Army

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Director General Future Land Warfare

Cove Conference

Ready Now, Future Ready Force

Brigadier Ian Langford, DSC and Bars

Correct as at 23 Jun 21

Army

With Government's investment, we'll deliver the Army that we need to keep Australia safe

Why

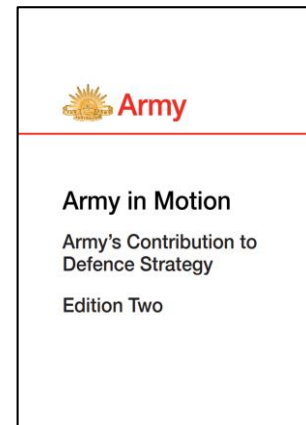**What**

How

To achieve Defence's Strategy

With Government's investment

We're delivering the future Army

$55b in land capability

DEFENCE STRATEGIC UPDATE

2020 FORCE STRUCTURE PLAN

LEAD THE WAY: DEFENCE TRANSFORMATION STRATEGY

Army — Land Operational Concept Document

Army — Army in Motion — Army's Contribution to Defence Strategy — Edition Two

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Investments in the Land Domain
Total Approximately $55b to 2030

	2020	2025	2030	2035	2040

Howitzers
- Protected Mobile Fires (Self-Propelled Howitzers) — $0.9–$1.3b
- Additional Protected Mobile Fires (SPH) — $1.5–$2.3b
- Protected Mobile Fires Assurance (Self-Propelled Howitzers) — $2.1–$3.2b

Missiles
- Long Range Rocket and Missile Systems Fires — $0.6–$0.9b
- Long Range Rocket and Missile Systems Fires Upgrades — $1.6–$2.4b
- Additional Long Range Rocket and Missile Systems Fires — $1–$1.5b

Communications
- Battlefield Command Systems — $1.8–$2.7b
- Battlefield Communication — $3.2–$4.8b

Combat vehicles
- Combat Engineering Vehicle — $0.9–$1.3b
- Boxer Combat Reconnaissance Vehicle — $5b
- Infantry Fighting Vehicle — $18.1–$27.1b
- Hawkei — $0.9–$1.4b
- Manoeuvre — $1.3–$2b

Tank
- Tank Assurance — $0.6–$1b
- Tank Replacement Evaluation and Design — $8–$11.9b

Special Operations
- Continuous Capability Enhancement — $2.9–$4.3b

Soldier systems
- Integrated Soldier Systems — $3.6–$5.5b

UAS
- Tactical UAV — $400–$700m
- Future Autonomous Vehicles — $7.4–$11.1b

Watercraft
- Army Watercraft — $1.4–$2.1b

Helicopters
- Tiger Replacement — $3.4–$5.1b
- Long-range Rotorcraft — $1.4–$2.1b
- Next Gen Rotorcraft — $1.1–$1.6b
- Special Operations Light Helicopter — $0.8–$1.2b

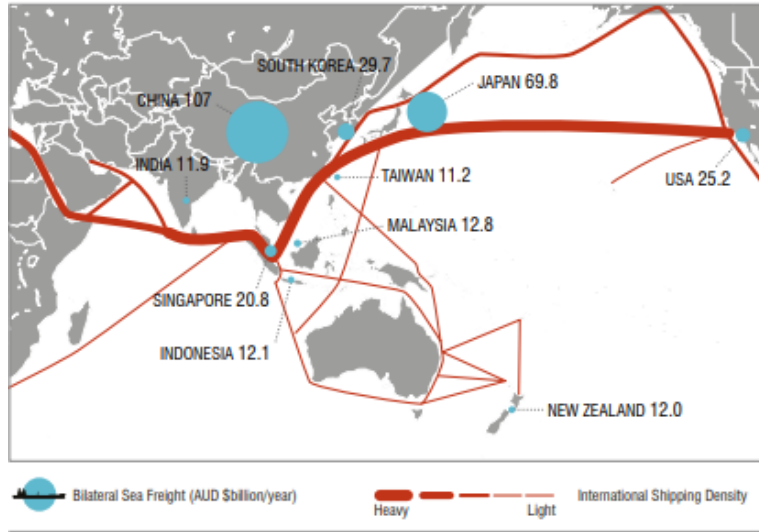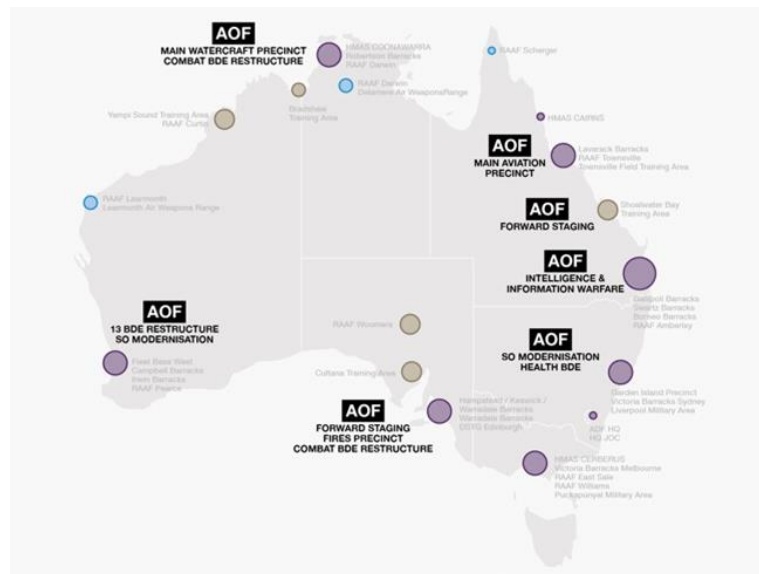# Land Operating Concepts

