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24th September 2026

Dear [REDACTED]

I refer to your email of 24 August 2026 requesting, under the Official Information Act 1982 (OIA):

Under the Official Information Act, please supply all briefings produced for, and all reports arising from, New Zealand participation at the Australian Defence Science, Technology and Research Summit (ADSTAR), including any associated meetings under the Five Eyes Science and Technology (TTCP II) MOU.

Enclosed are the two ADSTAR keynotes from the summit. An ASPI podcast was also published online, featuring an interview of a New Zealand Defence, Science and Technology staff member relating to presentations given at the conference.¹ As the Post Activity Report for the summit has not been finalised, this document is withheld in full under section 9(2)(g)(i) of the OIA.

The New Zealand Defence Force did not attend any associated Five Eyes Science and Technology meetings.

You have the right, under section 28(3) of the OIA, to ask an Ombudsman to review this response to your request. Information about how to make a complaint is available at www.ombudsman.parliament.nz or freephone 0800 802 602.

Please note that responses to official information requests are proactively released where possible. This response to your request will be published shortly on the NZDF website, with your personal information removed.

Yours sincerely

GA Motley
Brigadier
Chief of Staff HQNZDF

Enclosures:

1. ADSTAR panel keynote
2. ADSTAR AOC keynote

¹ https://youtu.be/CAb_A4a7S5E?si=Krl2myVpyVoicSlg

Experimenting Without Borders – Speech Script for Keynote by Dr David Galligan at ADSTAR 2026

In today's contested Indo-Pacific, multinational experimentation is not just technical work—it is a strategic act. It is how partnerships deliver capabilities, and how capabilities support deterrence.

My organisation, Defence Science and Technology (DST), provides the S&T function for the New Zealand Defence Force. I report to our Vice Chief of Defence Force and through such links we are tightly integrated in with our military.

DST's operating model is fundamentally built on partnerships, both local and international. Joint and collective experimentation is a most visceral demonstration of collective contribution to such collaborations. Experimentation translates science and technology into military impact. It accelerates transition, ensures relevance, and demonstrates innovative capability in real environments. Most importantly, it builds trust, deepens relationships, and signals collective resolve.

What makes experimentation succeed? Trusted partnerships built early. Complementary research capabilities. Clear resource- and information-sharing pathways. A focal venue to concentrate effort. And a considered exploitation route so outputs don't stall.

Barriers exist—bureaucracy, releasability, venues etc.—but international experimentation can unlock many of these matters by creating a forcing function driven by partner expectations.

I'd like to share some illustrative examples of experimentation that DST has been a part of that can help give life to these points.

1. SAR4SAR – A Model of Practical Local and International Collaboration around a shared interest

SAR4SAR came from a concept that has been around for a while internationally but never successfully developed. This is the use of a suitably designed foldable personal radar reflector to aid space-based radar detection of search and rescue at sea events.

A unique blend of skill sets in the right place at the right time came together to deliver a successful activity. UoA developed prototypes and DST and RNZN joined to test these prototypes in various real-world conditions at sea.

As we worked through this experimentation a wider range of partners joined, including USPACOM and DRDC. These partners provided their advice and practical support through the sharing of their commercial SAR satellite resources to detect and track the prototype radar reflectors on the waters.

Success came from complementary roles, iterative experimentation, and leveraging Defence capabilities and long-standing international partnerships. SAR4SAR has delivered Pacific-relevant technology with real regional value, and the positive journey continues...

For this work a shared purpose and collective will overcame barriers around lack of precedent and the realities of organising complicated experimentation.

2. Alternative PNT – Critical Technology Explored Through Joint Experimentation

DST has a noteworthy ability to directly access and modify military platforms and systems to support experimentation needs. This supports us to take a whole-of-defence approach to international Defence experimentation and through this approach NZ military pers get to experience a much wider range of tech than they could otherwise.

