



Australian Academy of  
Technological Sciences  
& Engineering



Via email: fadt.sen@aph.gov.au

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**The Australian Academy of Science (AAS) and the Australian Academy of Technological Sciences and Engineering (ATSE) joint submission to the inquiry into the Defence Trade Controls Amendment Bill 2023 [Provisions]**

ATSE and the AAS strongly urge that the Defence Trade Controls Amendment Bill 2023 (the Bill) not be progressed until there has been genuine debate and discussion of its profound implications, and:

- without clarifying the fundamental research exemption;
- without resolving how the Bill's unintended consequences will be mitigated and monitored.

Finding a balance between the benefits that are derived from Australia's science and research enterprise versus national security, is critical. Ensuring that the implications of the Bill for the future conduct of science and research are fully explored, and potential negative consequences are mitigated, is essential to avoid destructive impacts of the proposed reforms to Australia's research sector.

The Academies previously provided a [joint submission](#) to the Department of Defence on the exposure draft, which raised several fundamental issues, and regret that they have not been heeded.

The Bill expands the scope of the *Defence Trade Controls Act 2012* (the Act) to encompass a greater scope of research. It places greater obligations and restrictions on the conduct of Australian research, which have profound implications for the conduct of science and the regulation of technology.

Amendments similar to those proposed in this Bill have been rejected on two prior occasions due to the unacceptable impacts on academic freedom and intellectual inquiry.

The Academies make the following recommendations to the inquiry:

**Recommendation 1:** Clearly articulate a fundamental research exemption in the Bill, with clear definitions created in collaboration with the research and industry sectors.

**Recommendation 2:** Implement measures to mitigate unintended consequences on research and development, such as researchers avoiding certain collaborations or scientific communications due to bureaucratic burden or uncertainty (self-censorship).

**Recommendation 3:** Grandfather arrangements for research in progress.

**Recommendation 4:** The first review, 2 years after changes to the Act, should focus on unintended consequences on the research sector.

**Recommendation 5:** Implement measures to improve awareness, understanding, implementation, and compliance with the new legislative environment. This includes educational resources, training and easy-to-use decision guides.

**Recommendation 6:** Provide adequate resourcing to cover the costs of establishing secure research environments in Australian universities and other research organisations.

**Recommendation 7:** Clarify the treatment of international students working on Defence and Strategic Goods List (DSGL) technologies.

**Recommendation 8:** Implement measures to avoid adverse impacts on Australia's international research workforce.

**Recommendation 9:** Expand Australia’s involvement in low-risk international scientific collaboration programs, such as through association with Horizon Europe.

### Protecting fundamental research

The Academies understand a fundamental research exemption is being considered.

As expressed in the Academies’ [joint submission](#) to the exposure draft of the legislation, the fundamental research definition must be included in the primary legislation (not delegated legislation), be compatible with the US definition, and developed in consultation with the sector to ensure it is appropriate for the Australian research landscape.

**Recommendation 1:** Clearly articulate a fundamental research exemption in the Bill, with clear definitions created in collaboration with the research and industry sectors.

### Minimising unintended consequences for research

For a science and technology middle power like Australia, which has always relied on the exchange of ideas for economic advancement and social cohesion, reforms that have the potential to alter collaborative relationships need to be well justified.

International research collaboration is in Australia’s national interest and is essential to our STEM research and industry sectors. Imposing science policy settings with a narrow national security lens creates risks for the conduct of and potential for Australian science and research.

The Academies appreciate the intent of the legislation to create a licence-free export environment with the UK and US.

The Bill has sparked discussion on potential unintended consequences as researchers and institutions consider how it may constrain or bureaucratise their research and international engagement.

The Bill expands DSGL offences—particularly 10B (re-export) and 10C (DSGL services)—and creates absolute liability offences—meaning that intentionality is not required, and an honest and reasonable mistake of fact is not an available defence. Both individuals and organisations can be liable. In this context, the chilling effect on research of uncertainty, poorly understood obligations, and a high cost of compliance, must be considered. Self-censorship by the research sector (avoiding collaborations or scientific communication) leads to missed opportunities and benefits for Australia.

The Bill has implications both for the production of science together with international collaborators and for the dissemination of research findings and innovation. This includes science both created in universities and research institutions, and in innovative STEM sector businesses.

The treatment of research that is already underway, must also be considered. Grandfathering current arrangements, with those affected asked to align their practices with the new rules over a period of up to 2 years, would support the transition to the new regime and avoid projects underway being halted due to researchers being unable to comply. It will be critically important to review the effectiveness and adverse effects of the changes on the research sector after 2 years.

**Recommendation 2:** Implement measures to mitigate unintended consequences on research and development, such as self-censorship by the research sector.

**Recommendation 3:** Grandfather arrangements for research in progress.

**Recommendation 4:** The first review, 2 years after changes to the Act, should focus on unintended consequences on the research sector.

## Enabling compliance with the legislation

Researchers and institutions must be supported to comply with the legislation including through co-designed educational and decision-making resources.

There will be a cost to universities and other institutions of complying with changes, as well as a cost to researchers' time. Arrangements should be made for this to be funded appropriately. With no action, this additional workload will result in less time and resources for research.

Beyond influencing the conduct of individual researchers and organisations, changes to Australia's security environment and measures that enable engagement with AUKUS Pillar 2 advanced technologies and capabilities could necessitate major structural changes to the conduct of research and development in Australia.