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Figure 2: Sea Freight: Australia's top ten trading partners

Document Structure

Land OCD Main Body:
- Executive Summary
- Introduction
- Land Force Design
- Objective Land Force Determinants
- Realising the Objective Land Force
- Army Enduring Risks

Land OCD Annexes:
- Annex A: Operational Force Structures
- Annex B: Army Objective Force
- Annex C: Functional Concepts of Employment
- Annex D: Conceptual Papers
- Annex E: Threat Context
- Annex F: Army's Enduring Risks
- Annex G: Operational Needs
- Annex H: Fundamental Inputs to Capability
- Annex I: Land Force Support System Framework
- Referenced Documents and Definitions

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Technological Impacts

Grey Zone

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- The use of Grey Zone tactics in the Indo-Pacific has expanded

- Grey Zone tactics are characterised by actions designed to antagonise, disrupt or damage without conflict. However, their use is escalatory and only one feature of the continuum of conflict.

- Success in the 'Grey Zone' is achieved by WoG and whole-of-society activity. Army supports this activity with its investment in situational awareness, cyber capabilities, electronic warfare, and information

FIGURE 1: A HEURISTIC CONSTRUCT FOR CONFLICT.

Continuum of Conflict			
Measures Short of Armed Conflict	Irregular Warfare/ Terrorism	Hybrid Warfare	Conventional Warfare (limited to theater-wide objectives)
Special Warfare			

GREY ZONE

FRONT LINE
SUPPORTING

Power Sources, Energy Storage & Distribution
Robotics & Autonomous Systems
Novel Systems, Weapons & Effects
Secure Communications & Navigation
Cyber & Electromagnetic Activities
Sensing, Processing & Data Fusion
Artificial Intelligence, Analytics & Advanced Computing
Platform and System Design and Assessment
Advanced Materials & Manufacturing
Human Protection & Performance

Global Communications

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- Innovations offer opportunities for Army modernisation

- The massive growth of network active devices generates both network latency challenges and an increased security risk

- The increasing connectivity of services and infrastructure to the internet creates vulnerabilities that are exploited by States and criminal organisations.
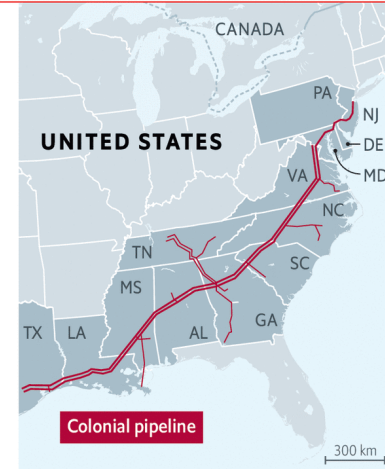
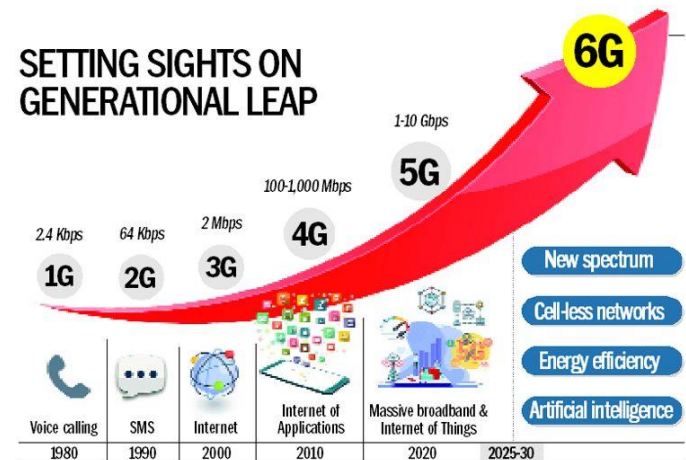

