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Australian Academy of Science submission on the *Defence Trade Controls Act 2012* review

The Australian Academy of Science offers this input to the independent review of the *Defence Trade Controls Act 2012* (the DTC Act).

The review should note:

- International collaboration is in Australia's national interest and essential to our research sector. There is therefore a need to balance national security with support for research. Policy measures must be proportional to the risks.
- An appropriate security-aware culture across the research sector should be developed as a high priority.
- Legislative reform will require active engagement and supporting materials co-designed with stakeholders including the higher education sector.
- If the suite of legislation that covers export controls of military and dual-use technologies is strengthened, government must address potential unintended consequences for research, particularly impacts on foreign national researchers and students.

International collaboration is essential to Australia's science system and supports national interests

The wellbeing and safety of nations and their citizens depends on solutions that only global scientific collaboration can secure.

Strategic competition between nations is driving increasing recognition of the security implications of international research collaboration.

International collaboration is the norm for researchers in Australia.

Ninety percent of the top 50 cited papers from Australian authors in Web of Science (from 2013-2023) were co-authored with overseas collaborators. Eighty per cent of ARC Discovery projects in STEM fields awarded in 2022 involved international collaborations. Australian scientists' proportion of top 10% of cited publications involving international collaboration has risen more sharply than the OECD average.

Supporting international scientific collaboration is in Australia's national interest, not least because we must access the 96% of the total knowledge pool which is generated abroad to innovate and advance our own scientific priorities.

Australia benefits from a research workforce bolstered by overseas talent, cooperation brought about by effective science diplomacy, access to global infrastructure that Australia cannot afford to purchase, decision-making informed by the best available scientific evidence, and participation in global 'big science' resulting in technologies such as genome sequencing, vaccines, touchscreens and wi-fi.

International students illustrate the importance of international collaboration to our research capability – they represent 36% of Australia's postgraduate research students, who make up a significant proportion of our research workforce (nearly a quarter) and drive much of the original research conducted in Australia.

There are significant national interest consequences of both maintaining or decoupling our research alliances. The challenge is to balance national security with international scientific collaboration, ensuring risks are carefully mitigated and policy measures are proportional to national security threats.

Fostering a security-aware culture in research

The Academy recognises Australia has obligations to the Australian and international community to minimise the risk of technologies with potential military applications being used in ways that threaten national security. We acknowledge the role of the government to manage how technologies with potential military use are shared with international collaborators.

Universities and research organisations have an important shared responsibility to be aware of risks and to exercise due diligence and ethics when working with international collaborators.

Australia's security environment and the challenges presented by emerging technologies are evolving, and the university research landscape has changed, with increasing awareness and mitigation of risks such as foreign interference through mechanisms such as the University Foreign Interference Taskforce.

Fostering a more security-aware culture should be a priority for government and the research sector. Guidance materials and structures that support compliance with the DTC Act by all student and staff levels should be provided. Material should seek to build awareness and provide training on national security issues and obligations under the DTC Act. This would empower researchers to recognise potential risks, identify technologies that are potentially dual-use and understand supply chains, contributing to culture and behaviours that support national security.

Improvements to the Defence Trade Controls Act

Outstanding actions from the 2018 Thom review

The DTC Act as it currently operates does not appear to present an undue burden or impediment to scientific research or international collaboration. However, there are outstanding recommendations from the 2018 Thom review that remain relevant.

Ambiguity over the definition of basic research and controls for emerging and sensitive military dual use technologies, including questions on how risk is determined, and the need for effective explanatory materials, are persistent concerns that should be addressed.

Response to proposal for a 'catch-all prohibition'

The Academy was pleased to attend the 2023 Review of the *Defence Trade Controls Act 2012* Industry and Academia roundtable in Canberra on 24 October.

At this roundtable, the reviewers outlined a proposal for a 'catch-all prohibition', which would be supported by a granular list of criteria with a comprehensive compendium of case studies and guidelines to provide clarity and detailed guidance.

This proposal is a reasonable response to the impossible task of maintaining an up-to-date Defence and Strategic Goods List in the face of rapid technological developments and dealing with the challenge of listing specific 'critical technologies' that have a range of uses and users. However, successful implementation of this approach would require:

- criteria and guidance materials co-designed with stakeholders including universities and research organisations so that it reflects the reality of research and how the DTC Act would work in practice;
- criteria that provide sufficient clarity and clear communication on how risk is assessed;
- guidance materials to be in place and available before changes to the legislation come into effect;
- avoiding introducing additional regulatory burden on individuals, universities and research organisations.

