SUBMISSION

Performance of the Department of Defence in supporting the capability and capacity of Australia's defence industry

20 July 2023

The Australian Technology Network of Universities (ATN) welcomes the opportunity to provide a submission to the Senate Foreign Affairs, Defence and Trade Legislation Committee for its inquiry into the performance of the Department of Defence in supporting the capability and capacity of Australia's defence industry.

The support and cooperation between Australia's defence industry and the Department of Defence must go both ways. The primary aim of the Department of Defence is and should be the defence of Australia, but in order to meet the current and future needs of this Australian Defence Force, especially in times of crisis, we need a sovereign industrial and research capability and capacity in order to be self-sufficient or a key partner.

Providing and supporting opportunities for defence industry and adjacent industries is crucial for the sustainability and viability of these industries. On its own the defence industry lacks the necessary scale and consistent pipeline of work to grow and develop. Enabling a broader scope for the defence industry and building an ecosystem of adjacent industries is a whole- of-government task, including other departments such as the Department of Industry, Science and Resources.

ATN's submission to the Defence Strategic Review is also attached for the Committee's information.

Recommendations

ATN recommends that the Committee consider ways the Government can:

1. **Support the scale and sustainability of the defence industry and adjacent industries across the whole-of-government**

2. **Extend and expand international partnerships beyond government-to-government links to include industry and researchers (especially AUKUS)**

3. **Ensure Defence consistently supports pathways for research and development from fundamental research to application and deployment**

4. **Extend Defence's NAVIGATE program to build networks and collaborations through senior university and Defence staff.**

Further information

Part of building a broader base for the defence industry is encouraging and supporting international partnerships and collaborations. As a nation, we need to encourage collaboration between industry and researchers with our overseas counterparts – particularly in the context of AUKUS. Greater Department of Defence and broader Government support is required to establish international research partnerships in specific areas of interest.

To capitalise on the foundation provided by AUKUS, researchers and industry will need to develop products and capability with increased collaboration. This is vital for increased interoperability and developing joint capability and knowledge. The AUKUS partnership is reliant on this kind of cooperation, particularly in Pillar Two where Innovation and Information Sharing are specified.

While government organisations collaborate extensively, these partnerships must also be formed at the industry and researcher levels to build a sustainable defence industry. The risk otherwise is that industry is limited to narrow and isolated internal research and development and researchers are dependent on one-to-one relationships and government funding for discrete projects. There is a significant opportunity for a more collaborative approach to defence industry and research via AUKUS.

On developing the networks between Defence, industry and researchers, the creation of the Australian Strategic Capabilities Accelerator (ASCA) is a step in the right direction. A previous successful model was the Rapid Prototyping and Development Establishment (RPDE) which was contractually and technically agile, allowing problems to be solved and capabilities and products to be introduced into service much more rapidly than previously possible.

However the merging of the Defence Innovation Hub (DIH) and Next Generation Technologies Fund (NGTF) into ASCA is a risk if there is not adequate support for fundamental and foundational research. Research and development needs to be supported across all Technology Readiness Levels (TRLs). Research at low TRLs is needed to ensure a pipeline cutting edge and transformational ideas in coming years.

The funding processes for research and development from the Department of Defence need to be coordinated and strategic to provide the consistent support needed to sustainably build an industry. Historically there has been a 'valley of death' around TRLs five to seven when support from a particular unit or program within Defence falters and research is left to wither. Defence research needs greater buy-in from sponsors and central oversight to ensure advancement of technology.

One way of improving collaboration, communication and strategic decision making is by extending the NAVIGATE program to senior academic staff and personnel within Defence with high-level strategic roles. Whilst the exchanges of mid-level staff involved in the operational matters are working well, what would really push collaboration and cooperation is embedding senior decision-makers from Defence and universities so they can direct change and plan for future capability needs and investment. This is where both Australian universities and Defence lack crucial insight – not knowing who to talk to, not knowing what needs and capabilities there are, and relying on existing relationships that may not be fit for purpose.