Striking oil
United States

Ransom payments, $'000
— Average — Median

Median size of companies targeted by ransomware
Employees
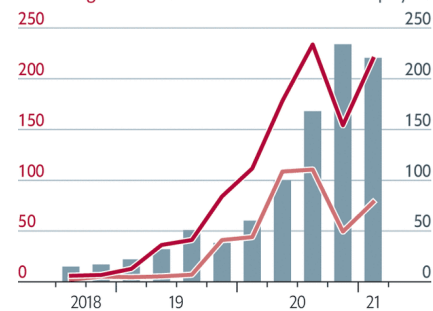
Sources: Coveware; Colonial Pipeline Company
The Economist

UNITED STATES

Colonial pipeline

SETTING SIGHTS ON GENERATIONAL LEAP
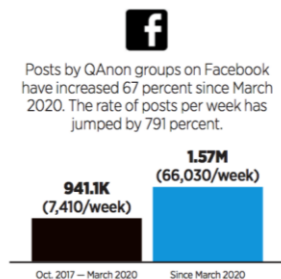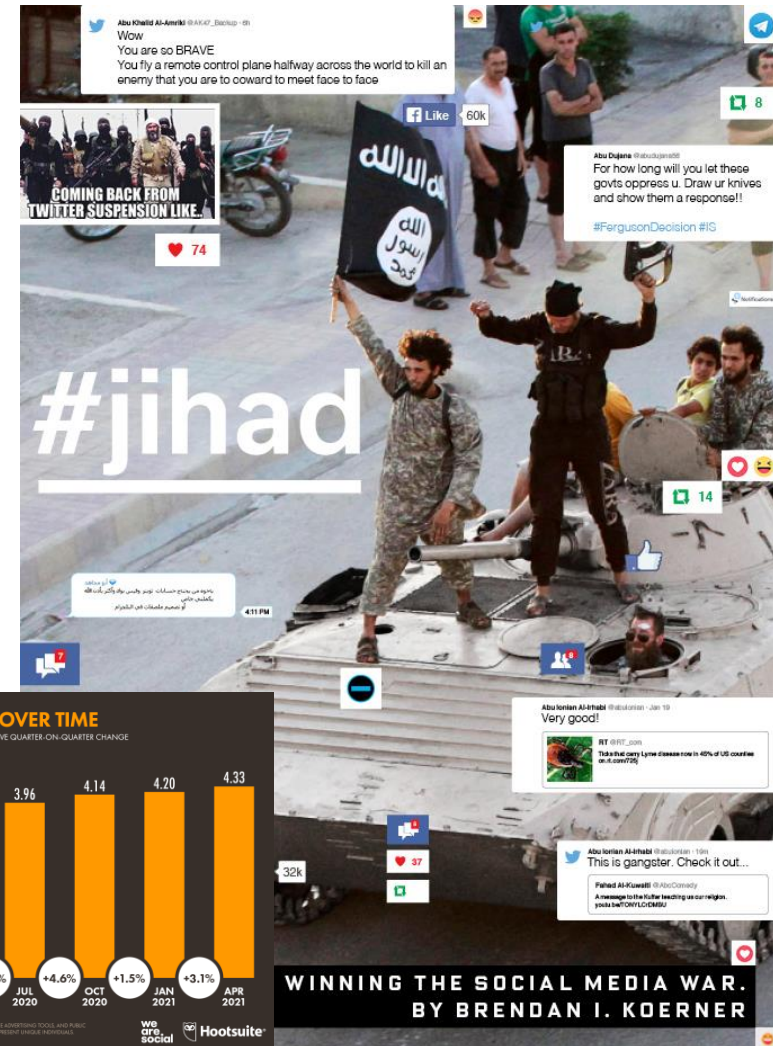
Social Media

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- Adversaries have harnessed this technology to conduct influence operations and spread disruptive disinformation

- Non-state actors effectively use social media for military recruiting. State-actors can use social media as a way to encourage a civil-society to remove the power of their own State.

- Army must monitor this growing arena, carefully digest information from social media, and cultivate skills to compete in this domain

Posts by QAnon groups on Facebook have increased 67 percent since March 2020. The rate of posts per week has jumped by 791 percent.

941.1K (7,410/week)
1.57M (66,030/week)
Oct. 2017 – March 2020 — Since March 2020

Since March 2020, Twitter has recorded a 126 percent increase in QAnon-related tweets and a 176 percent rise in unique authors tweeting about QAnon.

