

A TRUSTED PARTNER IN INNOVATION AND TECHNOLOGY DEVELOPMENT

Capability Through Collaboration



Annual Report 2023



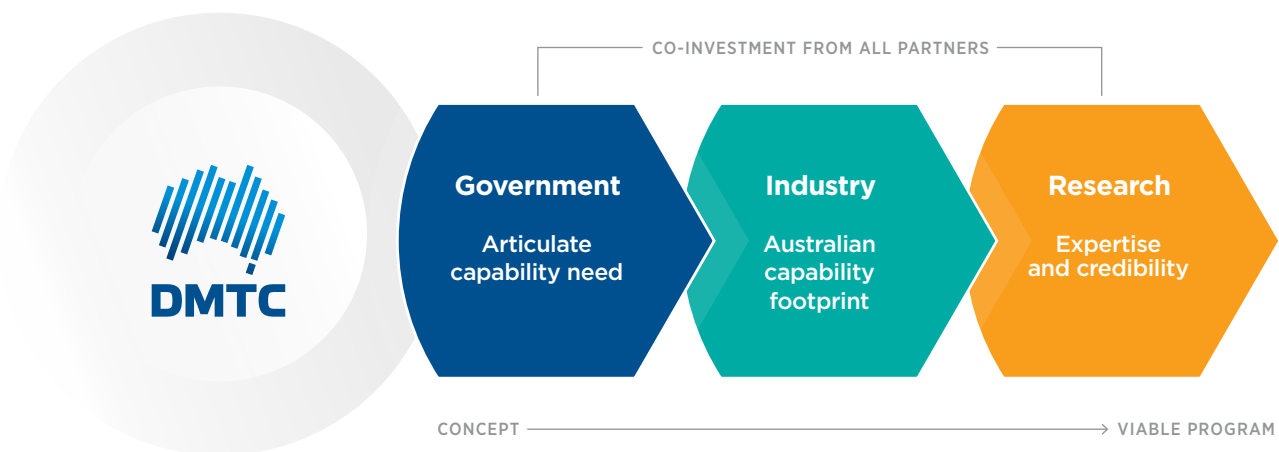
DMTC

WHO WE ARE

DMTC is a not-for-profit company that designs, manages and leads multi-party R&D initiatives that deliver enhanced defence and national security capabilities, and strengthen Australia's industrial capacity.

Our programs are delivered by a multidisciplinary team comprised of experienced and highly credentialed professionals drawn from diverse backgrounds. This allows DMTC to bring an integrated perspective on national innovation, science and technology ecosystems, in addition to specific domain and technical knowledge.

DMTC CO-INVESTMENT MODEL



DMTC AT A GLANCE



Contents

Overview & Context	4
FOREWORDS	4
STRATEGIC FEATURE	
Capability through collaboration	12
Program Activities	14
HIGHLIGHTS	
Surface to air	14
Partnering with purpose	15
Heavy metal	16
One technology, many applications	17
Dressed for success	18
Crystal clear	20
Success at scale	21
Capability step change	22
Enduring excellence	23
Celebrating partnership and impact	24
PARTNER TABLE	25
Health Security	26
OVERVIEW	26
HIGHLIGHTS	
Coming up for AIR	28
Infrared alert	29
Good shot	30
Next level detection	31
Industry Capability Development	32
OVERVIEW	
Seeing the light	32
HIGHLIGHTS	
Smart connections	34
Interns driving change	38
Governance & Organisation	40
HIGHLIGHTS	
Celebrating collaboration	40
High achievers	42
FINANCE	44
GOVERNANCE & CORPORATE RESPONSIBILITY	46
BOARD OF DIRECTORS	47
MANAGEMENT TEAM	48
DIVERSITY & INCLUSION	50
LEGAL SERVICES	51
QUALITY & SECURITY	52
GLOSSARY	53
CREDITS	54

◀ Cover: Australian Army soldiers from units across 13th Brigade work with security elements of the Royal Australian Air Force protecting people and critical infrastructure at RAAF Base Curtin as part of Exercise Talisman Sabre 2023 at Derby, Western Australia.



The Hon Pat Conroy MP

MINISTER FOR DEFENCE INDUSTRY
MINISTER FOR INTERNATIONAL DEVELOPMENT AND THE PACIFIC

Innovators are no strangers to the concept of disruption. Australia's national security and prosperity are challenged by disruption, but Australians are also innovators, and disruptors. We have successfully created and are developing leading-edge technologies, and our defence innovation ecosystem has skills and capabilities that are unique.

For a country the size of Australia, which will never be able to deploy huge armies or navies, technology and science are a critical source of asymmetric advantage.

The task ahead is to turn disruptive new technologies into game-changing capabilities, and to build our nation's industrial capability in areas of priority. That's what we have designed the Advanced Strategic Capabilities Accelerator (ASCA) to achieve, and we need it to rapidly deliver solutions that will create the kinds of disruption that will help protect our national security.

With strategic warning times shrinking, we need advanced technology to be ready to use and deploy if we are to effectively deter threats against Australia and our national interests.

The Albanese Government is transforming the nation's defence capability to help ensure the Australian Defence Force (ADF) has the capability, the technology, the people and the funding it needs to keep Australians safe.

The first critical piece of this is working closely with our AUKUS partners, the UK and the US, on implementing the pathway for Australia's acquisition of conventionally armed, nuclear-powered submarines. This includes developing the skills, knowledge and expertise required to safely build, operate, maintain and regulate this potent military capability in Australia.

The Defence Strategic Review (DSR), and the Government's response, will form the blueprint for defence thinking for decades to come.

As we look to advance our defence capabilities, our partnerships in industry and technology will be vitally important. Organisations like DMTC have a crucial role in this endeavour – in both accelerated efforts with technology development and building supply chain capabilities.

As important as having the right technological capabilities is having the right people. The talented researchers, scientists and innovators who work in Defence, and with Defence, are vital to the defence of our nation.

Australia must adapt to a disrupted world – to the world as it really is. We need to be better able to deter conflict, and in the worst-case scenario, defend ourselves, sustain our operations, and increase the cost for aggressors who act against our shared interests.

At the end of the day, that is the purpose of the Government's continuing investment in Defence science and technology – to keep Australia safe.



As well as having the honour to serve in the Albanese Government as the Minister for Defence Industry, I am also the Minister for International Development and the Pacific. In this latter role, the health security work underway in organisations such as DMTC and partnerships with the likes of the Department of Foreign Affairs and Trade are greatly appreciated.

If we needed any reminder, the COVID-19 experience showed us that viruses and pathogens have no regard for international borders, and neither do they distinguish between military personnel or civilians. Australia has the expertise and capacity to step up and play a significant leadership role in our region in this regard.

I acknowledge DMTC's proven track record and strong credibility in the defence ecosystem and congratulate the team and the broader partner group on the successes outlined in this Report. /

▲ Royal Australian Navy submarine HMAS *Sheean* arrives in Hobart for a logistics port visit.



Chris Deeble AO, CSC

DEPUTY SECRETARY, CAPABILITY ACQUISITION AND SUSTAINMENT
DEPARTMENT OF DEFENCE

This year, the Government released the DSR, which set the agenda for Defence reform and established ASCA. This significant investment in innovation requires all of us to think about what capability is truly important for Defence and how this can be delivered at pace. A focus on speed to capability demands a different risk appetite, policy frameworks and process that are agile and responsive.

DMTC and its partners have accelerated the development of new technologies ranging from shipbuilding steels to protective suit fabrics and diagnostic platforms to rapidly detect exposure or infection. Importantly, DMTC's operating model gives the Defence and national security stakeholders a strong voice in shaping innovation and the direction of our research and development (R&D) efforts.

We all need to transform to respond to these challenges. The Capability Acquisition and Sustainment Group (CASG), that I lead, will be working closely with the National Shipbuilding and Sustainment Group and Guided Weapons and Explosive Ordinance (GWEO) Group to ensure an aligned approach to capability delivery.

We will be transforming the way we do our business in partnership with industry as it undergoes digital transformation and embraces Industry 4.0 technologies.

