ARMY FUTURES RESEARCH FRAMEWORK

Introduction

Purpose

The Australian Army Futures Research Framework (AFRF) describes the core research needs of the Army in its contribution to Defence strategy. It supports Army's 'futures' planning.

The AFRF aims to engage a wide audience. It seeks to ignite thinking and rally intellectual capital to address Army's most difficult transformational challenges. The target audience includes communities and stakeholders both internal and external to the Australian Defence Organisation.

It is a framework that can inform strategists, policy makers, program managers and other key decision makers in their thinking. It is a living document, designed to be updated as experiences and knowledge change, questions are answered, or new problems are identified.

Method

The AFRF comprises thematic research areas and proposes associated topics for research projects. The themes and questions within the ARF can be used (but are not limited) to:

- Commission research proposals from think tanks, academics and independent scholars for funding through the Army Research Scheme;
- Shape professional military education activities within Army formations and units;
- Develop research thesis topics for Australian Defence College and Long Term Schooling students;
- Encourage thinking and debate about the employment of land power and Army's understanding of the profession of arms; and
- Guide the research and development efforts of organisations and individuals who wish to contribute to Army's modernisation priorities.

Endstate

The objective of the AFRF is to foster research outputs that shape and inform Army modernisation in order to build a more capable land force.

Implementation

Architecture

The framework presents a typology of themes that affect how, when, where and why Army is structured, organised and employed. The typology spans the academic disciplines of social sciences, psychology, the humanities and the bio-physical sciences. It complements technical research undertaken for Army by the Defence Science and Technology Group, and applied research undertaken by other groups within Defence.

Rather than focusing on specific questions, the AFRF proposes a list of themes and nested topics. This allows researchers to develop their own specific question, ideally in consultation with subject matter experts within Army. The themes are:

- Army and society
- Strategy and operational art
- The character of war

Requirements and outputs

The themes and topics are not listed in any particular order of priority and may overlap. The topic areas listed within the AFRF are intended to be a guide to the research requirements of Army. They are not prescriptive and do not act as a means of excluding proposed studies. Researchers can shape their potential contributions to force modernisation as they see fit and Army will consider contributions of value ranging in size from a short blog post to a major book.

Army Research Scheme

Through the Army Research Scheme (ARS), the Australian Army Research Centre contracts researchers within Defence and from think tanks, academics and independent scholars annually to undertake research on priority topics identified by Army.

The ARS seeks researchers to investigate topics that will inform future land force design, capability development, and the employment of land power. ARS requirements are drawn from the AFRF and are expressed in the form of prescribed research questions.

Any researcher looking to undertake a research project to address one of the ARS questions is invited to apply for funding. Research funded under the ARS will be considered for publication in the peer reviewed Australian Army Journal, Army Occasional Papers or Monograph series.

Prospective applicants should go to https://researchcentre.army.gov.au/programs/army-research-scheme for more information on the scheme.

Cycle of operations

The AFRF will be updated on annual basis to update the ARS questions and refresh the themes and topics on a needs basis.

The desk officer for all matters related to the AFRF is SO1 Research, Australian Army Research Centre: army.research@defence.gov.au

Army Research Scheme

Highest priority research questions for 2022

Priority research questions are developed on an annual basis to focus academic research (including research conducted outside of the Army Research Scheme (ARS) externally and internally to Defence) on projects that will provide the greatest value to Army.

The highest priority research questions for the 2022 ARS are:

1. How can land power achieve strategic deterrence in a coalition or self-reliance setting? What are the contributions that land forces can make to enhance Australia's capacity to deter aggression?

2. Is the planned rate of implementation for transformational changes to the ADF (force expansion, higher states of preparedness, stronger deterrence, and greater self-reliance) at a pace sufficient for the ADF to respond to further deterioration in the strategic environment?

3. How, and in which ways, might the current strategic environment impact on Army's preparedness, responsiveness and regional capacity building?

4. How should the ADF, or the Army, prepare itself to scale or adjust its posture to offset unforeseen threats or respond to unanticipated contingencies?

5. What future land power capabilities, relationships and processes may be best pursued through AUKUS to advance and secure Australia's national interests?

