematic workforce analysis and program design
- Australian policy documents rarely distinguish AI sub-fields explicitly in workforce terms, but their language and examples imply particular emphases. They acknowledge that AI will change cyber work and highlight generative AI and automated detection as important trends, but do not yet codify distinct roles or training pathways aligned with specific AI sub-fields, such as securing machine-learning models in production, governing organisational use of LLMs or managing computer-vision systems in industrial and critical-infrastructure environments