An example of this occurred a few years ago where we organised an RNZN ship to act as a common platform to support international partners, academia, and industry to conduct innovative PNT experimentation over a month or so at sea. A wide variety of systems were installed directly on the ship. Scientists and engineers worked together onboard, creating a common baseline that would otherwise be very difficult to obtain.

The use of a common venue, a ship in this case, was key to success. The fact the experimentation platform could also accommodate the scientists and engineers involved was a particular bonus. Such common working and living environments foster collaboration and cooperation.

Key enablers included an internal Defence orchestrator (DST), classification/access decisions, hosting arrangements, and practical integration with ship operations. Barriers were few owing to this harmonious action and the presence of all key actors on board the ship.

Benefits were substantial: access to real military operating environments — including here realistic military ship movement over an extended period — accelerate S&T development and deepen operator understanding — moving technology closer to transition.

3. CAGE – Open Innovation Experimentation for Cyber Defence

Originating from a FVEY S&T panel, CAGE (Cyber Autonomy Gym for Experimentation) became a global open challenge in agentic cyber defence. DST supported a University of Canterbury team, which went on to win one of the challenges.

CAGE was a powerful example of using unclassified, globally distributed innovative experimentation to solve sensitive problems—showing the value of calculated risk-taking and multilaterally orchestrated experimentation. The open nature of such challenges offers the maximum chance to involve a diverse range of parties. Organisations like DST can play a part in supporting such open challenges – through some funding and contextual coaching — and they can act as bridges to convert the outputs to military outcomes.

Because this challenge was open there were very low barriers to entry. This is particularly interesting given the usually sensitive nature of cyber defence. The approach illustrated that removing classification and security issues to focus on the core relevant matters can deliver diverse approaches, and that trusted organisations like DST can then help translate implications back into national systems.

4. Major Multilateral Experimentation Events

Major multilateral experimentation events can offer the chance to test tech concepts in more complicated environments including a range of interacting nations and technologies. Such events can be associated with military exercises, or they can be organised independently.

From wargaming and concept development through to operator-level trials, such large-scale experimentation builds shared understanding and accelerates transition.

Key enablers include strong leadership, anchoring activity around a venue or exercise, multi-year resource commitments, and engaged military participants.

Examples have included our FVEY S&T strategic challenges, which have taken place for many years, and have included Cyber, Urban Environments and AI foci. These challenges have often been at the forefront of developing new S&T knowledge and beginning the journey into the military integration of new technologies.

Benefits include:

- S&T teams understanding real operational use.
- Military participants integrating emerging technology early.
- Interoperability built in from the start.
- Industry involvement shaping future capability.
- Regulatory, legal, and ethical considerations addressed early.

Barriers can include:

- Synchronisation of international resourcing availability and collective interest. This includes relevant military etc. participants.
- Securing a suitable venue.
- Maintaining priority on tasking for multiple years.

Finally

DST is positioning for the future along with our new Technology Accelerator. We have a particular focus on advanced technology areas like autonomous systems, space, and advanced cyber and electromagnetic warfare. Through further integrating NZ ecosystem partners our aim will be to strengthen New Zealand's contribution to joint experimentation and our collective advantage.

I want to reemphasize that international Defence experimentation is not just a technical activity—it is also a strategic act. It builds trust, strengthens interoperability, and demonstrates collective resolve. It accelerates innovation and creates pathways for transition. And in a region facing evolving threats, it is one of the most powerful tools we have for delivering shared security outcomes.

DST is committed to expanding joint and combined experimentation, leveraging our national advanced tech ecosystem, and working with like-minded partners across the Indo-Pacific to deliver real impact.

Speech script for keynote address by Dr David Galligan to the Emerging Capability and Technology session at the Association of Old Crows (AOC) Asia Summit 2026 (delivered within ADSTAR 2026)

Introduction

Kia ora koutou.

I lead the New Zealand Defence Force's Defence Science and Technology unit — DST — which delivers our Defence Force's internal S&T function. I report directly to our Vice Chief of Defence Force; this ensures that our work stays tightly synchronized with the NZDF's operational and strategic needs.