Through digital transformation industry is seeking to become more efficient, effective and competitive. This must be encouraged and harnessed by Defence and our partners through our procurement policy and contracting frameworks.

Effective collaboration between Defence and industry will ensure that the ADF receives the world-class capability it needs, when it needs it, that is relevant to today's threats and sustained through life.

Collaboration allows us to get the best from each other – from industry, academia, the Defence Science and Technology Group (DSTG), other government agencies and organisations like DMTC. This engagement and collaboration must occur earlier in the acquisition and sustainment cycles.

I know DMTC harnesses people and teams with deep technical expertise, adept at establishing collaborative and successful partnerships, exploring innovation and advanced technologies, and leveraging these advanced technologies into our domestic supply chains.

DMTC works at the sharp end of innovation and technology development, but critically at the implementation end, including production and pull through to capability.

I remain excited about future opportunities to work with DMTC and, most notably, the opportunities to pull through innovation into acquisition and sustainment outcomes that might have otherwise have been lost. I'm looking forward to working with DMTC, and all of our partners, as we do this critically important work ahead of us. /

► Australian Army soldiers from the 13th Brigade conduct a clearing patrol in a Hawkei Protected Mobility Vehicle at RAAF Base Curtin, Western Australia, during Exercise Talisman Sabre 2023.





Professor Tanya Monro AC

CHIEF DEFENCE SCIENTIST
DEPARTMENT OF DEFENCE

The DSR released earlier this year represents a significant change in Australia's defence posture, and sharpens our focus on leap-ahead areas of innovation, science and technology.

It helps us to see the steps we need to take today to provide the ADF with asymmetric advantage, and a technology edge. In this regard we have made a fundamental shift to see our defence equipment platforms as data-rich systems and networks that need to be integrated to deliver effects.

While this shift has been occurring, one thing that remains constant is the importance of relationships and collaboration. This is as true of the deep science and technology cooperation that has existed for decades among our like-minded allied nations as it is of our partnerships with organisations like DMTC here in Australia.

Initiatives such as AUKUS, both in relation to nuclear-powered but conventionally armed submarines and the critical Pillar Two priorities, provide an even stronger case for pulling the thread of technology development and innovation partnerships at all levels to deliver capability advantage.

Harnessing the expertise of industry and research partners is crucial to bolstering both our capability and capacity. It's one of the keys to the concept of 'national defence' so clearly articulated in the DSR.

For the past 15 years, DMTC and DSTG have been refining and enhancing our relationship to leverage Australian expertise for maximum benefit and impact.

It is a relationship that works at both strategic and working levels. DMTC's contribution to Defence is highly valued, both in regard to first-rate project outcomes we have achieved together across a wide domain range, and the skilling and uplift of the skills and networks of our workforce.

The recent momentum in the area of Chemical, Biological, Radiological and Nuclear (CBRN) protection and supporting capabilities is a critical benefit stemming from the relationship with DMTC.

DSTG's partnership with DMTC is one of the critical enablers of the national defence mission, and we will be looking to DMTC and its partners to consolidate and deepen support for our objectives in coming years.

I congratulate Mark and his team, but also all of the partners involved, on the achievements showcased in this Report. /

► Royal Australian Air Force (RAAF) No. 6 Squadron conducted joint training missions as part of Exercise Northern Edge 23 out of Eielson Air Force Base, Alaska, US.




Tony Quick

CHAIR, DMTC LIMITED

Pushing ahead

In any period of organisational review and associated change, there is a level of turmoil and uncertainty that can be expected. This is certainly true of the deep re-examination of priorities and posture that was provided to the Australian Government in the form of the DSR.

It is disappointing that the period of delay that has been caused both by waiting for the Review to occur and now waiting for new structures to take effect is challenging for the defence industry as a whole, and for DMTC.

Faced with these challenges, the Board and senior management have maintained a close engagement with Defence, ensuring that we have a clear understanding of the likely priority areas in the post-DSR environment. We are confident this engagement will ensure that DMTC will be ready to deliver on the tasks Defence asks of us once the current uncertainty has been resolved.

The Board continues to be impressed by the professionalism of the DMTC team. The appetite to keep pushing the boundaries of innovation and technology development, and the continuing growth in the breadth and depth of the Company's portfolio, speaks volumes for the team's adaptability, versatility and outcomes focus.

Looking across the Board and at the Company as a whole, our unity of purpose is balanced by our diversity, an impressive breadth of expertise and our professional and personal backgrounds.

We see diversity in all its forms, including the diversity of thought that comes through multi-disciplinary collaborative teams, as a key source of competitive advantage for DMTC, and a very important ingredient in the Company's continuing success.

This year, DMTC awarded an inaugural Guest of the Chair fellowship to provide an emerging leader with board-level experience within Australia's innovation ecosystem.

We are delighted to welcome Ms Yang-Ming Goh. As much as we hope Yang-Ming benefits from the experience, I expect our Board will benefit from the new perspectives that Yang-Ming and future Guests of the Chair will bring (see page 46).

The Board also retains its strong focus on discharging its corporate governance responsibilities in an effective manner. One area of considerable and heightened attention this year has been in regard to cyber security. We have wholeheartedly endorsed management's increased investment in this area, noting Defence expectations of the sector to regard this critical enabler as a priority.

It is my great pleasure to present the DMTC Annual Report for 2023. /



Dr Mark Hodge

CEO, DMTC LIMITED

Maintaining momentum

At our Annual Conference in April there was a distinct sense of anticipation surrounding the impending release of the DSR. The review team had been given a momentous task, and the sector was readying itself to respond. Some months on from the release of the DSR, and many in the sector are calling for clearer guidance from Defence on the ways forward.

In the face of this uncertainty, I am proud to say that DMTC and its partners continued to deliver throughout this period.

While our revenue for the year has held firm in comparison with previous years, we and our partners across Defence, industry and the research sector are resolute in our view that there is significant unrealised demand for the collaborative industrial innovation and capability development that occurs through DMTC partnerships.

As such, we have taken deliberate decisions to continue and grow activities that we could have otherwise elected to pause. We have also shown the value we place on keeping teams of experts together and maintaining 'blood flow' to the sector.

Once the current 'pause' in the sector has passed, organisations will need to mobilise quickly, and we need to ensure we are not doing this from a standing start.

Our financial data for the 2022–23 financial year (see pages 44–45) bears witness to both sides of this equation.

This momentum we carry forward is important to our partners and the sector, but will be just as important to DMTC as we position ourselves to respond when initiatives such as ASCA, the National Reconstruction Fund and the Australian Economic Accelerator move from their establishment phases to being ready to invest.

In the meantime, in both enduring and new areas of activity, we are working together to realise our mantra of 'capability through collaboration'.

It's always a real thrill to tap into the energy and collaborative spirit created by events like our Annual Conference. It's also exciting to welcome new partners to DMTC activities, and to hear about progress in advancing technologies that will make a difference to Australia's defence and national security.

The information assembled in this Report is, as always, only a highlights reel in regard to the many and extraordinary achievements of our people and our project teams across the reporting period.

I commend the Report to you. /

Capability through collaboration

Navigating the post-DSR landscape

The paradigm shifts in Defence planning, posture and priorities that are evident in its response to the DSR demand a renewed sense of focus and urgency. New priorities with regard to advances in capability, innovation and force protection are particularly relevant.

DMTC enjoys strong credibility with Defence and across the national innovation, science and technology ecosystem as an effective intermediary and bridging mechanism between government, industrial and research sectors. This is achieved by working closely with Defence and adjacent national security agencies to identify and understand priorities, and to translate signals from Government into carefully designed programs of effort. Collaboration with capable industry and research partners to accelerate technology development and strengthen supply chains is key to the delivery of program outcomes.

DMTC works with its partners to progress the development of critical technologies and capabilities and progressively retire technical risk. DMTC involvement extends from lower-Technology Readiness Level (TRL) experimentation and proofs of concept through to testing, prototyping and industrial deployment.