7.2M (434K)
16.3M (1.2M)
Sept 2019 – March 2020 — Since March 2020

APR 2021 — GLOBAL SOCIAL MEDIA USERS OVER TIME
THE TOTAL NUMBER OF GLOBAL SOCIAL MEDIA USERS" BY QUARTER, WITH RELATIVE QUARTER-ON-QUARTER CHANGE

	APR 2019	JUL 2019	OCT 2019	JAN 2020	APR 2020	JUL 2020	OCT 2020	JAN 2021	APR 2021
Users (B)	3.51	3.59	3.66	3.71	3.81	3.96	4.14	4.20	4.33
Change	+2.3%	+2.1%	+1.2%	+2.6%	+3.9%	+4.6%	+1.5%	+3.1%	

**WINNING THE SOCIAL MEDIA WAR.**
BY BRENDAN I. KOERNER

Rise In Global Citizens

- Increased social activism can demand Army attention if it turns violent

- Diminished national affiliation could impact Army recruiting

- Increased diversity in ideological commitments can cause tactical issues for the Army when it needs to garner popular support abroad

Language Spoken at Home (other than English)
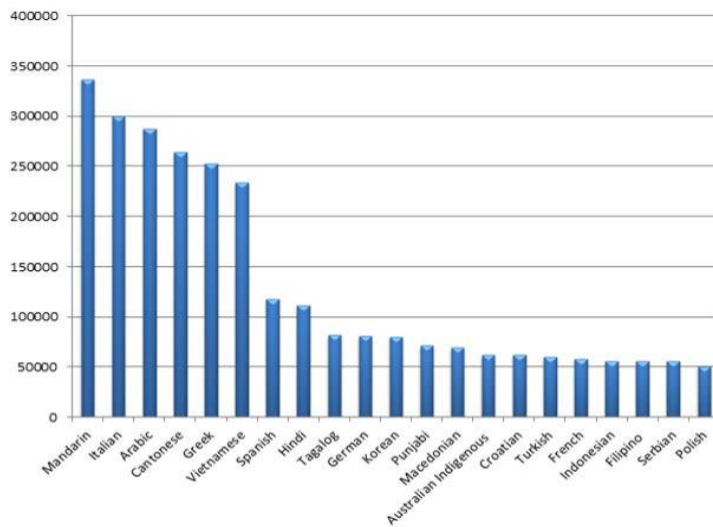
Source: B13 Language Spoken At Home by Sex. Australian Bureau of Statistics (2016b).

Would you fight for your country?
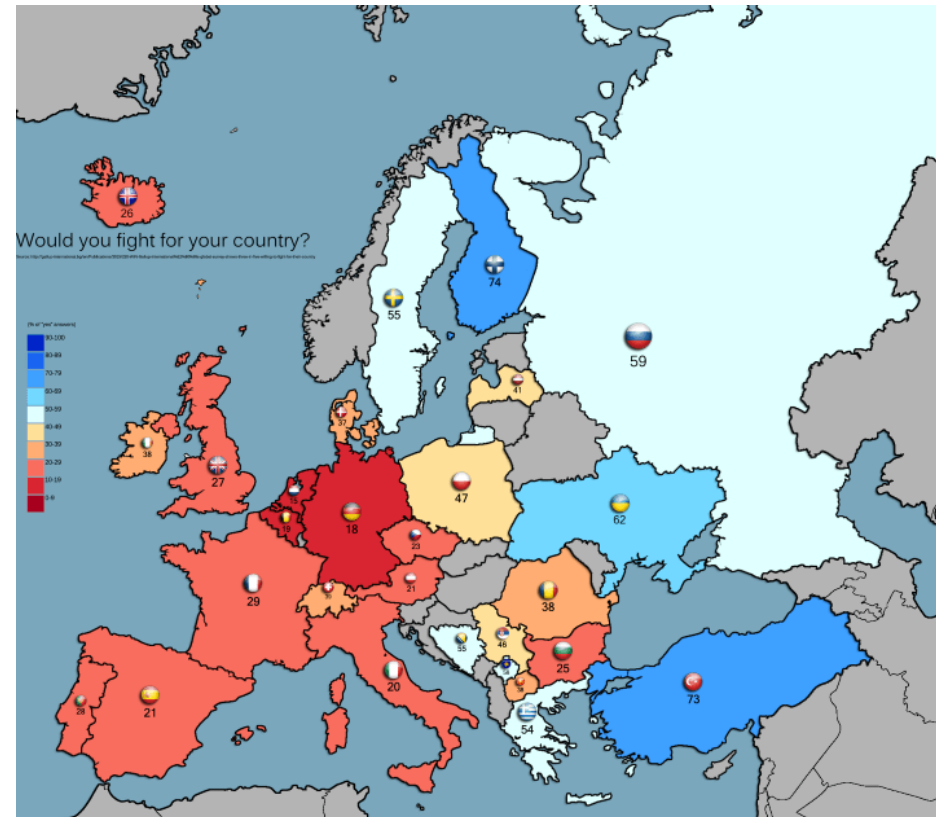
Long-range Hypersonics: Technological Impacts