I've been in my current role for four years. Before that, I was Group Director for Electronic Warfare Systems, and prior to that I led our Operations Analysis team for many years. These roles gave me a solid grounding in the concepts, capabilities, and operations that matter for modern warfare, and in particular what matters for the NZDF.

This talk

I want to talk about cyber and electromagnetic warfare from a slightly different vantage point than you might be used to — from the perspective of a small, resource-constrained Defence force operating in one of the most maritime-dominant, geographically dispersed theatres on Earth: the South Pacific and through to the wider Indo Pacific.

New Zealand doesn't have the budget of a great power. What we do have is a large area of interest, a strong international network, and a Defence science community that has to be creative about where it puts its effort and how it strategically engages in partnerships.

I plan to walk you through how we work and what shapes our priorities. I expect that this will resonate with some of your own experiences, and I hope that it will provide you with further clarity on how you might best engage with us.

I've structured this talk in four parts. I'll begin with the wider geopolitical context from a New Zealand perspective. From there, I'll outline DST's refreshed operating model and its role in building New Zealand's Defence-relevant technology ecosystem. I'll highlight specific AOC-relevant work underway, and I'll then close with thoughts on DST's future direction.

Context

The NZDF is currently rebuilding readiness and capability while responding to a challenging geopolitical environment, with an increased tempo of deployments across the Indo-Pacific.

In 2025, New Zealand's government released its Defence Capability Plan — the DCP — which indicates \$NZ12 billion in new investment over four years. That plan expects to more than double Defence spending as a share of GDP over an eight-year period.

The Defence Capability Plan puts it plainly: *“New Zealand is facing its most challenging and dangerous strategic environment for decades. Recent geopolitical developments demonstrate the increasing and compounding nature of threats to our national security interests. These include Russia's continuing illegal war against Ukraine and blatant disregard for international law, ongoing tensions in the Middle East, and growing strategic competition in the wider Indo-Pacific.”*

The DCP sets out an ambitious investment plan to deliver an NZDF that is combat capable, with enhanced lethality and deterrent effect; a force multiplier with Australia, and interoperable with partners; and innovative, with improved situational awareness.

Capabilities must be developed that are suitable for operation in congested, contested and denied environments. At the same time NZ has a foundational national need to routinely surveil and secure our very large maritime area of interest.

The DCP explicitly names uncrewed vehicles, new space technologies, and increased Defence Science and Technology funding as some of its innovation priorities, alongside more traditional capability like maritime helicopters and strike capability. In areas relevant to AOC, it includes projects across persistent surveillance, counter-drone, and cyber.

The DCP's indicative investment would lead to the most significant Defence S&T capability uplift in over three decades. A detailed business case is currently being finalized to offer decision-makers options to deliver on these aspirations.

Meanwhile, our related Defence Industry Strategy “...seeks to encourage the development of a sustainable and resilient Defence Industry within NZ”. There is a particular focus on advanced technologies, aligned with our government's wider economic growth agenda.

A key addition to this new landscape is the new Defence Technology Accelerator, which is currently being stood up. This accelerator will engage New Zealand's advanced tech ecosystem, align industry with Defence use cases, and help generate innovative solutions to capability challenges. Supported by its own uplift, DST will look to tightly partner with the Tech Accelerator, providing it with internal technical expertise and resources.

Critically, these plans place heavy emphasis on interoperability with Australia and building a more tightly integrated Anzac force — a theme I'll come back to.

DST's Operating Model and Growth Direction

DST traces its roots to the 1950s, when it began life as the Underwater Research Laboratory under the Department of Scientific and Industrial Research. Over the years its scope has broadened and by the 1990s it had expanded into a number of new areas including electronic warfare.

