



Australian Government
Department of Defence
Defence Science and
Technology Organisation

Technology Challenges for the Australian Army

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Report Documentation Page

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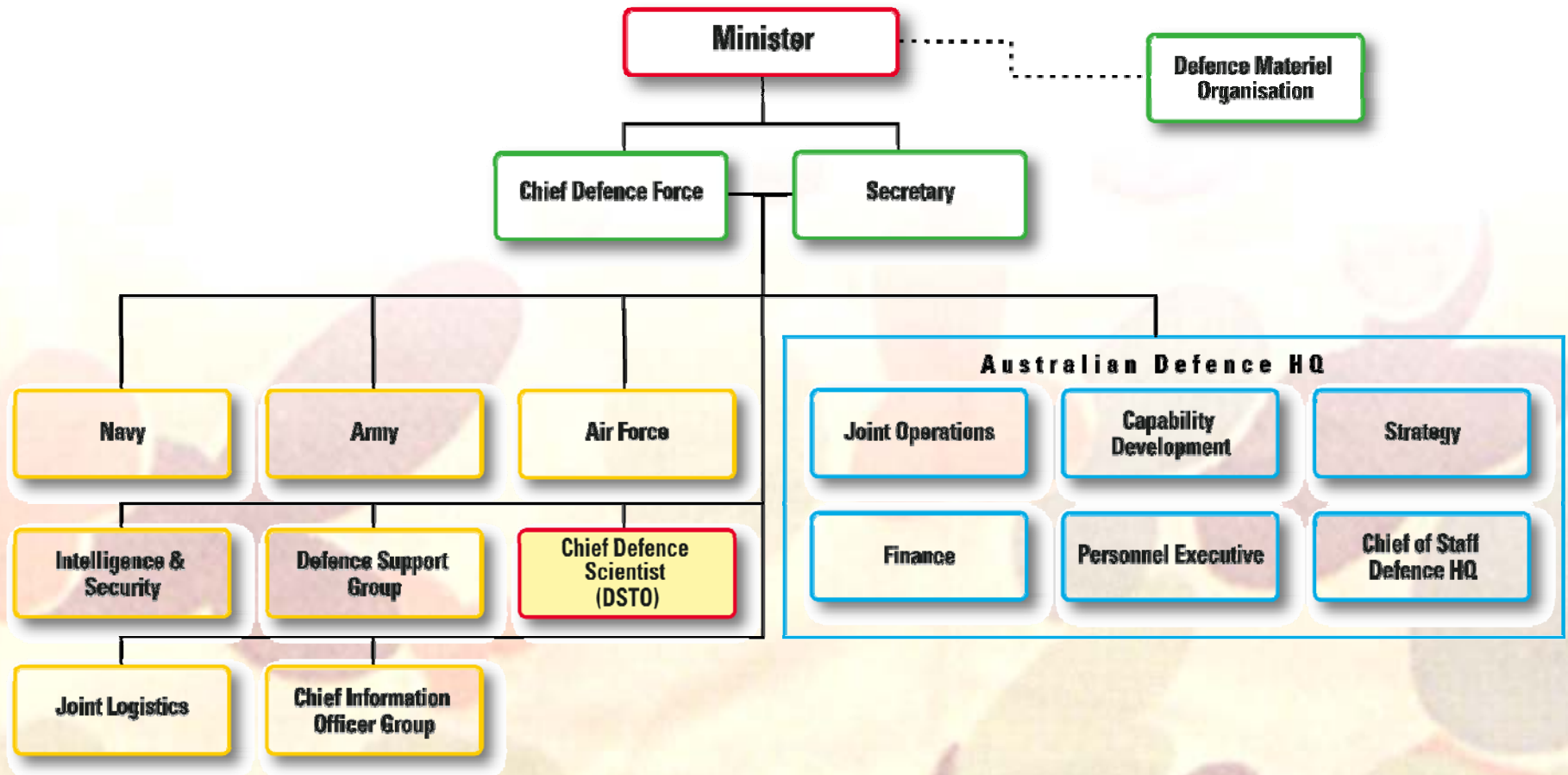
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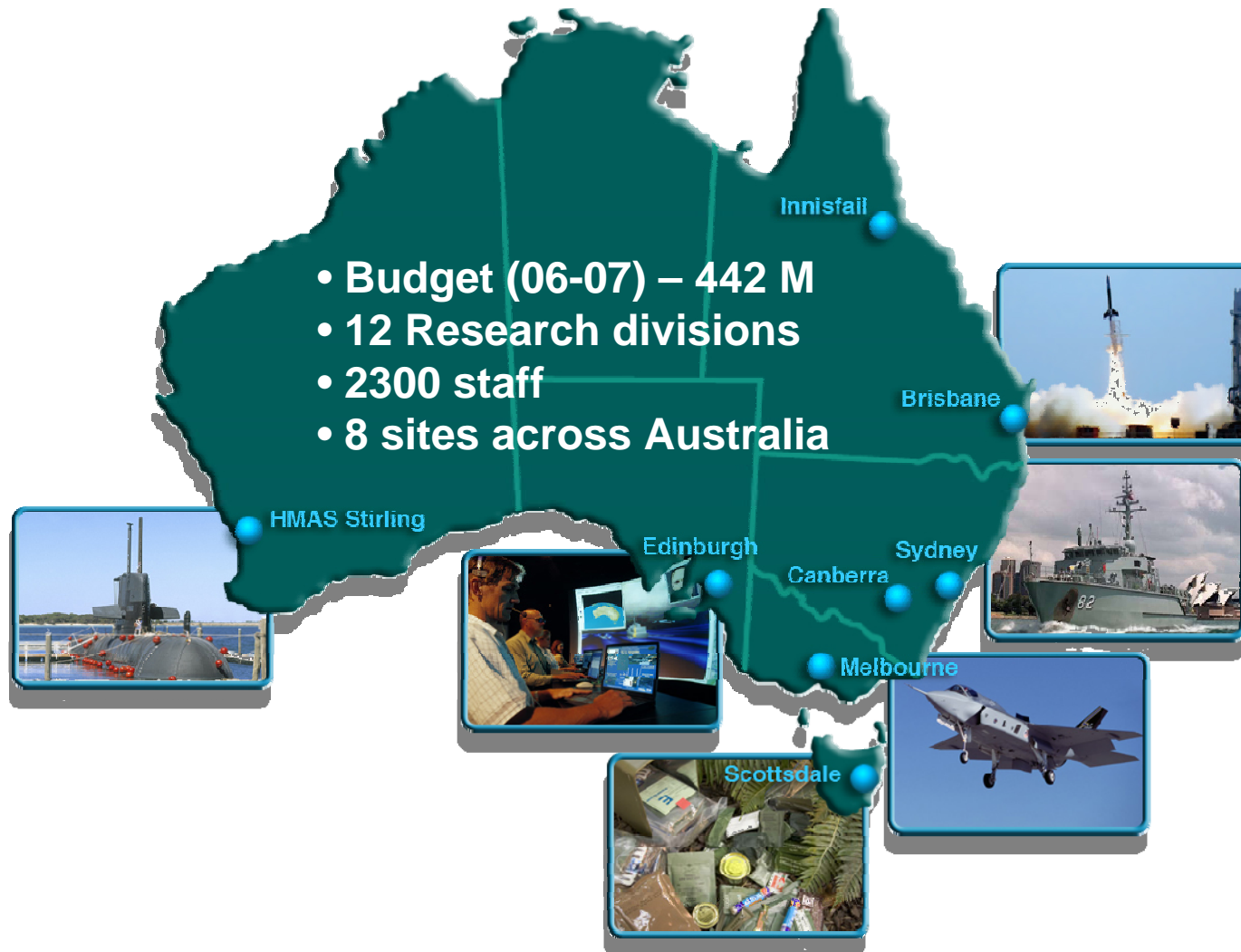


Defence Structure





DSTO at a Glance





DSTO Mission and Vision

Mission

DSTO is the Australian Government's lead agency charged with applying science and technology to protect and defend Australia and its national interests. It delivers expert, impartial advice and innovative solutions for Defence and other elements of national security.