6. What can Army learn from the Russian-Ukraine conflict (2014-today), and how could this impact Army's modernisation efforts?

7. What are the characteristics of, and considerations relevant to, the relationship between the ADF, or Army, and the broader Australian community? What are the opportunities or challenges that will affect this relationship over the next decade?

ARMY AND SOCIETY

Army and society covers all aspects of the Army's interaction with society, including the polity, community and private industry. This interaction and relationship is two-way, with each element influencing the other through constant interaction. Army is interested in any studies which explore this relationship.

Priority questions (not ARS)

1. How might Army meet the challenges of scaling up in peacetime and in conflict?

2. If conflict in the Indo-Pacific were to occur, how might Army have a discussion with the Australian people to signal that they are a potential "workforce".

3. What is the role of the ADF, or the Army, in assuring Australia's preparedness to global military and other crises demanding a multi-agency response? What lessons or policy considerations may be applicable to the enhancement of Government institutional responses?

4. How can the ADF, or the Army, contribute to the development of robust domestic or coalition-based industrial and technology sharing arrangements to assure the development or sustainment of military capability?

5. What is the role of the military, or other response organisations, in national strategic policy or decision making? Should these organisations have a lessened or greater role? What governance or institutional mechanisms might be necessary to effect this role?

Society's perceptions of war and warfare

- How society impacts on Army and its engagement with the Australian community

- Army and Australian values
- Legitimacy of militaries and war
- Preparedness of Australian society to accept war
- Social media and the Army
- Impact of news media
- Influencing public opinion
- Army's social responsibility
- The Army narrative

Army's role in society

- Army's role in aiding the civil authorities including Domestic Counter-Terrorism, and Humanitarian Aid and Disaster Relief operations
- Army's role in aiding the civil community
- Using Army to advance social policies

Societal structure

- Demographic change and future force generation
- Options for force generation and mobilisation
- Australian employment trends
- Australian skills needs
- Australian education system
- Workforce diversity

Government and politics

- Australia and sovereignty
- Army's role in establishing, maintain and defending sovereignty
- Impact of political change on Army
- Whole of Government structures – interagency interactions, interdepartmental policy interactions (and their impact on Army's role and objectives)
- Strategic alliances and partnerships
- Models of government and the implications for war
- Interoperability with other Government and non-government agencies

Economics

- Army's participation and role in the economy
- Future military economic trends
- Economics of Defence spending and infrastructure
- Developing future economic policy for Army/Defence
- Optimising efficiency in current and future economic environments – times of plenty and lean
- Emerging economic threats to Army capability
- Sovereign capability and the economic impacts

Domestic and international law

- Trends in the application of International Humanitarian law
- International conventions on the proliferation of weapons
- United Nations policies and implications to Defence/Army

- International policies on unconventional warfare
- Rule of law and relevance to future war
- Relevance of Australia's Defence Act 1903 and related policies to the changing role of the Army
- Defence Diplomacy and legal constraints

Developing Army personnel – leadership and management

- Developing leadership - attributes and models
- Command versus management
- Future command methods - mission command vs directive control
- Developing an appreciation for and understanding of how to apply knowledge and research
- Developing teams and individuals
- Assessment of leadership potential for tactical, operational and strategic levels
- Developing soft skills
- Management and planning training
- Communication and engagement
- Incorporating diversity into the future Army (gender, cultural and linguistic diversity, transhumanism)
- Developing creative and critical thinking skills and agile problem solving
- Harnessing deep specialist skills and knowledge not resident within Army's ranks

Professional military education

- Theories of education, learning and training
- Opportunities for developing the intellectual capital of Army personnel
- Future training and education gaps and needs e.g. STEM/Cyber
- Modes for making academic and professional learning and accessible
- Training an aggressive organisation in a passive society
- Design thinking and innovation as part of Army's education and training models

Ethics in the profession of arms

- Ethics in decision-making
- Lethal autonomous weapon systems
- Robotics and Autonomous Systems
- Artificial Intelligence
- Human Machine Teaming
- Information and influence operations
- Future ethical interrogation methods
- Cyber warfare
- Integrity in Army in an evolving society
- Role and employment of Special Operations Forces

