AI IN RESEARCH
INITIAL SURVEY ANALYSIS

Science & Technology AUSTRALIA

THE UNIVERSITY OF MELBOURNE

Australian researchers have been at the forefront of development and use of AI for decades.

While generative AI has brought the technology into the mainstream, AI is far from new to research. From machine learning to natural language processing, researchers are both pioneers and users of AI and bring unique perspectives on its opportunities, risks and barriers to adoption.

As Australia looks to AI to boost productivity, strengthen resilience and drive innovation, understanding how our researchers are using AI has never been more important. Yet until now, there has been little systematic evidence of their experiences and views. To help fill this gap, Science & Technology Australia (STA) in partnership with MetaMelb at the University of Melbourne surveyed Australian researchers, drawing on a comparable UK study.

The survey collected 1,034 complete responses. 80% of respondents were in higher education providers, the remainder split across public research agencies, medical research institutes and other bodies. Overall, there was a good spread across career stages.

The survey also had strong response across disciplines, with 48% STEM, 20% Health and Medical, 25% Humanities, Arts and Social Sciences and 6% Multidisciplinary.

This short pager provides timely initial insights from this survey for fast moving policy discussions. A more detailed analysis will be released to inform discussions on how AI is reshaping Australia's R&D industry, including the challenges researchers face and what is needed to unlock its full potential.

IN BRIEF

- AI use in research is widespread. Nearly three-quarters of respondents use AI. Most have at least moderate experience with generative AI tools, mainly for administrative tasks.
- Concentrated demand for CPU and GPU capacity signals a need for national planning and investment. Responses suggest potentially significant future compute needs.
- Researchers accept AI assistance but draw a line at replacing authorship and scholarly judgement. Most expect research integrity to weaken over the next five years.
- Institutional readiness lags behind individual uptake. Training was widely considered inadequate, and few respondents described institutional guidance as clear and coordinated.
- Security, privacy and ethical concerns are key barriers to AI use. Security and privacy led concerns about computing resources, while ethics, trust and accuracy outweighed practical barriers among non-users.

EXPERIENCE IN AI

	Any	Moderate+	Good+
Generative AI/ chatbots	94%	71%	54%
Coding /data tools	74%	43%	30%
Other support tools using AI *e.g. editing and transcription tools*	74%	33%	21%
Literature search tools	66%	28%	16%
Self-developed AI tools	43%	23%	17%
Specialised scientific AI tools	47%	22%	14%
Media generation tools	54%	17%	10%

By moderate-or-greater experience. "Any" includes minimal and basic experience; "Good+" includes good, very good and extensive experience.

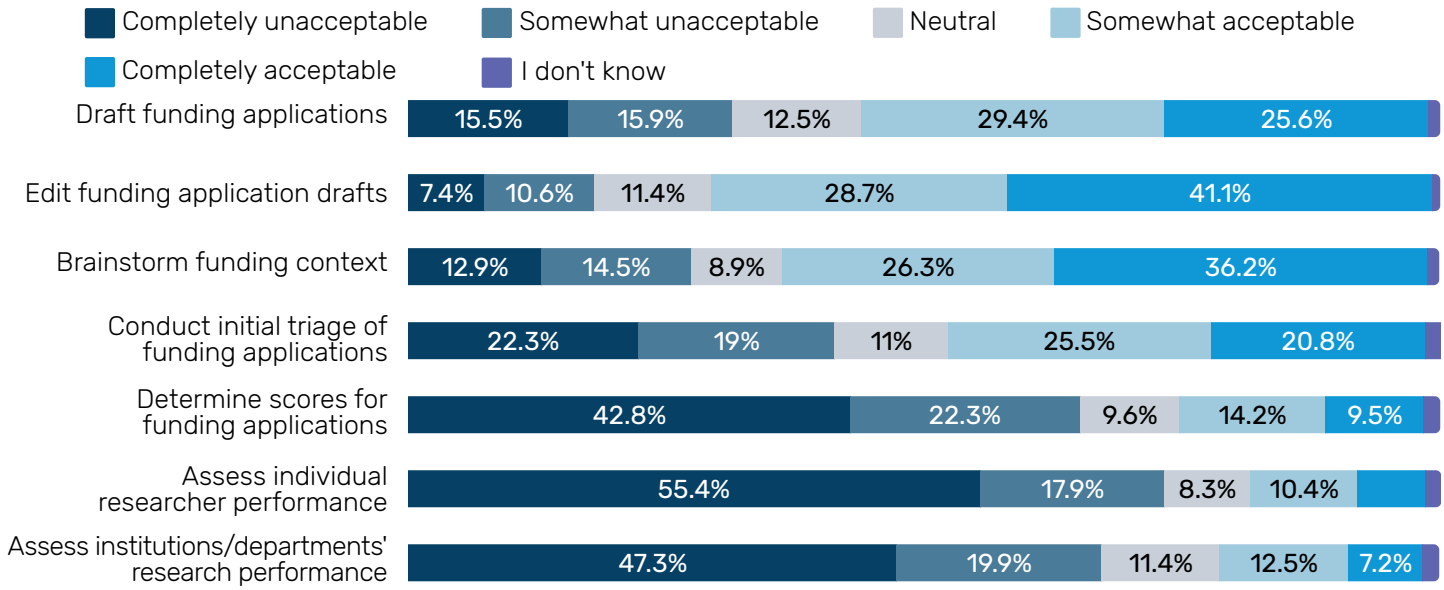
Estimated computing needs over the next 12 months

Not many respondents (fewer than 10%) were able to specifically quantify their future CPU and/or GPU compute needs. For those who could, the level of need varied greatly – a handful of respondents indicated much larger needs than average for both GPU and CPU compute i.e. Estimated median user need of 8139 CPU-hrs vs 10 users needing 1-15 million CPU-hrs.

