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Defence White Paper Team
Defence Establishment Fairbairn
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Dear Panel Members,

On behalf of the University of Melbourne, I respond to the welcome invitation from the Minister for Defence Science and Personnel, The Hon Warren Snowdon MP to submit comments concerning the interaction of the Defence Science and Technology Organisation (DSTO) with Australian leadership in science, engineering and technological research.

In consideration of defence capability, it must first be acknowledged processes, products and technology specific to defence are predominantly developed and exchanged on the global stage. Regardless, the challenges of the Australian Defence environment introduce a special class of problems that require specialised and localised understanding and knowledge, not least in terms of the recruitment and training of personnel and the application of technology and science to small-scale problems with potential for high impact. Australia has very limited resources available for the accumulation of such knowledge and the subsequent transfer of this understanding to a broader community of practice in support of improved Defence capability. The limits on available financial and human resources, combined with the vast and complex domain of Australian sovereignty and stewardship, demand that Australian Defence activities optimise the cohesion and cross-leveraging of defence, industrial and academic expertise.

The University of Melbourne considers these limited resources can be optimised through enacting a tighter cohesion between the funding and programming of research activities across the defence, industrial and academic sectors. The development of structures and programs that facilitate a natural and coordinated collaboration will allow local expertise to better address defence challenges and improve the contribution of researchers and teachers to Australian Defence programs and personnel.

1. Current capacities and hindrances

Currently, university contributions to Defence research are largely focussed on and channelled through DSTO, which provides funding for characteristically short term interactions. In recent years these projects have been erratically funded, no doubt reflecting the general decline in funding provided to the DSTO. Consequently, it has been difficult for academic leaders to attract and retain the critical mass of researchers required to undertake key projects, as assurances of medium-term or future tenure cannot be provided.

Accordingly, many DSTO projects are 'hooked into' projects already commissioned under the auspices of the USA's Defense Advanced Research Projects Agency (DARPA) and the Australian Research Council, which impairs our researchers' agility in addressing specific solutions for the Australian Defence Force.

Concerns for the conduct of DSTO projects include the lack of performance targets and criteria utilised in determining ongoing funding, as there do not appear to be clear endpoints for many of these research interactions; indeed, the emphasis appears to have dwelt on how well a project is managed in administrative terms rather than the efficacy of research coordination and output. The recent appointment of an accomplished research leader as the new Chief Defence Scientist is regarded as a most encouraging development.

2. Future capacities and recommendations

Colleagues have suggested an alternative model for defence research in Australia is provided by DARPA, the agency responsible for the development of new technology for the United States of America's military. A defence research agency of this nature would adopt a lean structure, staffed largely by program managers with proven track records with the defence industry and research, and would entirely outsource research and development to existing facilities. Reporting to a coordinating Director, program managers would have significant autonomy and responsibility to set defence research objectives based on the Australian Defence Force's long-term needs, in consultation with the broad pool of Australian expertise, including DSTO.

Program managers would use available funds to build ongoing, evolving partnerships with industrial, defence and academic research facilities to achieve these objectives. It is envisaged such partnerships would involve large, multi-institution consortia, with defined outcomes and timelines in a 1 – 3 year perspective. Continuing funding and involvement in defence projects would be determined by emerging requirements and research performance.

The RPDE program (Rapid Prototyping Development and Evaluation - <http://www.rpde.org.au/>), a productive think-tank formed by Defence and Industry of Australia, is suggested as an inexpensive conduit to creating such an agency within the current hierarchy. A modification to RPDE's scope and scale, deploying longer objectives, time frames and an enhanced risk profile, would naturally be required.

In conclusion, we consider a research environment that encourages and supports all available resources in cooperatively addressing the challenges to Australia's defence capability to be essential to the future security and prosperity of the nation, particularly as we anticipate an era of global resource shortages and widespread social and political unrest. In these terms, defence capacity will undoubtedly include the responsive and highly effective deployment of humanitarian and peacekeeping aid to our immediate region as a proactive measure, building on the Australian Defence Force's commendable intervention in both natural disasters and political upheavals in our region over the past decade.

Again, our thanks for the opportunity to provide comments, which we hope are productive. The University of Melbourne greatly values its relationship with the DSTO and the Australian Defence Force. We are grateful for your consultation in determining optimal arrangements for continuing collaboration.

Yours,



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cc. Professor Peter Rathjen, Deputy Vice-Chancellor (Research)
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