Health

- Future medical capability and systems and its impact on Army
- Models of in-service care
- Managing personnel with mental health disorders
- Efficacy of current models – challenges and opportunities
- Post-traumatic stress disorder

- Traumatic Brain Injury prevention and treatment
- Human Performance Optimisation in Army
- Neuroscience and Army
- The future of tactical care of the Combat Casualty
- Modernisation of Army's medical capability

Recruitment and retention

- Cultural change in Australian youth
- Demographic change and future force generation
- Reconceptualising Army selection process
- Workforce diversity and its impact on Army
- Addressing competition with other industries and employment options
- Advertising strategies and communication approaches
- Future Australian employment trends and the impact on Army
- Future mass mobilisation
- Non-traditional recruitment models for specialists in advanced technologies
- Talent management and optimisation within Army

Reservists

- Force structure models
- Voluntarism versus national service
- Enhancing the future force through reservist integration

Veterans

- Social and psychological support post transition
- Army's duty of care
- Army's relationship with veteran's organisations
- Soldiers as civilian workers
- Transition from Army to civilian society

STRATEGY AND OPERATIONAL ART

Strategy is the 'way' to achieve a military/political 'end.' It requires thinking about war, interpreting the military implications of political goals, understanding trade-offs and ensuring all efforts are directed to, and consistent with, achieving the 'end'. Army is interested in any study which explores Australian strategic positioning in any way which may impact the Australian Army in future.

Operational Art is the process to achieve strategic aims with structured and skilful use of the available military forces. It is the level of war which links strategic ends with tactical means. Operational art crafts campaigns and major operations that sequence tactical actions to synchronise effects. Army is interested in any studies which explore the ways in which Army can more effectively develop operational capability and perform its operational role as part of the joint force.

Priority questions (not ARS)

1. How should the Joint Land Force achieve shape, deter, and respond strategic objectives as part of an integrated approach to campaigning?

2. As strategic competition in the Indo-Pacific evolves, what are the implications for Army (and the joint force) if established cooperative relationships with nations in the region transition from cooperation to competition? [e.g. Solomon Islands]

3. In the wake of domestic natural crises (bushfires, COVID-19, flooding), how might the peacetime domestic role for Army affect/influence the transformation and application of land power in war?

4. If conflict were to emerge in our region within the next decade, which challenges might Army face in order to fight (and win) [with the current gear and people]?

5. Develop a framework to guide Army's identification of innovative/alternative uses for existing capabilities (platforms, systems, people) for a competitive advantage.

6. What considerations, concerns and relationships are necessary to enable the ADF, or the Army, to contribute to the capacity building or crisis response capability of regional partners? What complementary capabilities and capacity can the ADF, or Army, provide to support regional stability and security?

Strategy in the Australian context

- Use of Land Power in the Indo Pacific
- Australian White Paper interpretation and the impact on Army
- Army's role in an Australian maritime strategy
- Army's contribution to Australian strategy
- Drivers for Australian strategy development
- Strategic considerations for a middle power
- Geo-political change in the Indo-Pacific
- Warfare as an extension of politics in modern society

Theories of future war

- Principles of War
- Military theory and doctrine
- Integrated campaigning
- Key lessons learned that shape the future of war
- Validity of past and present military theorists today and into the future
- Developing future military theorists
- Perspectives on war through different academic disciplines
- Forecasting and futures planning - strategies/activities/methods

Organisational management

- Theories of management
- Integrating different workforce models – Military, APS and contractors
- Force integration – models, impact, implications, implementing
- Capability lifecycle – drivers, models, options, benefits, suitability

- Managing organisational change in Army

Future Organisational Structure

- The joint and integrated force – models, impact, implications, implementation
- Army's organisational adaptation for future war
- Australian integration into Allied nations force structures
- Potential adversarial structures and shapes

Logistics

- Logistics concepts – now and in the future
- Interoperability with coalition partners
- Procurement models, practices and policies
- Future impacts of global supply chains
- Sovereign supply chains – developing resilience
- Vulnerability of maintenance
- Effects of outsourcing maintenance and repair
- Manufacturer involvement in maintenance and repair
- Logistics assurance in remote and austere environments
- The impact of Artificial Intelligence and Big Data on Army logistics
- Use of Additive Manufacturing technologies to optimise Army logistics

THE CHARACTER OF WAR

The character of war recognises that while war's nature is fixed, its character changes and evolves based on context, technology, organisations and numerous other external factors. Army is interested in any studies which explore these changes and how they may impact on the future of Army or the future of conflict.