NAVIGATE

ATN universities support programs such as Defence's NAVIGATE Program which promote ways of creating mobility between Defence and universities to build deeper partnerships and understanding and grow the research capability across both sectors.

ATN has a long history of industry engagement and encouraging the transfer of people, knowledge and skills between our universities and industry, including through industry PhDs, industry professors and industry fellowships.

NAVIGATE aims to bolster Defence's mid-career workforce capability, broaden the diversity of our workforce, and support participants with the information, knowledge, and know-how to succeed as a STEM leader within Defence. Over the course of the program, participants are provided with a tailored training and development program, mentoring, and the opportunity to work with Australia's brightest and most innovative scientists, engineers and IT specialists.

The NAVIGATE Program gives participants the opportunity to work with our partners in industry and academia, both in Australia and around the world. Participants will contribute to the delivery of scientific advice and innovative technology solutions to provide our Defence force with a capability edge.

Further enquiries should be addressed to:

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SUBMISSION

Defence Strategic Review

30 October 2022

The Australian Technology Network of Universities (ATN) welcomes the opportunity to provide a submission to the Defence Strategic Review.

ATN is the peak body representing Australia's six most innovative and enterprising universities: Curtin University, Deakin University, RMIT University, The University of Newcastle, University of South Australia, and University of Technology Sydney.

The Review provides an opportunity for Australian universities to highlight current partnerships with Defence and the new opportunities that that exist to work together to secure Australia's national interest.

Recent domestic and international events – including regional instability, cyber warfare and supply chain disruptions – have focused attention on our defence, security and sovereign capability. Australia's capacity to conduct research, safeguard resulting intellectual property, share that with trusted partners, and engage in secure product development will be crucial to protecting and promoting Australia's interests.

Australia's universities are well positioned to participate in this research and development due to an ever increasing awareness of and vigilance towards security risks. Universities have worked diligently with the Government through initiatives such as the University Foreign Interference Taskforce, Defence Industry Security Protocol, defence trade controls, sanctions regime and critical infrastructure reforms.

To take advantage of this secure foundation, strategic and targeted investment in collaborative research and infrastructure is crucial. This would help to make efficient use of the resources available and encourage secure collaboration and cooperation between Defence, universities, research institutes, and other trusted parties.

Recommendations

1. The Government should ensure Australia's defence, security and sovereign capability by developing our own ideas, expertise and infrastructure.

2. The Government should invest in a comprehensive and cohesive research strategy that aligns Australia's defence, security and other national priorities.

3. Defence should partner with ATN universities to review the priority current and future requirements of defence and propose consortia collaborations against each to support their achievement or resolution.

4. The Government should include Defence as part of other Government initiatives such as the Advanced Strategic Research Agency (ASRA), National Reconstruction Fund and Critical Technologies Fund.

5. Defence should consider complementary investment in priority areas identified by the Government in the list of Critical Technologies in the National Interest

Key points

- Australian universities have the responsibility and capability to work towards securing Australia's national interests (through technological and non-technological advancements). Australian universities have strong track record of success in these endeavours. Partnering with Defence and other national security agencies is necessary in order to optimise these strengths. Australia's national security will only be achieved in the near and long-term by maintaining an 'intellectual edge' in both technology capability and personnel competency.

- Partnerships and collaboration between Defence and ATN universities already exist and deliver positive outcomes. These relationships are not new – many existing relationships between Defence and ATN universities are rich, deep and enduring. Whilst these relationships are not secret they are often not publicly highlighted given the nature and sensitivities of these relationships.

- Consortia and networks of universities such as ATN are a valuable asset for partners like Defence because they are able to draw on capability and knowledge from a wider research base. ATN universities have a strong record of research excellence combined with a shared focus on impact and industry engagement and the agility to respond to emerging needs arising from that engagement.

- The existing Defence Science and Technology Strategy 2030 – *More, together* – and the Science, Technology and Research (STaR) Shot program that emerges from it provides a valuable framework for universities to align their capabilities to defence needs and a model for partnerships between Defence and university consortia like ATN.