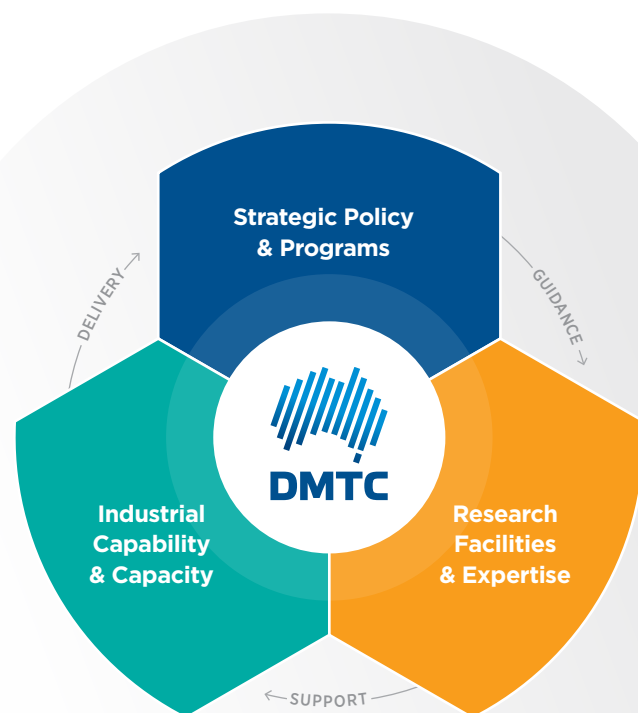
A not-for-profit entity, DMTC is an agile and responsive vehicle through which innovation, science and technology programs can be delivered.

DMTC's co-investment model is tried and tested, as is the Company's ability to operate in consortia and define programs that include both directly funded strands of work and supporting activities funded by other sources both domestically and internationally.

In addition to accelerating technology adoption through its stewardship of industrial R&D programs, DMTC leads supporting activities that ensure maximum utilisation of research and industrial outcomes.

The DMTC model puts a premium on home-grown capability and expertise, and focuses strategically on where Australian industry can demonstrate asymmetric capability advantage, backed by world-class research inputs.

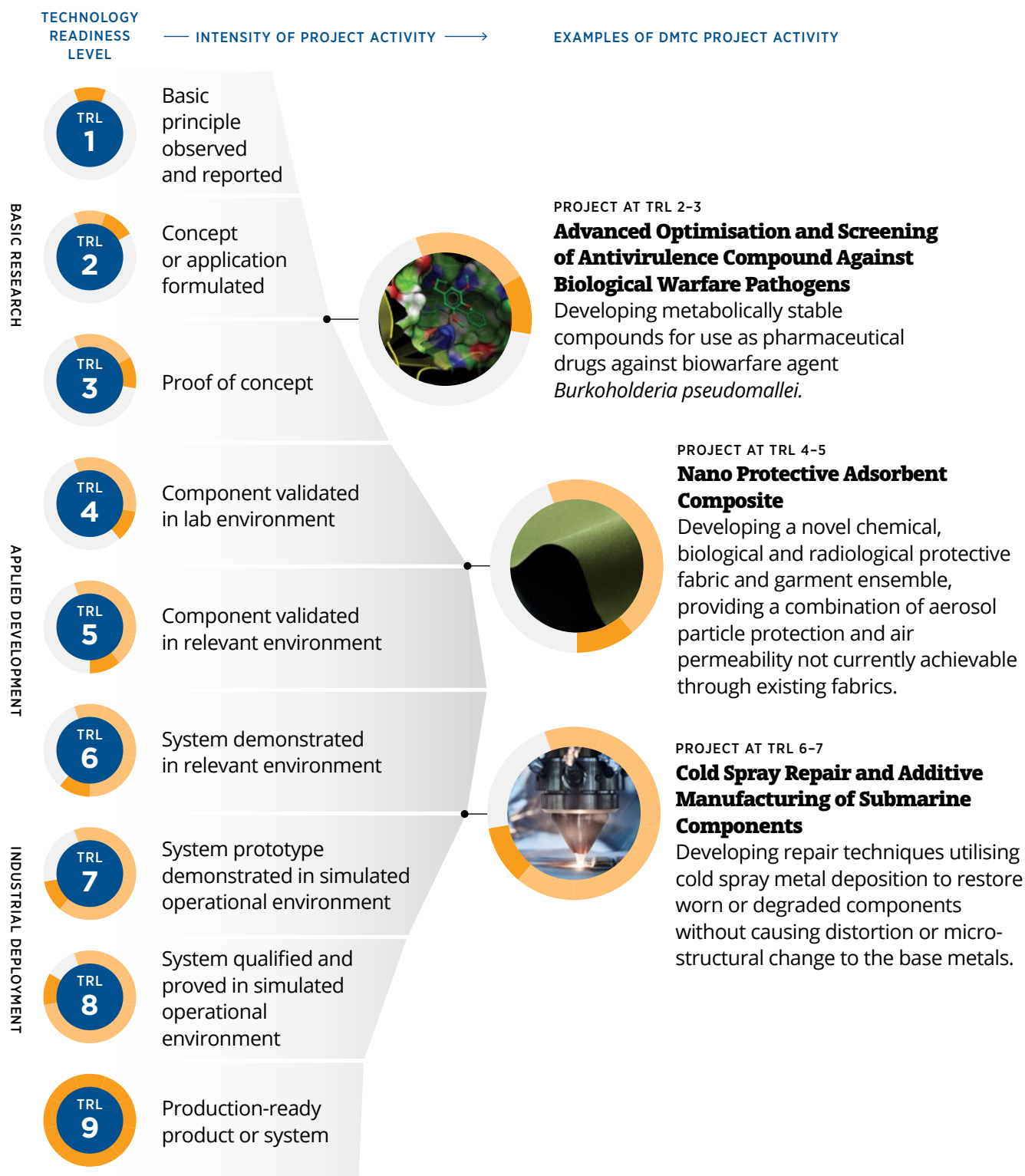
Working to create national communities and networks of expertise, DMTC ensures that capability remains in Australian hands by working on behalf of the Commonwealth to retain and manage intellectual property (IP) rights, while giving industry partners the freedom to operate within agreed fields of use. /



▲ DMTC service delivery: DMTC supports the development of Australian defence, national security and health security capability by advancing the knowledge, technical capability and capacity of Australia's sovereign industrial base.

Technology maturity lifecycle

DMTC's projects occur across the technology maturity lifecycle, with the bulk of project activity occurring between TRL 3 to 8.





Surface to air

A long-running DMTC research project involving DSTG, equipment operators from Army Aviation in Defence and technical experts from The University of Queensland (UQ) is driving better corrosion performance outcomes for defence equipment.

The project is part of a critical body of work DSTG undertakes to understand, quantify and prevent a range of causes of damage and wear, including corrosion and structural fatigue, that can result from the requirement for both fixed wing and rotary wing aircraft platforms to perform in harsh operating environments and remain in service for as many as three or four decades.

Deep expertise and material characterisation work has been applied to benchmark and compare the behaviour of both legacy and emerging magnesium alloys, and the range of anodised coatings that are used in a bid to inhibit corrosion.

Test coupons continue to undergo extensive environmental exposure trials at Defence sites in Queensland's far north. Coupons have been systematically analysed to assess corrosion-inhibiting performance.

The data has already delivered benefits through updated maintenance practices for some platforms.

▲ A Royal Australian Air Force F-35A Lightning II during pre-flight checks at RAAF Base Curtin, Western Australia, during Exercise Talisman Sabre 2023.



'It's a long-running piece of work that is demonstrating extraordinary results, and DMTC's expertise in collaboration has brought the best out of each of the partners.'

DARREN GERRARD, DSTG

An improved understanding of the performance of advanced coatings and alloys enables aircraft designers, operators and maintainers to better manage sustainment and improve the availability of these aerospace assets to the ADF.