Vision

To be a world leader in defence science and technology – indispensable in transforming the Australian Defence Force and Australia's national security.





DSTO's Role

- > Support to Policy.
- > Minimise technology surprises.
- > Smart buyer and user advice.
- > Niche developer.
- > Assist industry to assist Defence and National Security.
- > Strengthen technology base.





Australian Army

- > Responsible for land and special operations.
- > 25,000 strong permanent force.
- > Budget: AU\$5.9 billion.
- > Busiest since Vietnam War.
- > Currently 2900 ADF personnel on deployments – Iraq, Afghanistan, East Timor, Solomon Islands, etc.
- > Two extra battalions by 2008.





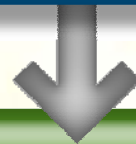
FORCE 2020

- > Seamless force integrated internally and externally with providers and community.
- > Continued multiple roles (peace-keeping, humanitarian, law enforcement, etc.).
- > Punching above its weight.

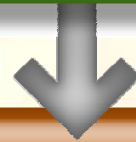




Joint Operating Concept



Land Force Concepts



Technologies



Hardened & Networked Army (HNA)



- > Combat weight and size.
- > Flexibility through networking.
- > Complex environments.





Technology Drivers

- > War on terror.
- > Expeditionary operations.
- > Joint warfighting.
- > Reducing cost of operations.
- > Systems integration.
- > Force transformation.





Challenges

- > Interoperability
- > Operational Tempo/Turnaround
- > Systems Thinking
- > Force Protection
- > Automation





Interoperability



Onboard jamming and
towed decoy capability.



Deployed radar: US Army C4ISR
On the Move Trial with DSTO.