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Technology Convergence

- Technology is evolving rapidly in hypersonics and several complementary areas including precision weaponry, artificial intelligence and autonomous systems

- The convergence of this technology is challenging our traditional structures and processes

Technological Impacts

- Hypersonic delivery systems have the potential to manoeuvre to evade current defensive systems, and/or reduce warning times to ground-based radar

- The combination of range and speed accessible through hypersonic weapons will reduce our overall decision to effect cycle

- Regional developments and military modernisation have eroded the ADF's advantage in artillery capability

Opportunity for Defence

- Defence has committed to a development, test and evaluation program for high-speed long-range strike and missile defence, including hypersonic weapons, leading to prototypes to inform future investments

- Investment in high-speed long-range Strike, including hypersonic research will commit between $6.2b-9.3b

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Army Quantum Technology Roadmap

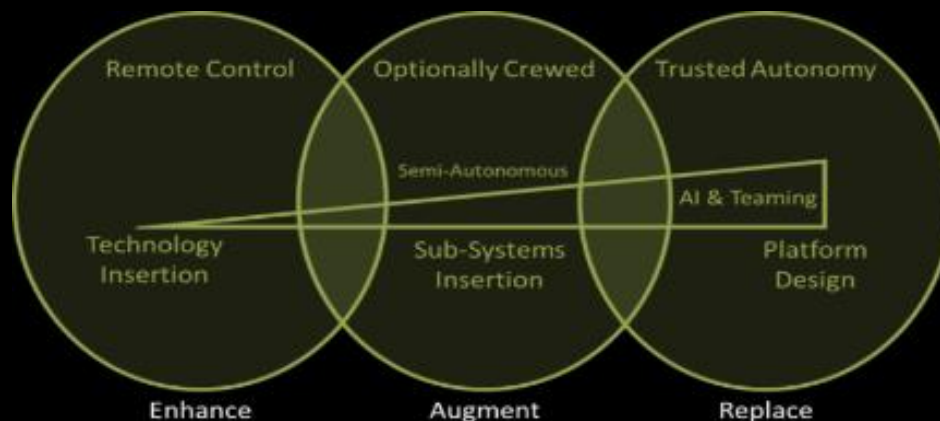| Technology type	Priority 1	Priority 2	Priority 3
Sensing and imaging	• Positioning, navigation & timing • Gravity and magnetic anomaly detection	• Electromagnetic detection & ranging • Medical & environmental sensing	• Human-machine interfacing • Material and device characterisation
Communications and cryptography	• Point-to-point QKD • Network clock synchronisation	• Multi-point QKD • Long-lived encrypted quantum memories	• Networking quantum sensors and computers • Integrated quantum-classical networks
Computing and simulation	• Image/signal processing • Optimisation of logistics and planning	• AI/ML and robotics • Cyberwarfare tools • Cryptography • Operational simulation	• Geo/physical modelling • Materials, biotechnology and nanotechnology simulation
Enables and countermeasures	• Post-quantum cryptography • Disrupting QKD	• Characterisation benchmarking and optimisation tools • Spoofing quantum sensors	• Scalable manufacturing • Disabling quantum computers

Current development state	In production/advanced stages of industry R&D	Intermediate industry R&D/ advanced stages of academic research	Early stages of industry R&D/intermediate stages of academic research
Estimated time to defence application	**<5 years**	**5-10 years**	**>10 years**
Sensing and imaging	• Quantum accelerometers magnetometers, gyroscopes and clocks • Quantum microscopes	• Quantum spectrometers and detectors • Chip-scale bio/chemical analysers • Quantum-enhanced MRI	• Wearable magnetoencephalography • Quantum nanosensors for biomedicine
Communications and cryptography	• Simple short-range QKD networks	• Quantum repeaters • Quantum ports • Complex long-range • QKD networks • Synchronisation of clocks	• Quantum memories • Networks of quantum sensors and computers
Computing and simulation	• Mainframe NISQ computers	• Distributed and edge NISQ computers intergrated in classical networks • EC mainframe computers	• Large-scale EC mainframe computers capable of cryptography • Distributed EC computers in quantum networks

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Robotic & Autonomous
Systems Strategy

October 2018

Serving our Nation
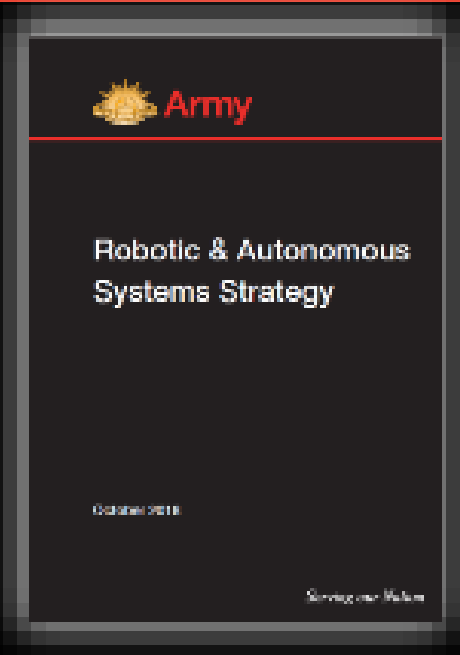
The purpose of the RAS Strategy is to set the path to realising a RAS enabled future Army that can rapidly deploy, concentrate at a point of effort and disperse to survive – through a robust and resilient network, leveraging superior decision-making to win in future conflict