- Universities are vital in the response to issues key to Australia's national security, such as submarines, cyber threats, hypersonic and autonomous systems, fragile supply chains, workforce skilling, recruiting and retention, and the emergence of near peer adversaries with technology and capability advantages that now compete or exceed our own.

- In addition to scientific, technological and engineering research and development, Defence should invest in human-centred research including health and humanities and social sciences which are vital to understanding physical, social and cultural interactions and factors.

- ATN universities are well placed to provide expertise in technology and non-technology solutions. Australia's national security will only be achieved in the near and long-term by maintaining an 'intellectual edge' in both technology and non-technology capability. ATN universities are well place to partner with Defence to deliver the skilled people, research and development, and strategic and policy development to compliment and enable these defence and national security undertakings.

- When collaborating with universities, Defence can take advantage of existing security protocols and frameworks including the Defence Industry Security Protocol (DISP), the University Foreign Interference Taskforce (UFIT) *Guidelines to counter foreign interference in the Australian university sector*, and ASIO's Outreach service, Due Diligence Integrity Tool and NITRO (Notifiable Incidents, Threats or Reportable Observations) Portal.

Example - NAVIGATE

ATN universities support programs such as Defence's NAVIGATE Program which promote ways of creating mobility between Defence and universities to build deeper partnerships and understanding and grow the research capability across both sectors.

ATN has a long history of industry engagement and encouraging the transfer of people, knowledge and skills between our universities and industry, including through industry PhDs, industry professors and industry fellowships.

> *NAVIGATE aims to bolster Defence's mid-career workforce capability, broaden the diversity of our workforce, and support participants with the information, knowledge, and know-how to succeed as a STEM leader within Defence. Over the course of the program, participants are provided with a tailored training and development program, mentoring, and the opportunity to work with Australia's brightest and most innovative scientists, engineers and IT specialists.*

> *The NAVIGATE Program gives participants the opportunity to work with our partners in industry and academia, both in Australia and around the world. Participants will contribute to the delivery of scientific advice and innovative technology solutions to provide our Defence force with a capability edge.*

List of critical technologies in the national interest consultation

ATN recently made a submission to this consultation and excerpt is included below. The capability map recommended to operationalise the critical technologies list could be extended to include a survey of defence priorities and current university research capability.

Recommendations

ATN's principal recommendation is that the critical technologies list should be used to develop Australia's research and innovation capability by identifying priority areas for national investment and ensuring that national security is not impacted.

To achieve that the Government should:

1. Develop a risk-based and proportionate approach (both in terms of sovereign capability and sovereign risk) that makes use of existing assessment, intelligence and resources and creates a framework for trusted international and institutional collaboration.

2. Lay out a practical and achievable way of putting the critical technologies list into action by developing a capability map to understand the current gaps and strategic partnerships already in place.

3. Use the capability map to refine the critical technologies list to those that present an unsustainable sovereign risk and require further coordinated national action.

4. Outline to stakeholders how the critical technologies list and capability map will help direct any investment to build the capability and safeguards needed in those areas of national interest and include universities as key partners in consultations and reviews.

5. Consult with stakeholders if the list is intended to used outside of this scope - for example, visa approvals (including under Public Interest Criterion (PIC) 4003B and visa condition 8208).

Key points

- Given the large scope of the list, the Government and stakeholders need an over-arching understanding of:

    - Where the current capabilities lie

    - Existing and potential strategic partnerships

    - The nature and extent of sovereign risks

    - Where there is the possibility that Australia may constrain its capacity to develop sovereign capability in key areas.

- To understand the current capabilities, partnerships and risks and devise a plan to operationalise the critical technologies list, the Government needs to undertake a capability mapping exercise in collaboration with the university and research sectors.

- This capability mapping exercise will be a valuable way for the Government to articulate its priorities and strategic needs (including across defence and cyber security), for universities to demonstrate their existing and potential capability and networks, and to coordinate our collective investment and development.

- The capability mapping can inform investment in research and innovation and also help all partners to plan and develop the skills pipelines needed to generate that research and take advantage of the opportunities created for job creation, translation and commercialisation. This will by necessity include post-school foundational pathways and lifelong learning.

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