We reset DST in 2023. A name change was added as part of that to emphasize the scientific approach that underpins our work. We clustered our myriad of small tasks into ten major areas of activity, of which around half have direct relevance to this audience, and we

discontinued some areas of work. It is of note that we merged our Cyber and Electromagnetic warfare programmes during this reset, recognizing the convergence of these areas.

Over recent decades, DST had a focus on supporting operational systems and on developing demonstrators such as the Kahu UAS, to test new concepts. Several of our demonstrators were later commercialized and introduced as military capability. That era was marked by DST advancing technologies to mid-TRL, with industry carrying them through to higher TRLs. Co-development at the handover point occurred, but only in limited cases.

Today's operating model rests on what we refer to as a buy-build-broker model, delivering through partnerships wherever possible and only doing work in house that is strictly necessary. We emphasize three particular pillars in this operating model:

- International partnerships — close engagement with Australia, Five Eyes, and other multilateral arrangements.
- NZDF integration — deep cooperation with military units, routine support for national experimentation, and whole-of-Defence participation in partnered international trials.
- Advanced tech ecosystem — mentoring and leveraging local innovators, including upcoming plans for pathfinder projects to pave the way for larger initiatives.

We aim to engage differently depending on a technology's readiness level (TRL) as we embed our new operating model:

- TRL 1–2 — Scan & connect. Horizon-scanning, university/PRO relationships, seed funding co-invested alongside wider government IS&T funding.
- TRL 3 — Selective exploratory engagement. DST considers exploratory support where Defence potential is plausible; provides mission-alignment advice.
- TRL 4–5 — Concept demonstration. DST partners in testing and considers how tech might align with Defence requirements or could define new requirements. This stage is where we particularly focus.
- TRL 6–7 — Prototype stage. We support prototyping requirements under NZDF conditions, defining requirements with operators. We expect to be working closely with the Defence Technology Accelerator at this stage in future also.

And, by TRL 8 DST's role is to ensure the NZDF is a smart buyer and smart integrator.

Developments

Recent DST investment outcomes have included new capital for cyber and EMW, such as refreshing lab and field equipment and expanding shielded enclosures; supporting effective, efficient and compliant experimentation. Secure IT is also being strengthened locally and via international links.

At the same time, New Zealand's science system is shifting to a more mission-led model. This gives Defence a unique chance to help shape national S&T priorities. An early example is with the applied doctorates scheme, which has already funded PhD student positions with industry in areas directly relevant to DST. This demonstrates that DST doesn't need to own all Defence science related funding, and that it must stay well engaged with the wider ecosystem for collective outcomes.

Beyond funding, we are seeking to continue to encourage a strong security culture across the wider ecosystem and to refine how we engage with ecosystem partners from a commercial point of view. A collective focus on advanced-tech "business intelligence" — formalized through the Technology Accelerator — is essential in what is very much a "dual-use" supplier ecosystem.

As funding grows, we'll add expert personnel in relevant fields and deepen partnerships with industry and academia, building resilient ecosystem depth for DST's R&D needs and to support higher-TRL delivery to NZDF and partners. The new Technology Accelerator will be central to unlocking that potential.

The NZ Ecosystem

New Zealand's Defence-technology ecosystem is diverse, spanning university and government research groups through to startups and major system developers delivering mature products. Many within the wider ecosystem are Defence-interested but not fully Defence-aware.

An example of a partner that DST routinely works with is the Wireless Research Centre at the University of Canterbury, which leads in RF engineering and experimentation, antenna design, and resilient communications — directly supporting our advanced prototyping and experimentation work.

National quantum S&T capability is also significant, with strengths in sensing and communications. The Dodds-Wall Institute represents multiple universities in quantum sciences, and its researchers are here with us at ADSTAR this week.

Equally important is New Zealand's advancing AI and machine learning capability. Across multiple universities, teams are working a range of areas associated with the likes of autonomous decision-making, multi-agent systems, and applied ML. Such strengths increasingly intersect with electromagnetic and quantum research, opening potential future opportunities for next-generation EW, spectrum analytics, and autonomous mission systems.