Benefits

- Efficiency
- Maximising Soldier Performance
- Improving Decision Making
- Force Protection
- Generating Mass & Scalable Effects

Remote Control
Optionally Crewed
Trusted Autonomy

Semi-Autonomous

AI & Teaming

Technology Insertion
Sub-Systems Insertion
Platform Design

Enhance
Augment
Replace

Army

Next Steps

Army is required to be connected, protected, lethal and enabled.

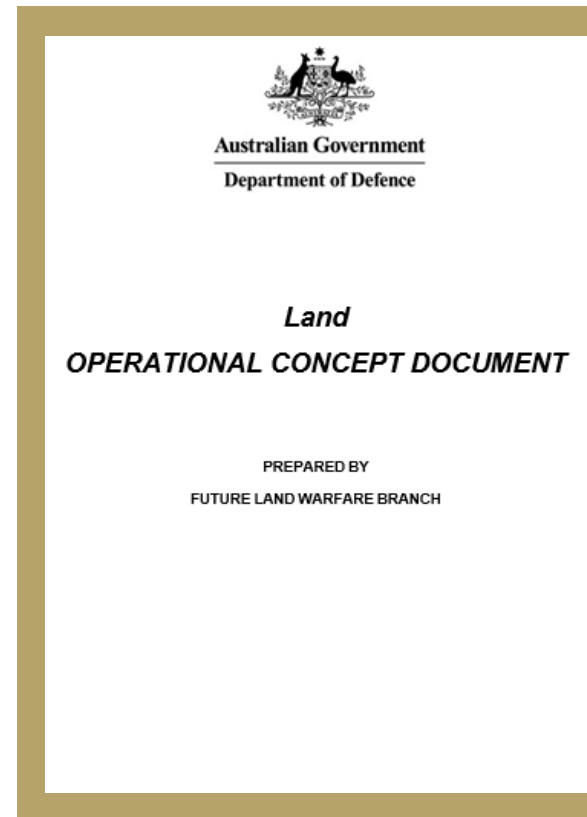**Army's Modernisation Priorities**
Networked | Protected Manoeuvre | Joint Fires | Enabled Soldier

Army

To be *Future Ready*, Army must modernise and transform in a coherent manner.

The ***Land Operational Concept Document (Land OCD)*** provides the singular aiming mark for future design of the Land Force.

- Describes the future Land Force aiming mark described as the ***Objective Land Force*** at a **12-year horizon.**

- Identifies how the future Land Force operates as a **component of the Joint Force** contributing to combat and non-combat tasks.

- Informs iterative capability development and links into the ***Defence Capability Assessment Program***.

Australian Government
Department of Defence

Land
OPERATIONAL CONCEPT DOCUMENT

PREPARED BY
FUTURE LAND WARFARE BRANCH

Army

Domestic
Persistent Engagement
Entry Operations
A2AD
Complex HADR
Regional Lead
Coalition Joint Land Combat

'Always On'

