

ANU-Army Research Centre Research Priorities

ANU and the Australian Army Research Centre ([AARC](#)) are seeking opportunities for collaboration on six research priorities, which will enhance Army's ability to transform in accordance with direction and guidance set out in [the Defence Strategic Review](#).

While these topics may seem quite specific, addressing them in practice requires a broad range of issues from HASS and STEM to be considered.

1. Advise and Assist: this research priority focuses on considerations relevant for land forces undertaking *advise and assist* missions across the spectrum of operations – this includes scheduled, sustained, peacetime engagements such as capacity building and military cooperation programs, all the way through to short-notice, highly responsive, training and mentoring missions conducted in intense, warfighting conditions. Army's existing body of research on *Advise and Assist* missions [can be found here](#). This area of research thus benefits, for example, from understanding similar organizational tasks undertaken in different contexts, on organizational change, or the context of security organisations in Australia's areas of defence interest.

2. Mobilisation: this research priority focuses on the impact of preparing the nation for protracted combat operations and sustaining it through potential months and years of war. This priority looks at Australia's domestic industry, population impacts, demographic opportunities and limitations, the rapid organisational and industrial changes necessary to keep up with the pace of change and demand for specific products, the degree of whole of nation coordination required to enable scaling of fighting forces, other national security agencies, and sovereign capability to meet the needs of the nation whilst at war. More on scaling and mobilisation may be found in this [research report](#), this [ADM article](#) or this [RAND Corp report](#).

3. Littoral Manoeuvre: this research priority focuses on operations which project land power from Australia's northern coasts over the sea to the land, thereby enabling land forces to manoeuvre to advantageous positions which allow them to influence maritime operations. This area of research thus benefits from, for example, understanding the relevant environmental, social, economic and geographic aspects of the maritime regions to Australia's north, the economic, infrastructure, transport, and legal aspects of operating in and from Australia's north, the security of key trade routes and maritime approaches, the geographical importance of bases and regional access, the requirement for medium and heavy landing craft to transport land forces across the sea, the manufacturing, infrastructure and sustainment requirements of these landing craft, long-range fires including land-based maritime strike. More information may be gleaned from [this article recently published](#) on the AARC's *Land Power*

Forum, or [this summary of the lexicon and definitions](#) applicable to Littoral Moanoeuvre.

4. Power & Energy: this research priority focuses on the identification, development and leveraging of emerging power and energy solutions to gain battlefield advantage. Army's current and future systems will need to evolve to exploit advances in micro-electronics, sensors and computing, and the power demands of deployable infrastructure, land-based vehicles and individual soldiers' equipment will also need to evolve. Further information can be found at Army's [Power and Energy page](#) which features videos on power and energy requirements and Army EVs, or Army's [Power and Energy Paper](#) (2020).

5. Quantum: this research priority focuses on the most promising applications of quantum technologies. Emerging quantum technologies exploit the fundamental laws of nature and have unprecedented potential to augment Army's sensing, imaging, communications, cryptography, computing and simulation requirements. More information may be found at the RAS Integration Coordination Office's [quantum technology page](#), which features a number of videos, or via the Australian Army's [Quantum Technology Roadmap 2023](#).

6. Autonomy & Counter-autonomy: this research priority focuses on the challenges, barriers and solutions to scaling Army's adoption of Robotics and Autonomous Systems (RAS), how such scaling may augment Army capacity, how they may be employed beyond the conduct of 'dull, dirty and dangerous' tasks, the future of manned-unmanned teaming ('MUMT'), the ethics and legalities of lethal autonomous weapons systems (LAWS), autonomous targeting, countering individual or swarmed RAS on land, air and sea, the future of export controls, the use of RAS in administrative and human resource functions, and more. Additional information may be found at the RICO [robotics and autonomous systems homepage](#) here, or the Australian Army's *Robotics and Autonomous Systems Strategy v2.0* [PDF file found here](#).

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