



Australian Academy of
Technological Sciences
& Engineering



Australian Academy of Science & Australian Academy of Technological Sciences and Engineering (the Academies) response to questions on notice: Senate Foreign Affairs, Defence and Trade Legislation Committee, Inquiry into the Defence Trade Controls Amendments Bill 2023 [Provisions]

Are there any definitions in the amendments that you believe are insufficiently clear? Could you identify those and could you make any recommendations as to how they could be improved?

The main issue is that the amendments make no change to the exemption for 'basic scientific research' that applies to some of the technologies contained in the Defence and Strategic Goods List:

"Basic scientific research" (GTN NTN ML22) means experimental or theoretical work undertaken principally to acquire new knowledge of the fundamental principles of phenomena or observable facts, not primarily directed towards a specific practical aim or objective.'

This definition does not reflect the reality of research where the boundaries between basic and applied research are fluid, and it excludes applied research which is done with an aim in mind but may not present a national security risk.

The Academies strongly advise that an exemption for 'fundamental research' is needed in the Bill. The Academies are comfortable with the proposed definition that Defence is considering with advice from working groups:

'Fundamental Research is defined to mean basic or applied research that is intended for public disclosure or shared broadly within the research community and not research whose results are restricted for national security reasons.'

This definition would be compatible with the US system and includes basic and applied research. It also captures normal research activities that are associated with sharing research publicly, such as formal publication, pre-prints, sharing data, and talks at conferences. Definitions of basic and applied research could be taken from the Type of Activity definitions in 1297.0 ANZSRC - Australian and New Zealand Standard Research Classification, 2020. The DSGI will also need to be amended to reflect updated definitions.

'Foreign person' in the amendments is defined as: *'a person other than an Australian person.'* This definition creates a very broad net and it should be made clear which countries or individuals are exempt (other than the US and UK), including foreign PhD students or researchers. Consideration of national security risks and assessment of the suitability of individuals (e.g. PhD candidates) to conduct research on specific technologies is the responsibility of the Department of Home Affairs at the visa assessment stage. Individuals should continue to be assessed as such, rather than a blanket approach taken based on an

individual's country of origin. The Department of Home Affairs has recently made reforms to strengthen this process.

Australia's export controls do not make a distinction between tangible and intangible transfers of controlled technology, and the amendments expand the scope of export controls to include intangible transfers *within* Australia. Examples of intangible goods or activities in research could include algorithms, data, speaking at a conference, or sharing expertise with a colleague. Assessing and regulating intangible goods is more complex, and Australia's export controls should provide clear and specific guidance to support the maintenance of essential academic knowledge transfer and endeavour, while enabling citizens and organisations to comply and ensuring genuine security risks are appropriately managed.

Could you come back to the committee with comments as to whether you think that kind of division—EAR tends to deal with a lot of the dual-use cases in the States—would make it easier for the research sector to comply with the requirement. If not that system, or possibly in conjunction, the concept of the de minimus system that has been in use with the EAR system a little bit with ITAR in the states. Would that assist and how would you see that being applied?

There is already an equivalence between the US and Australian regimes, so the Academies' concerns about adverse impacts of the Bill still apply. The US's International Traffic in Arms Regulations (ITAR), which controls export of defence technologies, is equivalent to Part 1 of the DSGL. The US's Export Administration Regulations (EAR), which controls export of dual-use technologies, is equivalent to Part 2 of the DSGL. The US regime also has exemptions for fundamental research.

The *de minimus* rule in the US regime determines if a commodity made outside the US is subject to the EAR. The *de minimus* rule has the advantage of streamlining the regulatory burden for certain products. However, it will be challenging for innovative businesses, particularly SMEs, to understand the new regime. Some businesses may default to complying with defence trade controls where they do not need to, due to the difficulty of determining the percentage value from Australian controlled commodities.

Introducing a *de minimus* rule like that in the EAR could create greater complexity for the research sector, particularly in regard to instrumentation (e.g. microscopes, telescopes, supercomputers) and research involving materials procured from overseas or contributions from overseas partners.

We would also suggest that, if considering a *de minimus* rule, modelling should be undertaken to determine if (and how many) Australian businesses would benefit. If a *de minimus* rule was introduced, there would be a need for educational resources and tools for businesses to understand its application. For example, the US Bureau of Industry and Security provides a [decision tool](#) to assist businesses in determining if *de minimus* applies.

Given the national security law that has been put in place by the Chinese Communist Party, which obliges their citizens to respond to the requirements of the state no matter their personal views, allegiances or whatever, how could we possibly provide an exemption for an individual where they are subject to a legal regime such as that, and how is that then going to impact on that student fee construct that you were talking about? It strikes me that is an almost irreconcilable difference of priorities there that we have. I see how it could work for a whole range of other non-AUKUS nations but not that particular cohort. Could you give us an understanding of what would be the impact of essentially a blanket exclusion of students from that cohort?

Australian higher education and research is heavily reliant on international students from around the world including China. While the proportion of international students from other nations has been increasing, China remains the single largest source of international students. As outlined in our joint submission, international students comprise over half of enrolments in postgraduate information technology and engineering degrees. Clamping down on international students' participation in research is incompatible with the successive Australian Governments' strategies this century to subsidise the higher education system through the international education export. The just-released Universities Accord reaffirms the role of international education as an export industry and as a form of soft diplomacy.