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Interoperability





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Operations Support

Electronic Warfare Self Protection





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Operations Support

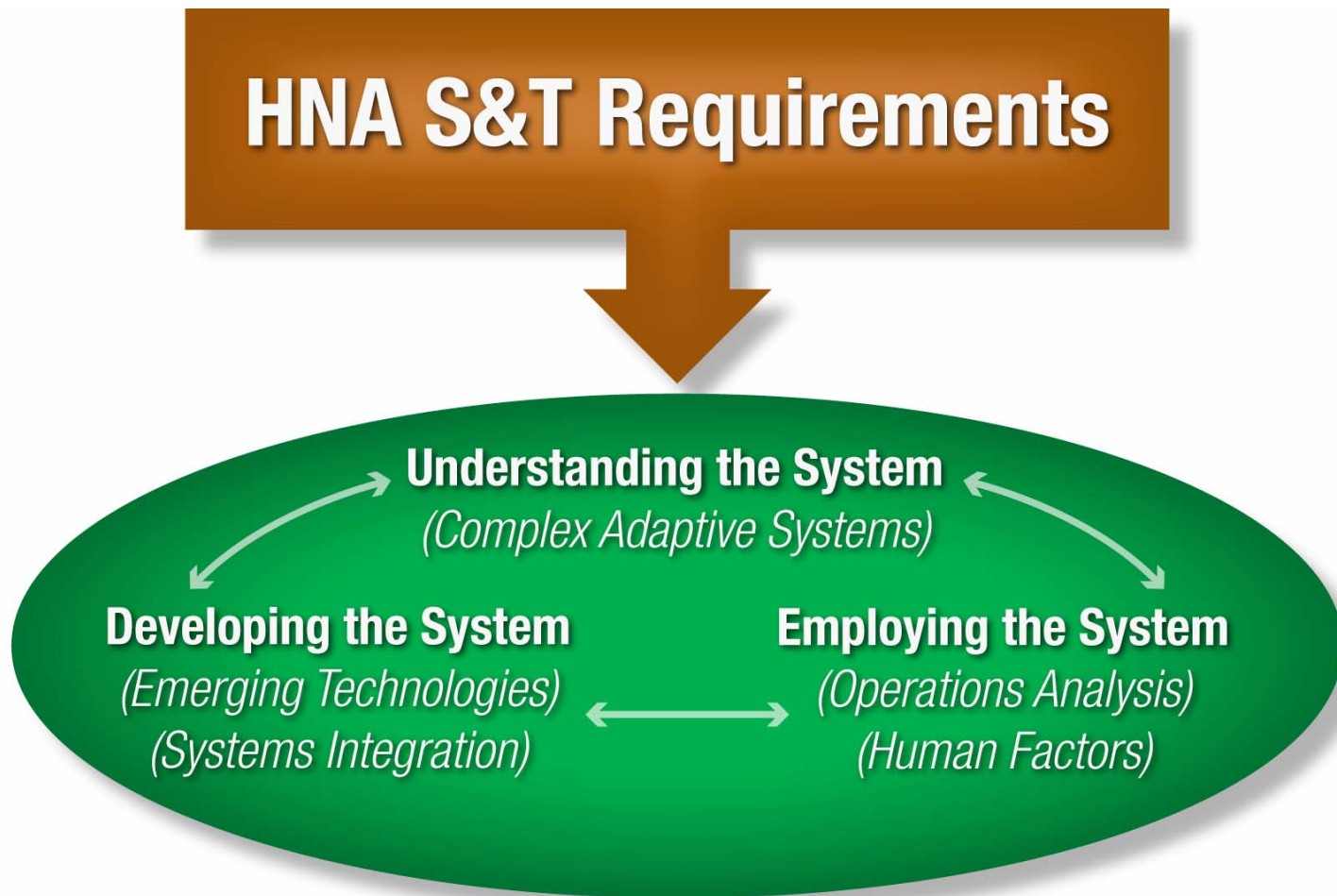
Desert uniform





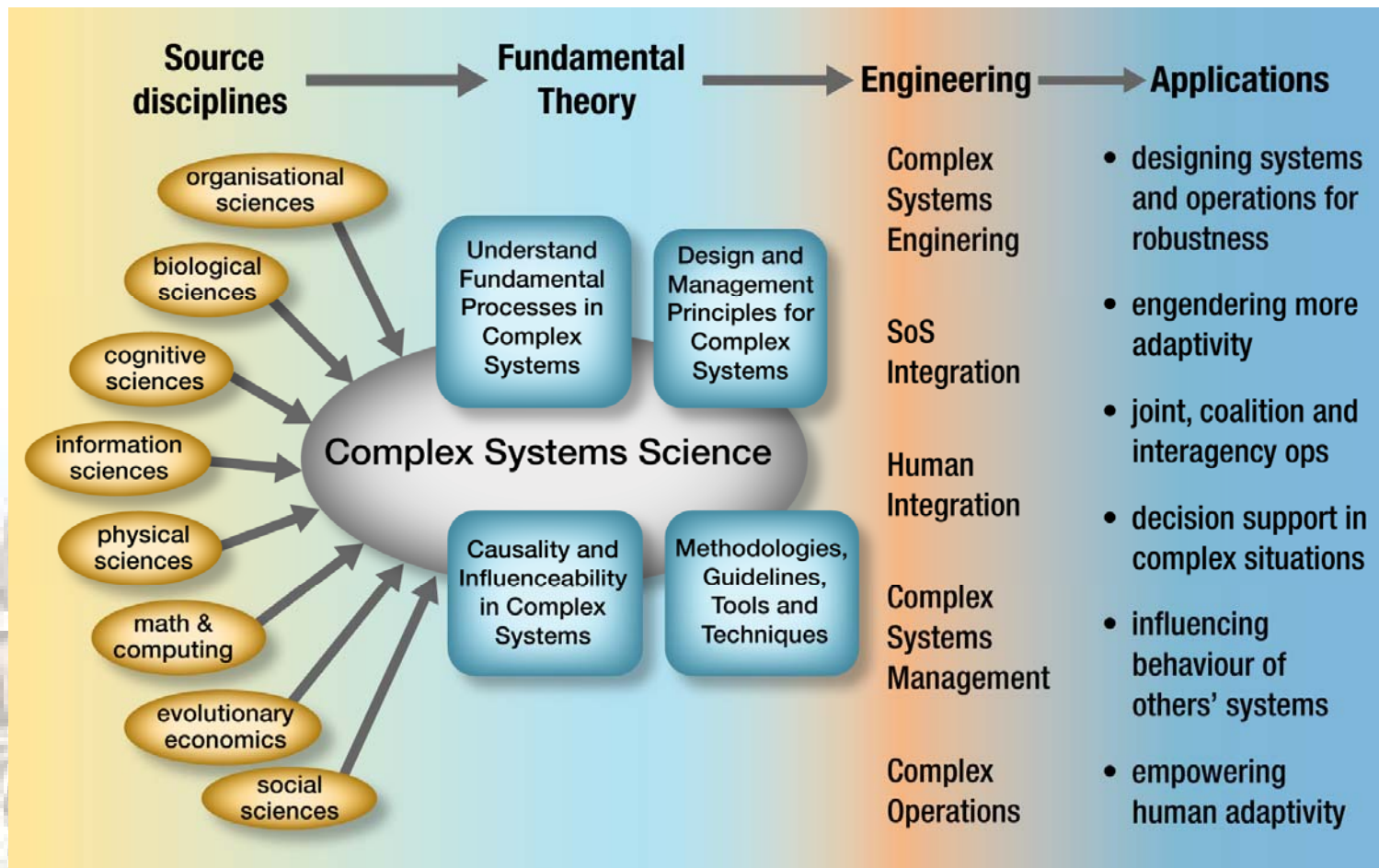
Hardened and Networked Army – a Complex Adaptive System