The reviewers also suggested a network of 'trusted agents' accredited by Defence to act as advisors to the sector. It is unclear the role these 'trusted agents' would play that senior university leaders (such as Deputy Vice Chancellor – Research or delegates) do not already provide in understanding obligations and overseeing implementation of the legislation. There is also a concern that embedding 'trusted agents' in universities

would not be conducive to developing a positive culture around awareness and shared responsibility to manage risks.

Australia's evolving national security policy environment and science

The Academy acknowledges ongoing policy reforms—including strengthening Australia's export controls legislation to align with AUKUS partners, and the *Defence Amendment (Safeguarding Australia's Military Secrets) Bill 2023*—and the broader strategic context outlined in the Defence Strategic Review 2023.

Defence strategy and the threat environment have changed since the previous review of the DTC Act. Changes to Australia's security environment, and measures that enable engagement with AUKUS Pillar 2 advanced technologies and capabilities, could necessitate major structural change to the conduct of research in Australia.

For Australia—which has a relatively small science system in international terms—maintaining relatively open research collaborations is critical to maintaining our research sector and benefiting from innovation. Rather than simply 'raising the fence', Australia may need to consider a nuanced, tiered risk framework that creates a 'middle space' between defence and open university research.

An example of how this operates in the US are the federally-funded research and development centres (FFRDCs) and university-affiliated research centres (UARCs) not-for-profits that are established and funded to meet long-term engineering, research, development and analytic needs that cannot otherwise be effectively captured by government or private sector resources. These laboratories, such as the Massachusetts Institute of Technology Lincoln Lab, are a mechanism to control risk but not limit collaboration for critical innovation.

If such structural change of the research architecture and system is required to address national security concerns, the Australian Government will need to consider the resource implications of implementing such changes. It should not and cannot be the responsibility of university and research institutes to fund the creation of secure or restricted research environments.

Foreign nationals and Australian research

It is the Australian government that grants visas, not research institutions. Some of the discussion frequently implies that concerns regarding visas for students and visiting researchers is an issue for the universities to resolve.

The policies within universities for reviewing, accepting or declining an application to study should be based on academic merit and qualifications, while considerations regarding national security are the concern of federal immigration policy and processes.

The universities therefore have a responsibility to ensure that an international student (or visiting scientist) meets the criteria for admission to a course or has the qualifications to work on a project, and to follow government guidelines. It is then that a visa is issued, or not, by the Australian Government depending on an assessment of potential security risks—some of which, at least, a university would not know.

Potential unintended impacts on scientific research must be addressed

Dealing with the national security risks posed by the creation and exchange of certain knowledge and technologies can inadvertently act as a barrier to the way Australian scientists collaborate globally.

Strengthening the DTC Act and other relevant legislation may have unintended consequences for Australian research. These relate to academic freedom of inquiry, efficiency of approvals and potential delays in a competitive and rapidly changing environment:

- Defence interference in collaborations with Australian researchers could result in a biased research agenda and missed opportunities with international collaborators.
- Burdensome and complex requirements would discourage the recruitment and retention of international talent, which is crucial for meeting Australia's research workforce needs, at least until alternate avenues are found to attract the skilled workforce Australia does not itself currently train and retain in sufficient volume.

- Strict regulations may also contribute to lengthy approval processes and burdensome visa requirements, with additional government clearance checks already in place to ensure national security.
- Restricting the students and researchers who could work on specific technologies based on nationality would have major impacts, with some Australian research labs simply not being able to continue to operate. In these circumstances targeted measures will be required to retain research capability in the national interest.
- Restricting what international higher degree research students can and cannot work on or discuss is untenable in the university research environment. Further, it would impact research values and culture of openness and collaboration.
- If an international student or researcher was working on a particular technology and the circumstances changed for their country of citizenship, how would this impact their work? Having to change their project or return home would be personally detrimental and Australia would lose research talent.

The Academy welcomes further engagement with the review panel as needed and can convene leading Australian scientists and experts to discuss impacts on scientific research and provide further scenarios or case studies.

To discuss or clarify any aspect of this submission, please contact Mr Chris Anderson, Director Science Policy at Chris.Anderson@science.org.au.