The Academies understand that in some cases students or STEM professionals from certain countries will not be permitted to work on controlled technologies in Australia. Such decisions should be evidence-based and proportional to the risks. Recent changes to the visa screening system were designed to identify and manage these risks. We anticipate that few students will be directly prevented by this Bill from studying in Australia, however we are concerned about the chilling effect of this Bill. We want to avoid the situation where students and STEM professionals are deterred from coming to Australia due to vast blanket exclusions and burden on students' supervisors applying for permits unnecessarily.

We also note that science diplomacy is an important tool to foster international partnerships, find points of common interest and understand the technological capabilities of other nations. Throughout history, researchers have been able to keep communications open in the midst of geopolitical tensions and provide a way to maintain diplomatic relations. There are historically important links between Australia and China, including through the science and engineering Learned Academies of both nations. Supporting, rather than restricting, these connections have positive diplomatic outcomes.

Could you identify for the committee if there are other systemic issues where we may align our export controls, but the misalignment in other areas of the system will have a deleterious effect on our research sector compared to how the US research sector works? And if we're going to make this change, what other changes should we be considering—and I will be pursuing this for industry, for example—in our procurement system versus the US procurement system? Obviously it's not part of this bill, but could you tell us, from that systemic point of view, what other changes we should be at least considering if we're going to make the whole system work effectively?

In our submission to the inquiry, the Academies highlighted that given the AUKUS partnership and changing export controls environment, the government should consider the need to support Australian universities and research organisations to establish a 'middle space' between defence and open university research similar to the university-affiliated research centres (UARCs) and federally-funded research and development centres (FFRDCs) in the US. Such structures would more easily enable sensitive research to be conducted in a secure environment with approved partners. This should be considered in parallel with the development of an Advanced Strategic Research Agency based on the US DARPA model, to create a cohesive system.

The Academies also emphasised that 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. This would allow Australia to continue to conduct impactful research and forge strong diplomatic ties through global research participation and international collaborations.

There are a few other intersecting elements of the scientific research system that should be considered alongside changes to export controls:

- Australia's visa screening process to prevent unwanted critical technology transfer is another element of Australia's national security policy framework. Ensuring that national security risks are assessed fairly and proportionately on a case-by-case basis at the visa application stage will help to alleviate burden on researchers and manage risks such as foreign interference and espionage. The Academy of Science has previously expressed [concerns](#) about implementation of visa screening for critical technology risks, which could negatively impact migration of STEM professionals and students, impede knowledge exchange and slow the development and application of technologies and competitive advantage.
- As highlighted in the Defence Strategic Review, accelerating science and technology research requires appropriate linkages to national research bodies. A dedicated funding program or greater capacity for partnerships between research bodies and DSTG may be required to enhance research in controlled technology areas and counteract negative impacts.
- The anticipated R&D review, recommended by the Universities Accord, will need to consider the impacts of the Bill on constraining future research directions and industry investment.

Do you see it potentially, though, creating a two tiered system for that fundamental research, one where it's public funding, and permits are required, and you're caught up in the system, and one where it's private industry funding, where you're going to get an exclusion from all of that oversight? Do you see any potential adverse outcomes from having a two tiered system?

We would oppose the creation of a two-tiered system in which research is treated differently depending on its source of funding (public or private). Setting up two separate regimes would mean that research conducted in public-private partnerships would then be subject to both, increasing the bureaucratic burden of such arrangements. Collaborative research is an important driver of productivity and progress, and governments have set up numerous programs to try to stimulate these partnerships and reduce barriers. We caution against setting up a regime that discourages these arrangements.

A two-tiered system would also fail to capture the intention of this Bill of regulating technology transfer and bringing our regime into line with that of the US.

Mr Black, you raised the point about overlap between some Department of Home Affairs issues [critical tech visa screening process]. A question to the rest of the panel, on notice, is: are you aware of that, and does that raise any concerns for you?

Simultaneously to the current reforms, the Department of Home Affairs is implementing enhanced critical technology visa screening aimed at reducing the risk of unwanted technology transfer.

People applying for certain working visa subclasses and student visas after 1 July 2022 are subject to visa condition 8208, requiring written approval prior to undertaking a critical technology related postgraduate research course. This approval is granted if the Minister for Home Affairs is satisfied that the applicant does not pose an unreasonable risk of unwanted critical technology transfer. The Department of Home Affairs is yet to define what they consider critical technologies and so applicants are not yet subject to this requirement. It is unclear how this critical technologies list will relate to the 2023 Critical Technologies List from the Department of Industry, Science and Resources (DISR).

The Academy of Science has previously expressed [concerns](#) about implementation of visa screening for critical technology risks, including using instruments such as critical technology lists, as they can inadvertently constrain free movement of science and knowledge exchange. Additionally, rapid technological development outpaces the ability to keep such lists up to date. There are also dangers in utilising critical technology lists beyond the purpose for which they were written, for example, the DISR List of Critical Technologies In the National Interest was not intended for visa screening purposes.

We agree with the Tech Council's assessment, as outlined in their submission, that these duplicative processes, and the administrative delays they would create, may be an impediment to Australia's ability to attract talent. We agree with the Tech Council's proposal that consolidating these processes should be investigated.