A key difference between the Australian and the US research environment is the federally-funded research and development centres (FFRDCs) and the university-affiliated research centres (UARCs) that are established and funded in the US to meet long-term engineering, research, development and analytic needs that cannot otherwise be effectively captured by government or private sector resources. This architecture establishes a 'middle space' between defence and open university research.

The passage of this legislation will likely necessitate similar structural changes to Australia's research environment to address national security concerns, and the Australian Government needs to consider the resource implications of implementing secure research environments. It should not and cannot be the responsibility of universities and research institutes to fund the creation of secure or restricted research and development environments.

Guidance and resourcing should also be provided for cybersecurity arrangements for research falling within the scope of the Bill.

**Recommendation 5:** Implement measures to improve awareness, understanding, implementation, and compliance with the new legislative environment. This includes educational resources, training and easy-to-use decision guides.

**Recommendation 6:** Provide adequate resourcing to cover the costs of establishing secure research environments in Australian universities.

## Welcoming international collaborations

Foreign students and researchers make up a significant proportion of the Australian research workforce, and they will be needed in greater, not fewer, numbers in the future to meet national needs. The Bill risks sending the message that international collaborators are not welcome in Australia. This will have deleterious consequences for the Australian research output and diplomacy more broadly.

As raised in our previous joint submission, the treatment of international students working on DSGL technologies has not been clarified.

Overseas students comprise 41%, 62% and 65% of postgraduate research students in the natural and physical sciences, information technologies and engineering and related disciplines, respectively (fields relevant to DSGL and AUKUS Pillar 2 technologies)<sup>1</sup>. Based on data from the Department of Home Affairs, overseas students from the USA and UK make up only 3% of student visa applications in the postgraduate research sector<sup>2</sup>.

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<sup>1</sup> Australian Government Department of Education, Selected Higher Education Statistics – 2022 Student data, <https://www.education.gov.au/higher-education-statistics/student-data/selected-higher-education-statistics-2022-student-data>

<sup>2</sup> Australian Government Department of Home Affairs, Student visa program, <https://data.gov.au/data/dataset/student-visas>

## Postgraduate research students by broad field of education, 2022

Domestic and overseas Doctorate and Masters (research) students in STEM subjects.

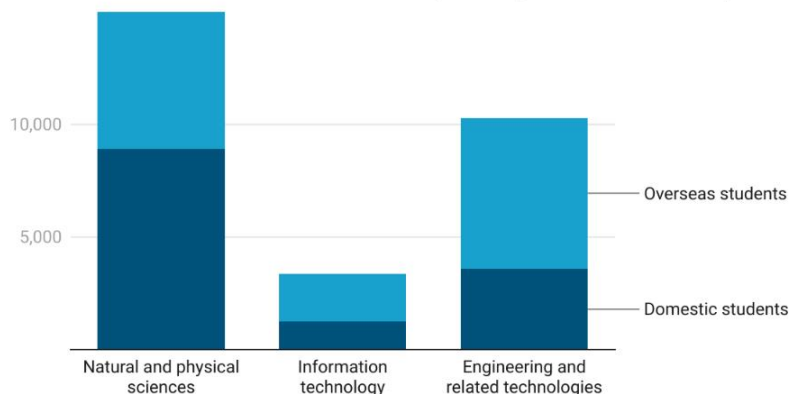


Chart: The Australian Academy of Science • Source: Australian Government Department of Education • Created with Datavrapper

Clearly, not all of these students will be working with DSGL technologies. Nevertheless, these data illustrate the significant proportion of international students who contribute to research in Australia, particularly in fields such as information technologies and engineering, who could be negatively impacted by the proposed changes to Australia's defence export controls without appropriate exemptions for research. In a university environment, restricting students' interactions based on their nationality and field of research is untenable and antithetical to the principles and practice of academic research and scientific endeavour.

Considering these impacts is especially important given Australia is facing national workforce shortages in areas relevant to the DSGL, such as cyber security specialists, aircraft engineers, and electronics, chemical and materials engineers<sup>3</sup>. Recruitment and retention of international talent will be crucial for meeting Australia's workforce needs.

The impact of the Bill on Australia's access to knowledge and capability in advanced technologies generated overseas and participation in 'big science' has not been adequately considered. Australia, on its own, is not globally competitive in many of the areas on the DSGL and relies on international partnerships for the knowledge and expertise we need. Additionally, much Australian research stems from large international collaborations (such as the Square Kilometre Array).

To counteract adverse impacts, alongside the Bill, Australia should urgently widen its participation in low-risk international collaborative programs, such as through association with Horizon Europe, as has been done by countries like Israel and New Zealand.

**Recommendation 7:** Clarify the treatment of international students working on DSGL technologies.

**Recommendation 8:** Implement measures to avoid adverse impacts on Australia's international research workforce.

**Recommendation 9:** Expand Australia's involvement in low-risk international scientific collaboration programs, such as through association with Horizon Europe.

For more information, please contact AAS Director of Science Policy Chris Anderson ([chris.anderson@science.org.au](mailto:chris.anderson@science.org.au)) or ATSE Director of Policy and International Affairs Peter Derbyshire ([peter.derbyshire@atse.org.au](mailto:peter.derbyshire@atse.org.au)).

<sup>3</sup> Australian Government Jobs and Skills Australia, 2023 Skills Priority List, <https://www.jobsandskills.gov.au/data/skills-priority-list>