While the immediate application of this work relates to alloys most commonly used in ADF rotary wing fleets (including the CH-47F Chinook), there may be interest in these investigations to inform other fixed wing aerospace platforms that employ similar lightweight, dynamic components. /

Partnering with purpose

DMTC has partnered with DSTG to establish a new program to accelerate the development of high temperature sub-assemblies (HTSA) as a first step towards proving Australian capabilities in the manufacture, at scale, of hypersonic aerostructures.

Australia has a long history in the development of hypersonic vehicles, and recognition of hypersonics as a AUKUS Pillar II priority technology is expected to take that a step further.

The DSR included hypersonics as an innovation, science and technology priority for the foreseeable future. Importantly, one of the key features of the DSR was the focus on GWEQ as a key enabler of an 'Integrated Force' concept, of which there is considerable crossover in industrial capability requirements with hypersonics.

DMTC has a long history of working with Defence in this sector, with previous applications including the HIFIRE Program, rocket testing, the Evolved SeaSparrow Missile, sensor development and supply chain uplift. DMTC's established and extensive national network of partners is well positioned to support further development of this capability, recognising the sensitivity and complexity of creating industry capability in this sector.

The DSR included hypersonics as an innovation, science and technology priority for the foreseeable future.

The newly established HTSA Program is focused on the development of industrial capability that rapidly moves from proof of scalability to production of component sub-assemblies prototypes, and through to test and evaluation. The foundational projects of



▲ The Evolved SeaSparrow in action.

the HTSA Program are addressing challenges in the areas of sharp hypersonic leading edges, structural lightweighting and joining methods and enabling technologies for data links.

DMTC is working with Quickstep Holdings, DSTG and the University of New South Wales (UNSW) Canberra to address challenges associated with adapting carbon fibre reinforced polymers (CFRP) to high-temperature applications (see page 21).

Other projects in the HTSA Program include working with partners from DSTG, Swinburne University of Technology (SUT) and Amiga Engineering to produce additively manufactured sharp leading edges with advanced thermal barrier coatings; and with BAE Systems Australia (BAESA) and Gravitas Technologies to fabricate conformal antennae and/or receiver apertures able to withstand external hypersonic dynamic pressures and temperatures. /

Heavy metal

The DSR confirmed the importance of naval shipbuilding as a sovereign industrial capability and recommended that Defence reaffirm its commitment to continuous naval shipbuilding.

DMTC has a long history of supporting this endeavour through implementing advanced fabrication technologies into our industrial partners across multiple platforms, including the Air Warfare Destroyer Program, submarines and other surface ship programs.

The recently transformed Osborne Naval Shipyard stands as one of the world's most modern shipyards due to substantial investments in advanced shipbuilding fabrication technologies and processes.

DMTC and its partners BAE Systems Maritime Australia (BAESMA), Australian Nuclear Science and Technology Organisation (ANSTO) and the University of Wollongong (UOW) are working together to maximise the capabilities of the highly automated and adaptable Osborne shipyard for the production of Hunter Class Frigates.

This complex project combines robotically controlled welding with real-time weld sequence planning through modelling and simulation of the weld process that plays a pivotal role in reducing weld-induced distortion.

This is done by utilising intelligent algorithms that rapidly sequence hundreds of welds in the fabrication of ship panels. Reducing weld-induced distortion as early as possible in the production process exponentially reduces the need for, and cost of, rework activities throughout the process from panel to block to module fabrication and consolidation.

This DMTC project is significantly contributing to the Hunter Class Frigate Program, becoming Australia's first digital shipbuilding program, with the outcomes of this project in the final stages of integration at the Osborne Naval Shipyard.

This will allow BAESMA to gear up for full-scale production of the Hunter Class Frigate Program and demonstrate scalability across the entire continuous shipbuilding enterprise and its various future naval platforms. /

▲ Project partners are working to maximise the capabilities of the highly automated and adaptable Osborne Naval Shipyard.

One technology, many applications

While many small uncrewed aerial systems (UAS) on the market use conventional off-the-shelf antennae for the transmission of data and telemetry information to operators, these systems have several known limitations including weight penalties, range constraints and damage vulnerability.

DMTC has been working for several years to support DSTG in developing conformal, load-bearing antenna systems that can be integrated into primary or secondary structural components.

This work commenced with reference to Royal Australian Air Force (RAAF) fixed wing aircraft fleets. It was then adapted with DSTG and industry partners Thales Australia and Penguin Composites, successfully embedding a structurally integrated GPS antenna in a composite bonnet of the Thales Hawkei lightweight protected mobility vehicle.



‘The development of conformal functional antenna structures has shown great potential in different environments and applications – to be turning our attention to manufacturing techniques is very significant.’

DR MARTIN VEIDT, UQ & DMTC



▲ Skyborne's small UAS platform, the Gannet.

More recently, attention turned to the design and manufacture of a structurally integrated satellite communications antenna prototype suited for the Thales Bushmaster protected mobility vehicle.

DSTG and UQ also collaborated with Skyborne Technologies to develop a functional composite antenna for a UAS platform, replacing an existing antenna inside a tubular composite leg with a conformal antenna integrated into the composite structure.

This work demonstrated the potential for novel antenna designs that optimise the positioning of the antenna on the airframe to improve radio performance and reduce weight through the use of functional composite materials.

In the latest progression of this iterative technology development, DMTC and partners at UQ, DSTG and Skyborne are pursuing further advances to meet specific weight and integration challenges for Skyborne's small UAS platform, the Gannet.

This work aims to enhance both hardware and software components of the Gannet's communication system and demonstrate a cost-effective and robust manufacturing technique for the antenna system. /



Dressed for success

DMTC is leading a collaborative effort alongside partners from RMIT, DSTG, Bruck Textiles, NanoLayr and CSIRO to address a Defence requirement for improved CBR protective fabric and garment ensembles. These fabrics aim to shield wearers from aerosol particle contamination while enabling them to operate effectively in contaminated environments over extended periods of time.

The DMTC project is tackling a known limitation of current CBR suits, namely the lack of aerosol protection offered by current air breathable fabrics. The textile developed in this project, otherwise known as the nano protective adsorbent composite, addresses this issue though the multilayered laminated construction of the textile which, importantly, provides excellent air permeability while maintaining a high level of protection against aerosol particles. A critical milestone was achieved in early 2023 with the successful production of 90 metres of the fabric by Bruck Textiles.

... the nano protective adsorbent composite is poised to deliver a critical capability to Defence personnel and first responders.

As the project advances into its second phase, the fabric will undergo a series of performance assessments. Once these evaluations are concluded, the nano protective adsorbent composite is poised to deliver a critical capability to Defence personnel and first responders. /

▲ Liberty Wagner, Product Development Manager at Bruck Textiles, has been a key member of this DMTC-led project to advance the development of breathable fabrics for combat uniforms that protect the wearer from aerosolised threats. In April 2023, Liberty received an Award for Excellence at DMTC's Annual Conference (see page 42).

► Australian Army personnel from 13 Brigade depart for Exercise Talisman Sabre 23 from RAAF Base Pearce, Western Australia.





The Advanced Piezoelectric Materials and Applications (APMA) Program is supported by DMTC and funded through ASCA. The DSR recommended an 'Integrated Force' approach that heavily references undersea warfare as a key Defence enabling capability, especially in reference to a strategy of denial and development of anti-access/area denial capabilities.

This aligns with the AUKUS Pillar II Advanced Capabilities – a set of trilateral priorities for enhanced defence capability – that includes undersea warfare technologies.

Single crystal piezoelectric materials are orders of magnitude more sensitive than their polycrystalline equivalent, which is an important material characteristic for SONAR systems and other undersea warfare applications.

With this strategic imperative, the APMA Program set out to develop an industrial-scale foundry to ensure security of supply of single crystal piezoelectric materials for defence applications, supported by a world-class national research body of expertise to enable the development of new SONAR products for above sea warfare and undersea warfare applications.

The growth of single crystal piezoelectrics is an extremely complex and time-consuming process. In addressing the first objective of the APMA Program, industrial partner Thales Australia has

successfully grown single crystal piezoelectrics at an industrial scale, ensuring the development of next-generation SONAR systems is now a reality.