Homeland

Persistent Engagement

Entry Operations

Complex HADR

Regional Lead

A2AD

Meaningful Contribution
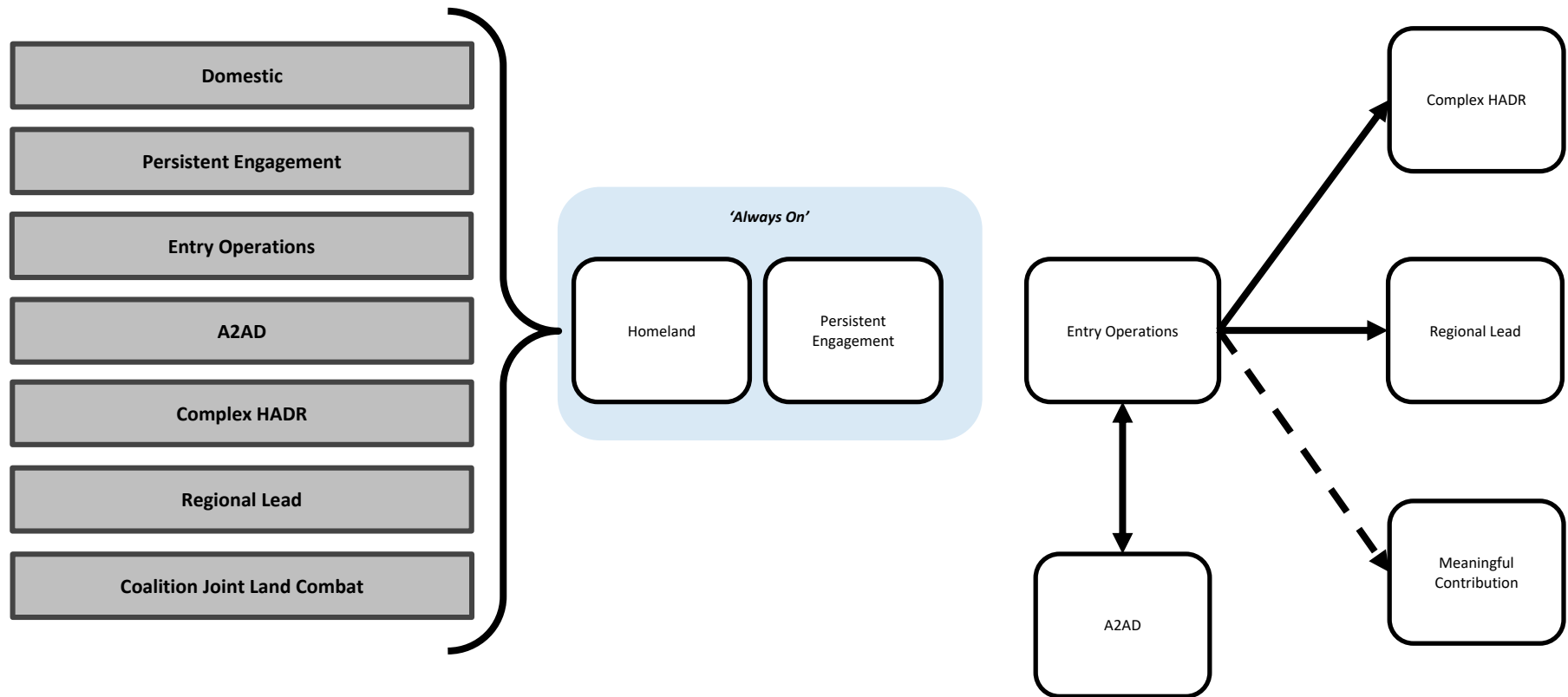
All personnel involved with Land modernisation are challenged to read the *Land OCD* and contribute to its evolution.
– *Lieutenant General Burr, 2020*

Outcomes of the Land OCD

Informs the Objective Land Force contribution to the future Joint Force.

Guides transformation and provides direction regarding integration requirements for land capability within the Joint framework.

Provides the Joint Force Authority and other Groups and Services with an understanding of how the Army intents to operate in the future.

Articulates capability needs and development priorities.