Most of these respondents indicated a need for both GPU and CPU compute, but researchers indicated a need for a greater number of CPU compute hours compared to GPU (i.e estimated median 8139 CPU-hrs vs 1000 GPU-hrs.

ACCEPTABILITY

Researchers generally considered it is acceptable to use AI as a tool to help draft and edit grant applications. There are mixed views on using AI to do an initial triage of grant applications to determine any issues, but using AI to determine application scores that decide funding outcomes is considered unacceptable. AI use by universities or other institutions to assess individual researchers' or institutional research performance is considered unacceptable.



BARRIERS

Access

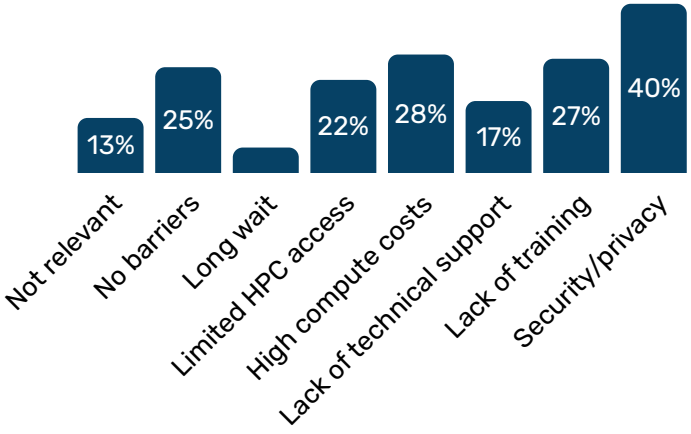
Would you consider accessing discounted compute capacity or services from a commercially operated data centre?

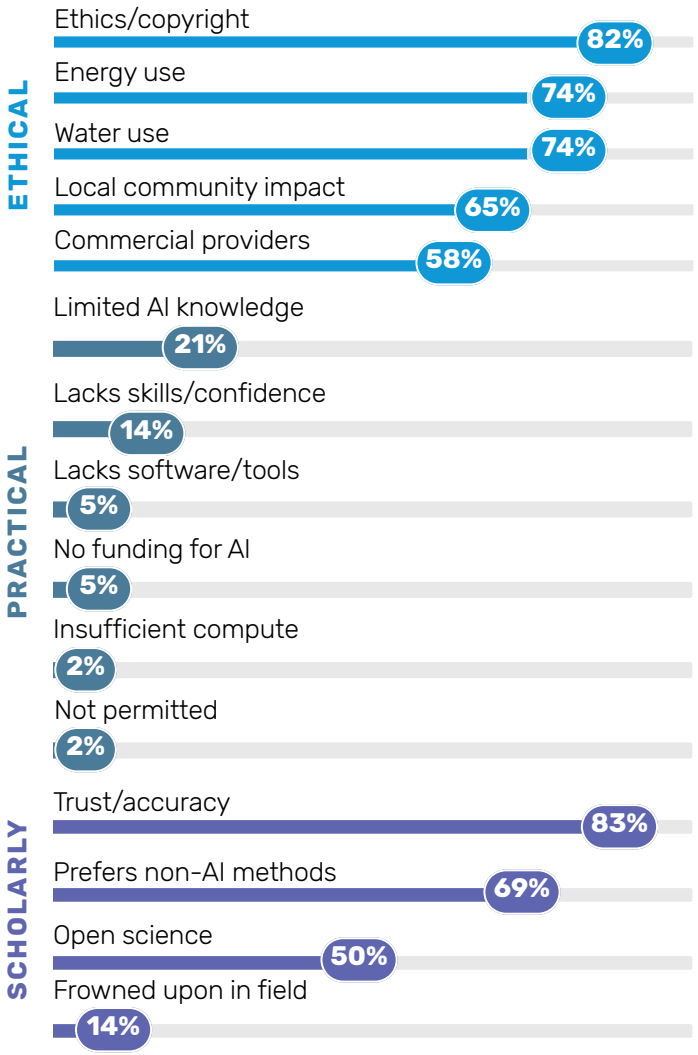
10% - Yes
36% - Possibly - depending on access, cost, onshore data or technical support
14% - No - already have sufficient access
30% - No - prefer non-commercial compute

(Respondents could select multiple options)

Training

54% of researchers reported AI-related training and skills-building opportunities at their organisation/institution were inadequate.



Concerns

Among all respondents – both AI users and non-users – copyright, environmental and community impacts, the power of leading AI firms and reliance on commercial models were overwhelmingly considered significant concerns.