HNA S&T Requirements





Complex Adaptive Systems – from science to applications





Force Protection

- > IED countermeasures
- > Vehicle survivability enhancements
- > Reduce exposure of dismounted soldiers



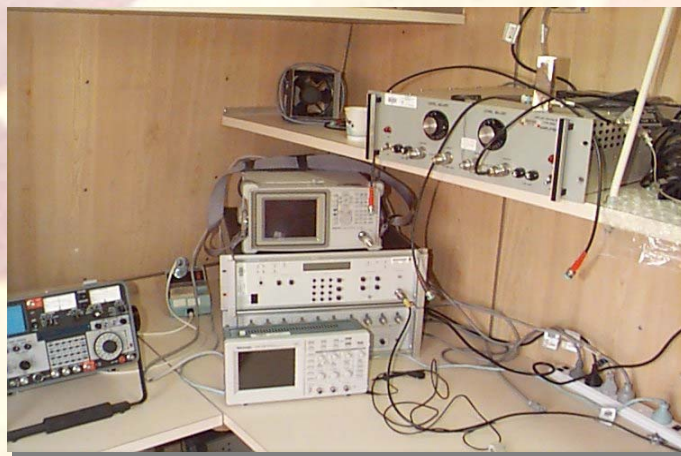


Counter IED Capability





Counter IED Capability





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Vehicle Survivability





Thermal Signature Management

Baseline ASLAV



Optical

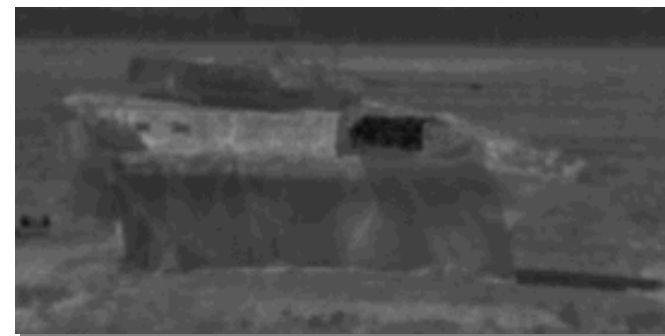


Long wave IR

Mobile camouflage system



Optical



Long wave IR



Off Axis Viewing Device

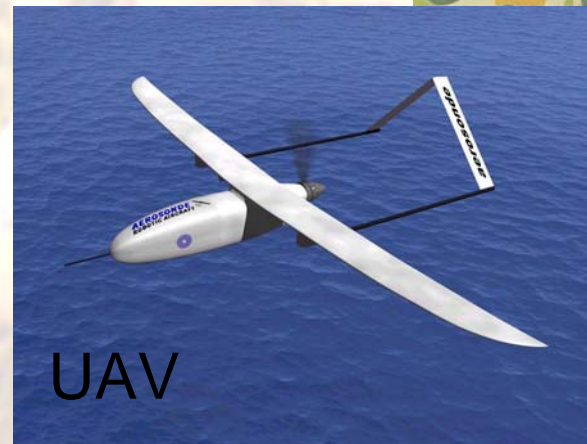


Camouflage



Automation - Challenges

- > Human systems integration
– who does what.
- > Information overload
(many assets controlled
by few people).
- > Technology trust and reliability.