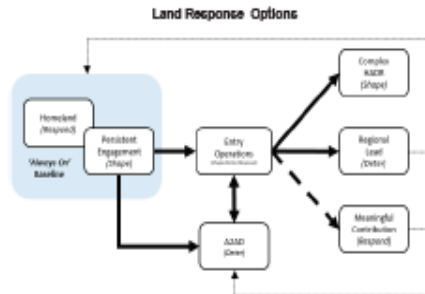Contributes to understanding and addressing Land Force design risk to be *Future Ready.*
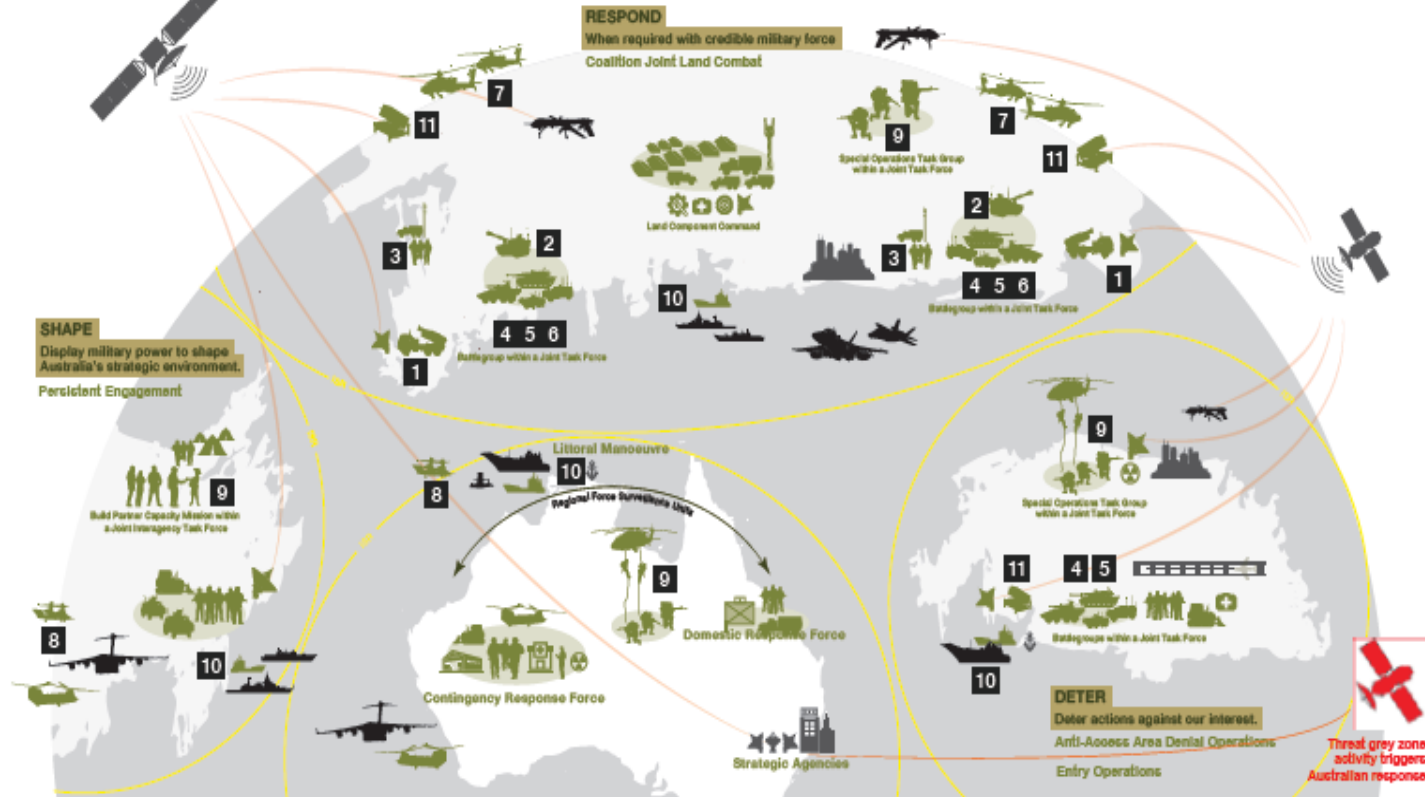
Outlines future preparedness requirements.

Army's contribution to the Joint Force

The Australian Army's mission is to prepare land power in order to enable the Joint Force in peace and...

The world is changing at a rapid rate, and the Army is continually adapting. Army's teams are task organised to deploy as connected, protected, lethal and enabled force elements that are critical to Joint Force integration.

Land Response Options

Investments in the Land Domain

Land 8113-1	1	Long Range Fires
Land 17-1B	2	Protected Mobile Fires
Land 200-2	3	Battlefield Command System
Land 400-2	4	Boxer Combat Reconnaissance Vehicle
Land 400-3	5	Infantry Fighting Vehicle
Land 907-1	6	Tank Upgrade
Land 4503-1	7	Tiger Replacement
Land 4504	8	Long Range Rotorcraft
Land 1508	9	Special Operations
Land 8702 & 8710	10	Littoral Manoeuvre, Light & Heavy
Land 19-7B	11	Short Range Air & Missile Defence

RESPOND — When required with credible military force. Coalition Joint Land Combat

SHAPE — Display military power to shape Australia's strategic environment. Persistent Engagement

DETER — Deter actions against our interest. Anti-Access Area Denial Operations. Entry Operations

Threat grey zone activity triggers Australian response

Army

Wideband SATCOM

Wideband SATCOM

Narrowband SATCOM

Joint Land Combat Capability

Wideband SATCOM

Strategic Environment

SIGINT Enterprise

Intelligence Enterprise

Cyber Enterprise

Strategic Environment

SIGINT Enterprise

Intelligence Enterprise

Cyber Enterprise

Fixed Operational Environment

Deployed Land Environment

Airborne Platforms

Coalition HQ

EW

Relay

Relay

Battlegroup HQ

Manoeuvre and Support Platforms

Logistics Node

Relay

Gateway

Brigade Headquarters

Headquarters On-The-Move

Gateway

Deployed Land

Joint Force Headquarters

Protected Mobility Platforms

Headquarters On-The-Move

EW

Relay

Battlegroup HQ

Manoeuvre Platforms

Battlegroup HQ

Logistics Headquarters

Mobile Tactical Environment

Unprotected Mobility Platforms

Airborne Platforms

Networked Weapons Systems

Dismounted Platforms

Manoeuvre Platforms

Mobile Tactical Environment

Watercraft / Maritime Platforms

mounted Platforms

Littoral / Maritime Environment

Watercraft / Maritime Platforms

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Contributions Welcome