Commercial system integrators add further depth, helping translate research into capability. Together, these kinds of strengths form a tightly connected innovation landscape that positions New Zealand as a distinctive contributor in this audience's areas of interest.

Technical Themes

Up to now I have talked in fairly high-level terms. I would like to give you now some brief insights into some of the areas that DST is focused on.

Protection

We continue to have a habitual focus on developing and implementing countermeasures to defend our platforms and warfighters against such threats as drones and missiles. We have active research on Navigation Warfare and resilient communications, to ensure that our military can continue to operate in denied and degraded environments. Critical to our success in such areas is our close work with our military operators and S&T partners.

Our research relies on a continuous cycle of experimentation, from simulation — including hardware-in-the-loop — through to the real world. We routinely engage our militaries directly in experimentation. This supports tech transition and it brings a valued dimension to our local and international partner contribution.

AI Ubiquity

Artificial Intelligence features across many of our research programmes at DST.

One example is in the Cyber area, where advances in AI and machine learning can now support experimenting with defensive cyber operations that can run at machine speed and scale. I am particularly proud of the FVEY S&T CAGE open innovation challenge, where an NZ University team sponsored by DST went on to win one of the challenge sets. This challenge method was a great way to encourage and harness the talent that exists globally.

We have long-running research work on “Cognitive EW”, where AI/ML is used to detect, characterize, and track agile, adaptive signals such as from frequency-agile radars. Modelling and simulation have been central to the research effort.

Drone-Enabled Experimentation

Drones are becoming an increasingly important area for our experimentation. There are already capable payloads for larger drones, but we are still seeing a gap for smaller, low-cost systems — in particular, achieving a good balance between size, weight, and power, and overall performance. We have a strong autonomous systems ecosystem in New Zealand to work directly with on this. A practical example that we are working on is single-sensor geolocation payloads for small drones.

Physical Layer Electromagnetic Cybersecurity

With advances in digital communication techniques, it has become possible to implement cybersecurity at the lowest layer of a communication system — the physical layer. DST has previously designed a concept demo of a new approach that can provide a much-improved level of security. We now are exploring the integration of quantum technologies, with an aim

to inform future waveforms, giving greater resilience and lower detectability and interceptability.

Position Navigation and Timing (PNT) Situational Awareness (SA)

Protecting our combat capabilities from GNSS interference remains an active area of research for DST, with fruitful regional collaboration — especially in tools and techniques to understand GNSS interference through PNT-SA. By rapidly iterating our designs and collaborating internationally during field trials, we demonstrated the value of very low-cost electro-magnetic interference (EMI) sensors to the PNT situational awareness challenge, augmenting the more exquisite systems that will always be needed. On top of that, using the now well-established Unified Data Library lets us distribute such trials data to our research partners in near-real-time.

Where We're Heading

Following wider NZDF requirements, we will continue to expand in relevant areas, including uncrewed and counter-drone systems and cyber and advanced EMW. Such expansion will support a more resilient and effective S&T capability within DST, with increased capacity to support Defence Capability Plan and Defence Industry Strategy initiatives, including the new Technology Accelerator.

We are working towards a tighter relationship with our Australian counterparts in the Defence IS&T space. This aligns with NZDF policy, and it complements our wider Five Eyes and other multilateral relationships. We will continue to look for ways our combined Defence enterprise and advanced technology ecosystem can make a real contribution to such partnerships.

On the technology front, we expect continued growth in AI and machine learning, novel approaches using drones and distributed systems, and increased reliance on simulation and emulation for regulatory, security, and efficiency reasons. However real-world experimentation will remain essential, and it is a great way to support the transition journey of technologies into our militaries.

Finally, I would leave you with the point that for a small nation, our strength lies in innovation and partnership, values that are exemplified by this event.

Thank you to the organizers for the invitation to speak here and I wish you all a successful remainder of this AOC conference.