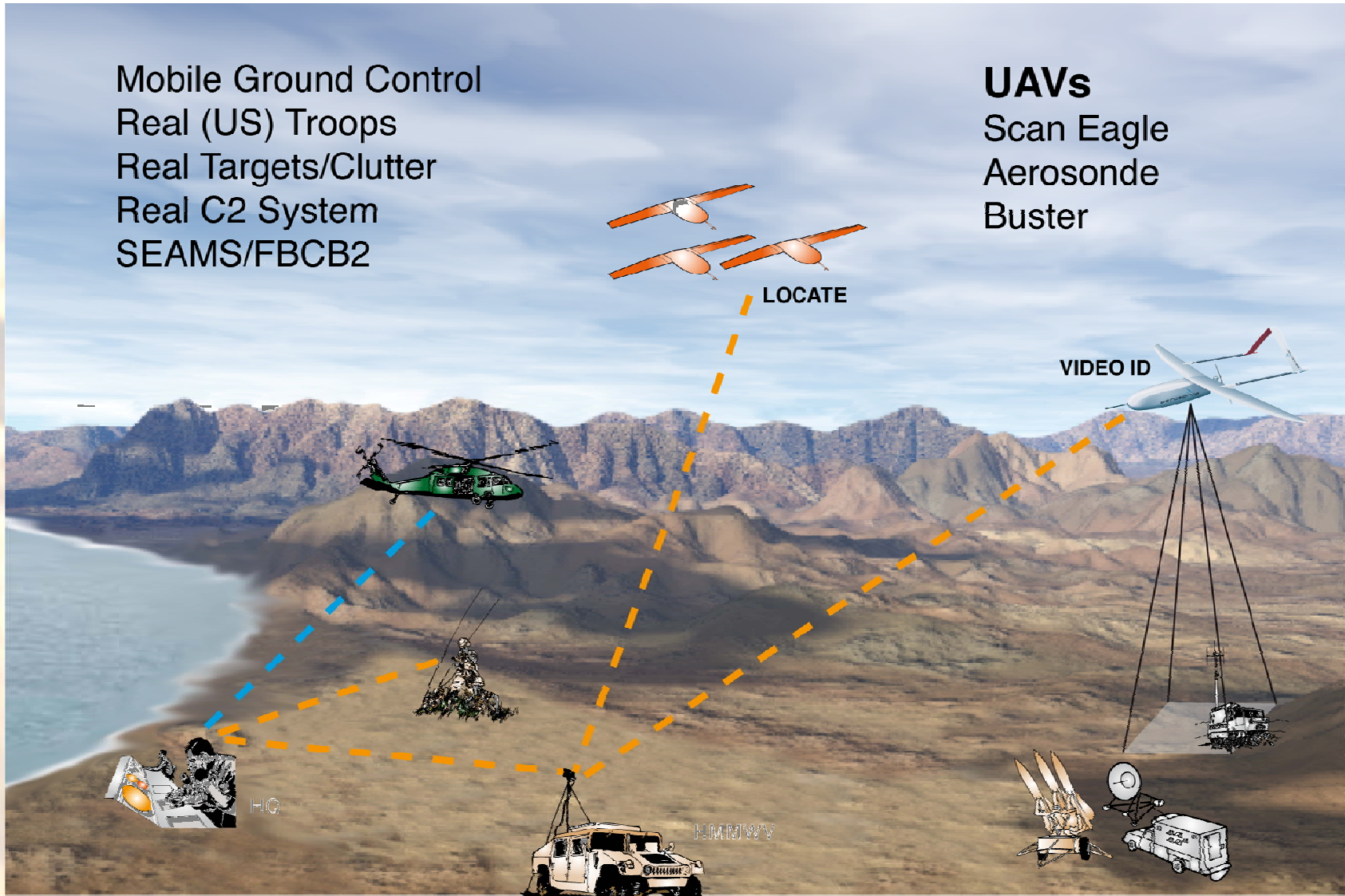




C4ISR On the Move

Mobile Ground Control
Real (US) Troops
Real Targets/Clutter
Real C2 System
SEAMS/FBCB2

UAVs
Scan Eagle
Aerosonde
Buster





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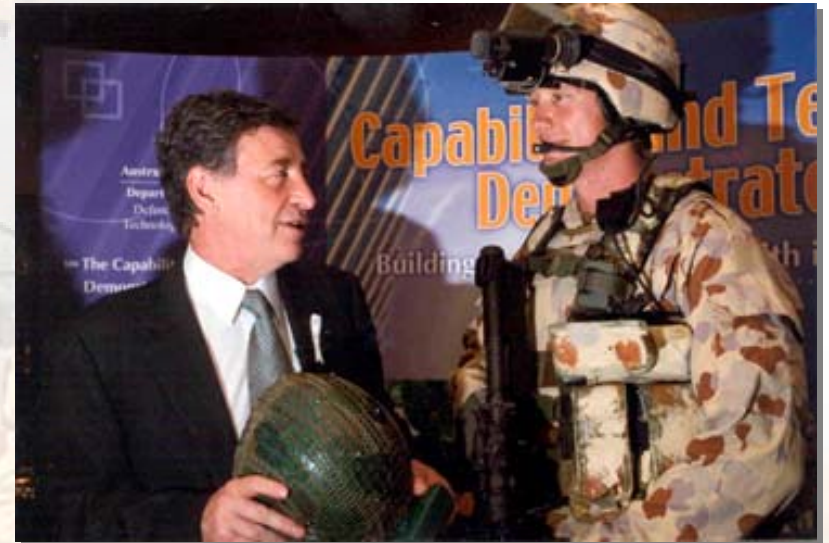
C4ISR On the Move





Capability & Technology Demonstrators

- > Annual budget \$26 M.
- > \$160 M invested since 1998.
- > Industry proposals increasing since last 2 years.





Capability & Technology Demonstrators

- > Rapid landmine detection and neutralisation.
- > Advanced Individual Combat Weapon.
- > Haptically Operated Counter-explosives robot.
- > Personnel Location Device using GPS and smart card.
- > Wearable energy pack.
- > Light-weight ceramic, composites armour.





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Capability & Technology Demonstrators





Collaboration with US Army

Current collaboration mechanisms:

- > The Technical Cooperation Program
- > Deutch-Ayers Agreement (PA-10 excellent example)
- > Missile Defence MOU
- > CBR MOU
- > Land Forces Modernisation Agreement
- > ABCA Army Standardisation Program
- > Data Exchange Agreements





Summary

Australian Army transforming

Network centric

Hardened but 'light'

DSTO support

Emerging threats

Systems design

Operations analysis







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Thank You