This achievement has been supported by investment in research sector knowledge and infrastructure to fully understand the structural and electro-mechanical properties of these crystals, as well as optimising their growth process and production.

The development of next-generation SONAR systems is now a reality.

The focus of the APMA Program now transitions to the application of single crystal piezoelectrics, which have the potential to address a series of space, weight and power limitations of existing SONAR system applications, including uncrewed underwater vessels, undersea surveillance systems, hydrophones, sonar projectors, sensor arrays and more.

Importantly, these materials provide the opportunity for an asymmetric step change in capability through unlocking potential applications that cannot be realised with conventional piezoelectrics. /

▲ Collins Class submarines HMAS Collins, HMAS Farncomb, HMAS Dechaineux and HMAS Sheean in formation while transiting through Cockburn Sound, Western Australia.

Success at scale

DMTC is partnering with DSTG to accelerate the development of high temperature sub-assemblies as a first step towards proving Australian capabilities in the manufacture, at scale, of hypersonic aerostructures.

The first project in the program involves a collaborative team comprising Quickstep, DSTG and UNSW Canberra.

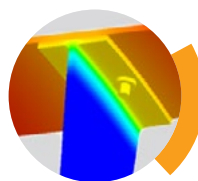
Quickstep's expertise in the manufacture of composite airframe structures is an ideal complement for the system level, modelling and simulation expertise provided by DSTG and UNSW.

The UNSW team has developed and refined advanced thermomechanical computational models to quantify the aerothermal soak that vehicles experience when travelling at hypersonic speed and the corresponding stresses and deformations in the hybrid structure.

The results show the benefits of using high temperature CFRPs in protecting internal system components from extreme heat, allowing them to remain at a serviceable temperature.

The project team has overcome initial supply chain and manufacturing challenges and is now making positive progress with sample production for materials characterisation.

Additive manufacturing techniques, coupled with a deep understanding of the characterisation and manipulation of materials such as CFRPs, offer great promise in reducing weight and maximise the performance of components at very high temperatures, such as those faced by flight systems travelling at hypersonic speed. /



'High temperature carbon-fibre reinforced polymer structures are an emerging class of aerospace materials that offer solutions that are designed for extreme environments, potentially more cost-effective and built for more complex shapes - and that we can produce here in Australia.'

LILY ATTWOOD, UNSW CANBERRA

▲ Innovative additive manufacturing techniques offer great promise in the manufacture of hypersonic aerostructures.

Capability step change

DMTC partner Synthesis Technologies (Synth), working in the 'Gryphon' Program, has delivered a mature 3-D geospatial digital twin technology known as *Synth Maps* to defence and national security stakeholders.

Synth initially partnered with DMTC in early 2019 via an introduction from the Department of Defence. At the time, *Synth Maps* was a concept demonstrator capable of rendering very large point clouds for viewing on a screen or at lower resolution in virtual reality. DMTC was asked to work with Synth to engage a community of potential end users across government, identify possible use cases, and secure sponsors to de-risk and mature the capability against the backdrop of future operational concepts.

At the conclusion of this four-year effort, underpinned by input from a number of DMTC research partners, the Program delivered to stakeholders a user-friendly and highly capable 3-D geospatial analysis tool. The analytics suite and deployment architecture for *Synth Maps* have been developed specifically to address use cases relevant to Australian and allied national security personnel. The software has a number of unique characteristics that address limitations associated with other 3-D geospatial software, such as:

- it was designed and optimised for co-registration, change detection and simultaneous inclusion of other relevant data (e.g. photographs, videos, file and location metadata, etc.);
- the capability is built on commonly used file formats and industry standards, ensuring users are not locked into proprietary data formats and ecosystems;
- *Synth Maps* is both compute and bandwidth austere – meaning that unlike other exemplars, it can be run on standard off-the-shelf personal computers, over the internet and via wireless networks (e.g. 4G); and
- using *Synth Maps*, near real-time ingestion, display and registration/co-registration of data is possible.



▲ Synth's state-of-the-art 3-D visualisation tool can take data feeds from, and deliver an operating geospatial picture to, common user devices such as mobile phones, tablets and laptops.

The capability delivered has further been developed to a point where it can be used by geospatial novices and experts alike, with many of its features and tools both semi-automated and simplified. By employing *Synth Maps*, decision-makers, planners, trainers, analysts and operators can readily share and take advantage of the additional information richness nascent in 3-D data when compared to annotated 2-D maps and photographs.

DMTC is currently assisting Synth in identifying pathways to capability across government. This includes open tender opportunities as well as opportunities to join the supply chains of prime systems integrators. Synth is working with DMTC to scope the next round of capability development projects, which aim to further develop *Synth Maps* to support sensor fusion and data dissemination, providing a common operating picture in joint operations environments that include robotic and autonomous systems. Synth is also independently evaluating dual use markets.

Synth Maps is a truly viable and asymmetric sovereign capability. /



Enduring excellence

'I recently challenged the team to apply its deep materials expertise, developed through DMTC projects, to a proof-of-concept laser repair on an ultra high-strength steel component we manufacture as part of a global supply chain.

Within two weeks, the guys had optimised the deposition, validated the repair strategy and completed the repair, all while utilising the Adaptive Process Controls recently developed and integrated with our powder feed laser system through adjacent funding from Defence.

This was a brilliant melting pot of DMTC-generated expertise and our advanced manufacturing capabilities here at Rosebank to recover high-value components otherwise destined for scrap. It simply wouldn't have been possible without the collaboration, expertise and deep materials knowledge generated through successive DMTC projects involving Rosebank, DSTG, Swinburne and RMIT.'

JARROD WATTS, ROSEBANK ENGINEERING



▲ (Left to right) Dr Rizwan Rashid (SUT), Jarrod Watts (Rosebank Engineering), Suresh Palanisamy (SUT), DMTC CEO Dr Mark Hodge, Dr Shane Canney (DSTG) and Khan Sharp (DSTG) celebrate receiving a National Innovation Awards High Commendation at the Avalon Airshow in March 2023 for a project that is pairing advances in the use of existing additive manufacturing technologies, such as laser additive deposition, with novel technology developments to successfully repair worn or degraded airframe components.

Program Activities: Highlights



Celebrating partnership and impact

In August 2023, DMTC's Maritime Program Leader Stephen van Duin, along with members from the Facility of Intelligent Fabrication, received the UOW Vice-Chancellor's Award for Research Partnership and Impact. This accolade recognises the significance of collaborative partnerships in effectively translating research outcomes into tangible benefits for industry, government and the community.

The team at the Facility of Intelligent Fabrication has played a pivotal role in the success of DMTC projects. Notably, the recent project, conducted in conjunction with DMTC and partners BlueScope Steel and DSTG, led to the development of enhanced, more survivable naval shipbuilding steel.

The Vice-Chancellor's Awards is not the first time the team has been recognised, with this project receiving the prestigious Defence Science and Technology Enterprise Collaboration Award at the 2022 Australian Defence Science, Technology and Research Summit (ADSTAR), in addition to a High Commendation in the National Innovation Awards at the 2022 Indo Pacific International Maritime Exposition.

The Vice-Chancellor's Awards evening also marked well-deserved recognition of Stephen's 25 years of dedicated academic service to the University, over half of which has included contributions to DMTC at a leadership and project level. /

▲ (Left to right) Emeritus Professor John Norrish, a DMTC Fellow, with DMTC CEO Dr Mark Hodge and DMTC Maritime Program Leader Dr Stephen van Duin at the UOW Vice Chancellor's Awards presentation night in Wollongong.

► Next page: This table shows the volume of program activity and number of projects that partners are involved in across DMTC program themes.