Priority questions (not ARS)

1. What are the likely future trends in strategic competition and what are the implications for military modernisation?

2. How might the proliferation of long range capabilities in the region influence/affect and transform Australian land power?

3. Which lessons from previous periods of land power transformation are most relevant to Army's future? What might Army draw from those lessons, and how could those lessons be applied to the transformation of Australian land power?

4. How might advances in technology, capability, doctrine, etc. in other areas of the joint force influence/affect/transform the role of land power in the joint force? How will the challenges of integration across all domains affect land power within the joint force?

5. How might advances in space capability (for domestic and military uses), within Australia and internationally, influence/affect and transform Australian land power?

6. How might the proliferation of long range capabilities in the region influence/affect and transform Australian land power?

7. How should Army's conceptual understanding of 'manoeuvre' evolve in response to modernisation efforts to deliver a more lethal force capable of affecting the operational environment at greater range?

Operational environments

- Defining Army's domains and the impact on operations, strategy and tactics in diverse environments:
    - Air
    - Maritime
    - Land
    - Space
    - Cyber
- Multi-domain operations
- Preparedness and readiness for diverse environmental conditions
- The impacts of the Information Environment on Army at home and abroad

Operations

- Joint force effects on operations – Integrated Campaigning
- Challenges of future diverse contested environments
- Situational understanding in the battlespace
- Intelligence, surveillance, and reconnaissance
- Battlefield communications
- Command and control in the battlespace
- Counter insurgency operations
- Guerrilla warfare
- Terrorism
- Cyber warfare at the tactical, operational and strategic level
- Integrated and joint forces – configuration, models, roles, responsibilities, training, management
- Conventional and unconventional warfare
- Special Operations
- Signals Intelligence and Electronic Warfare
- Space-based capabilities and their impact on Army

Warfare and innovation

- Developing creative thinking and problem solving skills
- Understanding and harnessing innovation - Army and Defence innovation systems/networks
- Impact of technological development on Army
- Civilian technologies with a military application
- Partnership models with Industry, Academia, Science &Technology and non-traditional defence partners
- Building a resilient industrial defence industry
- Supporting tactical level innovation – pathways, models, financing, processes, education, skills development
- Risk aversion and accepting failure
- Intellectual property – defining and protecting

- Design Thinking and its application in Army

Warfare and technology

- Robotics and Autonomous Systems
- Electronic Warfare, Signals Intelligence and Cyberspace Operations
- Artificial Intelligence & Machine Learning
- Space-based technologies
- Augmented and Virtual Reality
- Soldier systems, lethality and ammunition technologies
- Precision strike and precision loitering munitions technologies
- Quantum technology
- Supersonic/hypersonic weapon systems
- Big data
- Future manufacturing technologies

Implications of a changing natural environment

- Impact of changing environmental conditions on the character of war - Army's operations, strategies, warfare options, roles and responsibilities
- Climate change and the impact on Australian and regional security
- Natural disasters – impacts on Army's role and responsibilities
- Political, societal, demographic, economic, health implications of a changing climate
- Social impacts of a changing climate – refugees, displaced people
- Relationship of natural resources to war – water, oil, gas, arable land, airwaves etc.
- Army's carbon footprint
- Developing alternative, sustainable, efficient energy options
- Army's role in protecting Australia's interests in Antarctica
- Pandemics

Human Performance

- Cognitive enhancement
- Physical enhancement protocols
- Developing individual resilience - physical and mental
- Developing team resilience
- Developing decision making
- Nutrition
- Human machine teaming
- The impact of technology on Army's personnel in training and war

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