Organisation	Program							
	ENABLING TECH	AIR	LAND	MARITIME	HSSA	GEOSPATIAL & ISR	ICD	HTSA
ADFMIDI					1			
Amiga Engineering		1						1
ANSTO	1	1		2				
ARRL					2			
ASC				2				
Australian National University				1	1			
Axxin					1			
BAE Systems Australia				1			1	1
BioCina					1			
BioIntelect					1			
Boron Molecular					1			
Bruck Textiles			1					
Critus				1				
CSIRO			1	1	1			
Deakin University								
Defence Science and Technology Group	4	3	1	1	15	1		1
Department of Primary Industries - NSW					1			
DI-AS							1	
Flinders University							1	
Gravitas Technologies								1
Griffith University					1			
Innovative Defence Solutions					2			
James Cook University					2			
La Trobe University					1			
Macquarie University					1			
Monash University				1	3			
NanoLayr			1					
OzQ					1			
Penguin Composites	1							
Planet Innovation					2			
Queensland University of Technology				5	1			
Quickstep								1
RMIT		2	1	1				
Rosebank Engineering		1						
SCHOTT Minifab					1			
Sementis					1			
Skyborne Technologies	1							
Smart Enough Factory							1	
State Government of Victoria							1	
Sutton Tools		1						
Swinburne University of Technology	1	2						1
Synthesis Technologies						1		
Telethon Kids					1			
Thales Australia	1			3				
ULVAC					1			
University of Adelaide					3			
University of Melbourne					8	1		
University of New South Wales	1			1	1			1
University of Queensland	2	1			2			
University of South Australia					1			
University of Sydney				2	1			
University of Western Australia					2			
University of Wollongong				4	1			
Willyama							1	
ZIP Diagnostics					1			



HSSA

'Our expertise is in acting as a connector – pulling together project teams, often from organisations that have never worked together. That's what we mean when we speak about building capability through collaboration.'

DR LEIGH FARRELL, HSSA

Health Security Systems Australia (HSSA), a division of DMTC, leads a range of programs to develop technologies and strategies to better protect Australian Defence and civilian personnel from CBRN threats, infectious diseases and pandemics. HSSA manages R&D activities in key areas required to enhance national health security.

The HSSA division currently has 21 active projects that span a range of programs, including Medical Countermeasures (MedCM), Medical Devices, Strategic Advisory, CBR Modelling and Simulation and CBR Sensing Systems. Through active management and leadership of collaborative research and industry teams within these programs, HSSA has progressed various technologies into maturity.

HSSA has continued to engage in advisory activities relating to sovereign capabilities across the health security ecosystem, including in the provision of expert analysis to Australian Government agencies. This is evidence of HSSA's ability to harness technical expertise, and of its reputation and credibility in the sector and with Government.

HSSA's activities continue to be guided by a whole-of-Government Stakeholder Group, and the division takes a whole-of-Government, whole-of-industry perspective when assessing prospective projects and monitoring their progress and impact.

This is evidenced by the various user forums HSSA has organised throughout the year to clarify and understand user needs and ensure the relevance and fit of technology solutions to the end-user, including both defence personnel and civilian first responders.

In April, highlights from across HSSA's portfolio of projects were presented as part of the DMTC Annual Conference. A pre-event workshop facilitated by Dr Felicia Pradera, General Manager HSSA, used a case study describing HSSA's work on a platform vaccine technology to provide practical advice

for collaborative teams on delivering to Defence. This workshop stressed the benefit of HSSA's credibility and reach within domestic and international networks, as well as the value of HSSA's rigorous approach to program and project development, which includes due diligence assessments and development of target product profiles.

Dr Leigh Farrell, Head of HSSA, and Brigadier Isaac Seidl from Joint Health Command in Defence made keynote addresses on the importance of health security and promoting health security resilience. Updates on progress with HSSA programs were provided in technical stream sessions, including opportunities for students and early career researchers to present on their work.

The conference was also an opportunity to highlight many of the technical achievements accomplished by the project teams, as well as recognise two HSSA project team members at the DMTC 2023 Awards for Excellence (see page 42). /



▲ As part of the DMTC 2023 Annual Conference, an expert panel was convened to discuss technology development in a defence context. Panellists included (left to right) WGCDR David Taplin (Joint Health Command), MAJ Ricky Schmidt (Army Headquarters), Dr Jack Richards (ZiP Diagnostics), Leanne Hobbs (Sementis), and Professor John Hayball (University of South Australia).

◀ HSSA takes a whole-of-Government, whole-of-industry approach to innovation. This involves working with organisations such as Boron Molecular to tackle health security challenges.

Coming up for AIR

DMTC has partnered with UNSW, Macquarie University and DSTG to create an artificial integrated respiratory (AIR) platform to assess airborne chemical or biological agent hazards, as well as MedCMs targeting these threats, and their impact on human respiratory health.

Prediction of human injury or survival upon inhalation of aerosolised chemical and biological hazards is an important concern to both Defence and civilian health.

The AIR model combines 3-D casts of the respiratory tract with epithelial cell culture at key locations in the human respiratory pathway. By exposing this model to realistic aerosol challenges, the team can accurately assess the impact of an inhaled threat, and the effect of treatment, in the human lung.

The team has successfully developed a prototype AIR model that simulates realistic inhalation of aerosols and their consequent interaction with the human airway and can measure aerosol deposits in specific regions and toxicity and pharmacokinetics of the inhaled aerosols. Simulants of inhaled toxins have been characterised using this prototype to better predict lung injury. Future work will involve assessing other inhalational hazards such as inorganic fibres, bacteria, viruses and fungal spores.

By exposing this model to realistic aerosol challenges, the team can accurately assess the impact of an inhaled threat.

This sovereign capability, now being used by both academic partners and DSTG, has the potential to inform human injury and survival estimates upon inhalation of aerosolised threats, as well as progress the broader development of MedCMs, and be used to develop more effective personal protective equipment to better protect military, first responder and civilian health. /

▲ A soldier from the 6th Battalion, Royal Australian Regiment, patrolling during a simulated chemical, biological, radiological, nuclear survival training exercise at Townsville Field Training Area, Queensland.

Infrared alert

DMTC has engaged with DSTG and industry partner Innovative Defence Solutions to upgrade a novel midway infrared (MWIR) chemical classifier.

There is a critical need for both Defence and the public's safety to be able to accurately detect and measure hazardous gases in an environment.

The team worked to develop a ruggedised version of the MWIR chemical classifier and demonstrated its ability to detect ammonia gas at concentrations below the permissible exposure limit.

Absorption spectroscopy in the mid-way infrared spectral range can be used to detect toxic chemical gasses such as ammonia. However, infrared gas spectrometers typically rate poorly on size, weight, power and cost (SWAP-C) metrics, as well as lacking the ability for long operating lifetimes that are required of sensors that are to be deployed over large geographical areas in civilian and military contexts.



Future extensions could include incorporating this platform into smartphones.

The novel MWIR platform advanced in this project, a gas microspectrometer based on infrared absorption, satisfies both accuracy and sensitivity in detection, as well as SWAP-C requirements.



▲ An Australian Army medical officer and medical technician of the 1st Health Battalion, run towards awaiting casualties during Exercise Predators Run 2022. HSSA leads and manages collaborative projects that develop products and decision-support systems for the protection of Australian Defence personnel from CBRN threats, infectious diseases and pandemics.

Future extensions of this work could include testing the platform using various other gaseous substances, incorporating this platform into smartphones, which would enable spatial and temporal measurements on air quality with a user-friendly interface.

The project successfully progressed a ruggedised sensor able to detect hazardous gases in an environment at low concentrations that meets SWAP-C requirements. This capability has the potential to better protect both military and civilian personnel against hazardous gases. /

Good shot

A collaborative project between DMTC, James Cook University's (JCU) Australian Institute for Tropical Health and Medicine and contract manufacturing organisation BioCina has progressed novel malaria vaccine technology.

Malaria is a life-threatening mosquito-borne, parasitic disease and endangers almost half the world's population.

There are over 200 million cases of malaria worldwide, with the highest density of cases occurring in tropical countries, including much of Australia's area of military operations.

The variety of species of malaria, as well as its distinct life stages, results in a range of complex, diverse vaccine targets, meaning a vaccine that covers all malaria species at all stages in its lifecycle is extremely difficult to produce. There remains a clear unmet need for a low-cost, highly effective vaccine that targets multiple species, strains and stages of the malaria lifecycle.

JCU's long-term objective is to develop a safe, effective, low-cost, logistically viable universal malaria vaccine to support the global push for eradication of malaria.

▲ DMTC's strategic investment has enabled a novel malaria vaccine to be successfully manufactured at a scale suitable for early clinical development.

DMTC's strategic investment enabled the novel vaccine, designed by experts at JCU's Australian Institute for Tropical Health and Medicine, to be successfully manufactured at BioCina at a scale suitable to support early clinical development. This material was then tested in a critical toxicology experiment, and was shown to be well tolerated and not result in any toxicity.

This DMTC-led collaboration created pivotal results, integral to the continued activities required to meet the long-term goal of developing a universal malaria vaccine. /

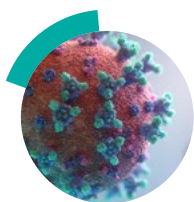


There are over 200 million cases of malaria worldwide, with the highest density of cases occurring in tropical countries, including much of Australia's area of military operations.

Next level detection

A collaborative project between DMTC, Axxin, DSTG and ZiP Diagnostics has progressed a prototype point of care (POC) testing device to detect the leading mosquito-transmitted infections, including dengue fever, Zika virus, malaria and encephalitis.

Mosquito-borne infections, like dengue fever, malaria and encephalitis, can be life-threatening and endanger much of the world's population, with the largest density of mosquito-borne infections in sub-tropical and tropical climates, including a large area of operations utilised by ADF personnel.



The long-term objective of the project is to develop a low-cost, accurate, disposable cartridge for use in a field-ready instrument to detect viruses and malaria parasites.

Currently, mosquito-borne diseases are detected through a combination of laboratory-based testing methods, which require equipment and environments not readily available to individuals located in remote and regional areas, and POC diagnostic devices, which provide in-field testing for individuals enabling increased detection and better care for people in remote locations.

The long-term objective of the project is to develop a low-cost, accurate, disposable cartridge for use in a field-ready instrument to detect viruses and malaria parasites.

DMTC's strategic investment is enabling the development of a prototype cartridge kit with an interface successfully designed and tested by experts from ZiP Diagnostics and Axxin, with support from DSTG. Ongoing work includes continued testing of various biological materials to detect infection-causing agents.

This DMTC-led collaboration has successfully progressed a locally manufactured POC diagnostic platform to enable the effective care and continued activities of deployed military personnel in remote environments. /

▲ ZiP Diagnostics is working alongside DSTG, Axxin and DMTC to progress a prototype POC testing device to detect leading mosquito-borne diseases.

Seeing the light

'Working with DMTC, Flinders University and BAE Systems Australia has allowed us to better grasp and open the door to the 4th industrial revolution and allow a clear digitisation pathway for our core manufacturing capability in South Australia.'

CHRIS BROWN, CBG SYSTEMS

Through its Industry Capability Development (ICD) Program, DMTC is engaged in technology transfer for the benefit of Australian industry.

The ICD Program works with and alongside Australian companies, mostly small businesses, to address capability and capacity gaps and open doors to defence supply chain opportunities.

In 2023, the focus of the ICD Program continued to be the deployment of the Smart Enough® Factory (SEF) Program, with activities in New South Wales, South Australia and Victoria harnessing support from both Defence and the respective state governments.

The newest activity, led by DMTC with support from BAESMA and Flinders University, is part of BAESMA's Connected Supplier Program in South Australia. This Program is supporting six manufacturers to adopt Industry 4.0 technologies, accelerating their preparedness to contribute to defence industry supply chains. Participants include South Australian-headquartered businesses Axiom Precision Manufacturing, Century Engineering, Marine & General (MG) Engineering, MyModular and Novafast International, as well as Tasmanian manufacturer CBG Systems – supporting CBG's establishment of a new South Australian manufacturing facility.

Small businesses, particularly in the defence sector, face a convergence of challenges that can be summarised by the four Ds – disruption, decarbonisation, digitalisation, and diversification. Central to each of these challenges is the need to collect data and objectively demonstrate performance.


With 67 participants to date, the SEF Program recognises that data-driven approaches are one of the keys to competitiveness and to spurring productivity improvements in modern manufacturing. Through the smart application of simple, cost-effective technology, participating companies can realise points of difference and

competitive advantage in bidding for work in the supply chains of prime contractors. These benefits are particularly significant for companies located in regional centres across Australia. Acknowledging the resilience, diversification and competitiveness dividend for regional small to medium-sized enterprises (SMEs) proactively adopting Industry 4.0, DMTC has pursued activities across the Latrobe Valley and Riverina regions.

The industrial context provided by direct engagement with the Defence primes is a key part of the Program and reinforces its value and impact. Too often, perceived barriers around cost and complexity, along with the pressure to maintain business-as-usual operations, result in companies being reluctant to embrace Industry 4.0 technologies.

As the name suggests, the SEF Program works by providing participants with a digitisation solution that is 'smart enough', while also providing line of sight to company-wide solutions that quantify the benefits of factory connectivity and optimise the performance of existing equipment.

Experts engaged by DMTC provide mentoring and evidence-based feedback, both during workshops and in post-activity reports, highlighting improvement opportunities for each company. Recognising the often unheralded issues around appropriate cyber security controls for operating technology, DMTC's SEF Program includes discrete briefings and training in cyber security.

The range of expertise provided by the delivery partners positions each company to embrace the digitalisation of their manufacturing processes, as well as developing their defence-readiness and lifting cyber maturity and digital literacy. 

◀ BAESMA is using digital innovations and manufacturing advances, such as this 3-D profiling machine, to make Osborne Naval Shipyard one of the most digitally advanced naval shipyards in the world.



Smart connections

The SEF Program roll-out is showcasing the benefits of Industry 4.0 adoption and building a Community of Practice to provide networking and ongoing support.

The SEF Community of Practice aims to provide an ongoing source of connection and advice for participating companies. It enables them to share their Industry 4.0 insights and learnings for the benefit of all.

As well as facilitating site tours and other events to provide ongoing networking, DMTC is also investing in the development of a resource library to enhance and streamline the sharing of knowledge. This 'code library' is designed to capture solutions and improvement pathways in a form that can be easily reviewed, adjusted and applied in another company's systems.

The goal of this new initiative is to establish an accessible and user-friendly interface for all members of the Community of Practice, not just information and communications technology specialists and developers. The code library will

feature functions, code and user interfaces created in-house by DMTC, SEF interns or participating businesses that develop unique solutions throughout their digital uplift development cycle.

'Collecting data is important, but turning that data into actionable insights and knowledge is where the magic happens.'

CHARLOTTE MORRIS, DMTC

▲ Implementing the concepts of Industry 4.0 and a Smart Enough® mindset has been of great benefit to participating businesses, including many small businesses in regional areas.



In addition to providing benefits to participating businesses, the SEF Program is also actively contributing to the development of human capital, and helping to bridge the divide between students' university studies and careers in defence or related technology sectors.

Program activities in Victoria are supported by a talented pool of interns from several universities, sourced through the Defence Science Institute's (DSI) Defence Industry Undergraduate Internship Program, delivered in partnership with the Australian Industry Group. A number of these interns have gone on to secure continuing employment with their host company or employment in a similar role with another company.



Gaining new skills while contributing to better outcomes for the companies is a win-win equation for interns.

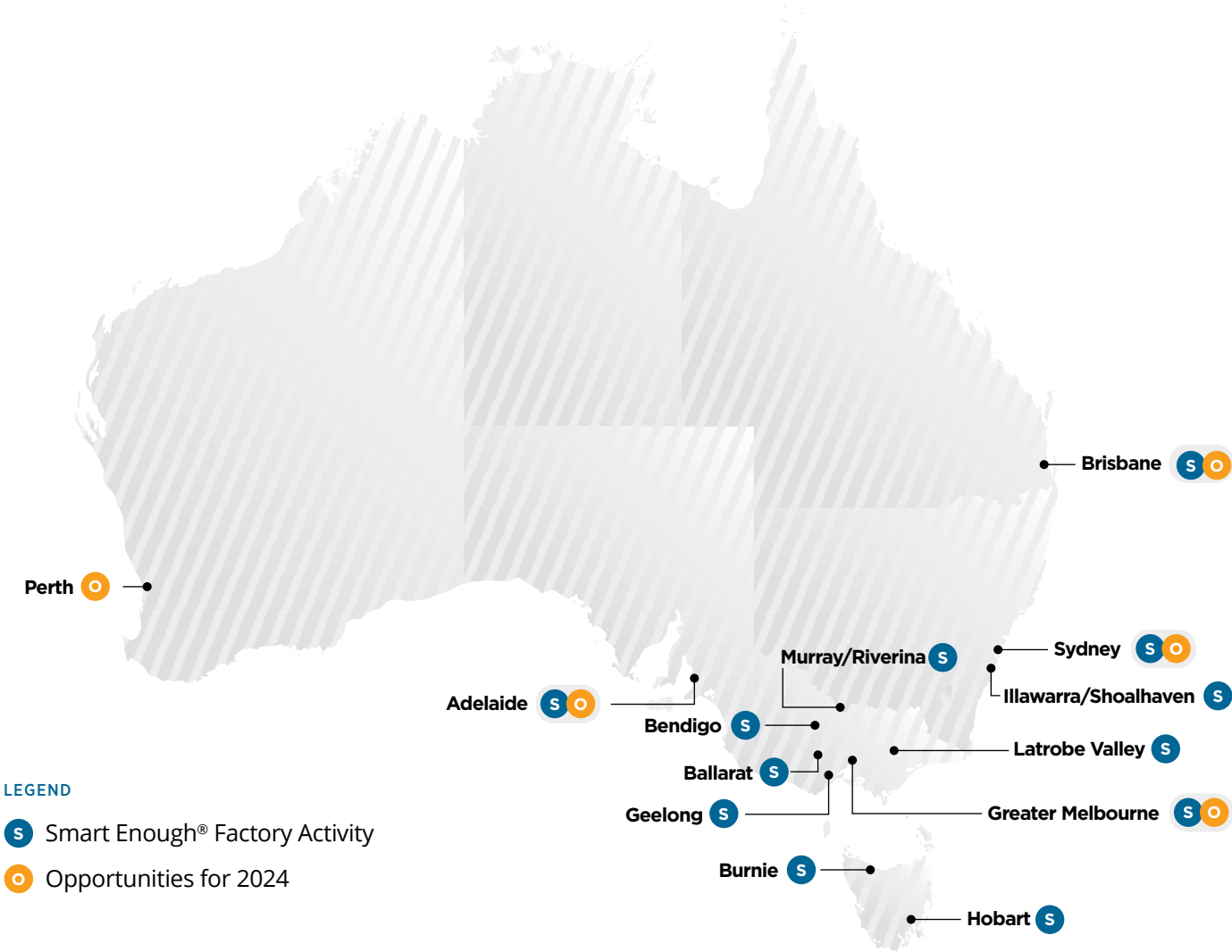
Contributions from interns are becoming an increasingly important part of the SEF Program delivery model, and highlight the benefits of joint investment in Australia's future sovereign industrial workforce and capability.

Internships provide mutual benefits to students, who gain valuable work experience from the factory floor, and to industry partners, who receive hands-on assistance in their digital transformation journey. **/**

▲ Hanwha Defense Australia Redback Infantry Fighting Vehicles conduct a live fire demonstration during LAND 400 Phase 3 user evaluation trials at Puckapunyal Military Area, Victoria. Many SEF Community of Practice participants are involved in, or seeking entry into, Hanwha's supply chain with an aim of contributing to the delivery of Land 400 and adjacent equipment programs.

Smart Enough® Factory Program

The SEF Program has been deployed throughout Australia, with cohorts represented across both the cities and regions. Through the smart application of simple, cost-effective technology, participating companies can demonstrate considerable benefits from their digital uplift activity. Some of the many technical project outcomes identified by participating businesses to date are outlined below.



PROJECT OUTCOMES

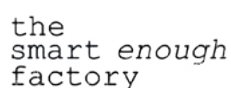
Energy monitoring	Real-time data collection	Fault tracking and tracing	Overall equipment effectiveness
Net-zero compliance	Real-time visual management	Objective quality evidence	Asset tracking (people, parts or products)
Job tracking	Data visualisation	Safety improvements	Capacity planning

Smart Enough® Community of Practice

With 67 participants to date, the SEF Community of Practice is an ever-growing network of companies that share a common desire to fully realise the benefits of their digital transformation journey by contributing their perspectives, Industry 4.0 learnings and practical insights from the factory floor.



DELIVERY PARTNERS



Industry Capability Development: Highlights



Interns driving change

Australia's defence industry is grappling with the rapid evolution of technology. One of a number of ways DMTC is bolstering Australia's sovereign industrial base is by equipping Australian SMEs to leverage Industry 4.0 technologies.

With support from DSI and Australian Industry Group, DMTC has facilitated numerous internships for third or fourth-year undergraduate students. The interns are a critical part of the DMTC team delivering the SEF Program.

By linking interns with other postgraduate researchers supported under DMTC's Education Program, DMTC is also providing more than just work experience by placing a strong emphasis on broad professional development and networking opportunities.

Wyatt Clancy and Morgan Brown were the interns attached to SEF Cohorts 5 and 6 respectively.

▲ DMTC intern Morgan Brown examines machine performance via a digital dashboard with Parish Engineering's Production Manager, Joshua Roos.

Describing the role of an intern within the SEF Program, Morgan says that it is all about assisting SMEs to bridge the gap between data and actionable insights. The interns play a critical role in enhancing the digital practices of participating companies, often working directly with company personnel on the factory floor.

'Before this internship, the idea of working in the defence sector wasn't one I was at all married to – I simply didn't know much about it. Now it's my first search filter when looking for future graduate opportunities.'

MORGAN BROWN, DMTC INTERN



During their internships, both Morgan and Wyatt attended the Australian International Airshow at Avalon, as well as DMTC's own Annual Conference in Canberra. As part of the Student Showcase at the Annual Conference, Wyatt shared insights from his internship experience with a large and diverse audience from government, industry and the university sectors.

Morgan speaks for both interns when asked to reflect on the broader impact of his internship experience: 'Working with the businesses involved, in addition to gaining a broader perspective of Defence, was a real pleasure...the technology being developed, the anecdotal wisdom shared and the manufacturing excellence observed will undoubtedly shape my professional development'.

Building on this, Wyatt felt his internship was especially meaningful given he assisted a cohort of companies based in regional Victoria. This helped him to recognise the importance of digitisation in promoting resilient and diversified regional businesses, and brought to light the distinct challenges, such as workforce security, that confront SMEs in the regions.

▲ Wyatt Clancy (second from the right) was one of a number of students from across DMTC projects that presented as part of a Student Showcase session at DMTC's Annual Conference in 2023. Wyatt's time as an SEF intern solidified his interest in collaborating with Australian defence companies, telling DMTC that he is now 'looking forward to a career in this space'.

'The Smart Enough® Factory Program has demonstrated the importance of capability and capacity that team members like Morgan and Wyatt bring to the Program.'

SAM MCNAUGHTON, DI-AS

Sam McNaughton, General Manager for SEF delivery partner Defence Industry Advisory Services (DI-AS), is convinced of the mutual benefit of companies working with interns. 'Industry often lacks the digitisation experience and capacity to deliver continuous improvement projects in addition to business-as-usual operational demands, so an intern can be a tremendous asset to an SME. Importantly, exposing interns such as Morgan and Wyatt to real-world business problems is critical to prepare them for a role in industry once they graduate.'

For both Morgan and Wyatt, the experience has positively impacted their career aspirations and prompted new ambitions to pursue careers in Australia's advanced manufacturing and defence sectors. /

Celebrating collaboration

In April, DMTC returned to Hotel Realm in Canberra for its 2023 Annual Conference. The Annual Conference aims to provide vital strategic context for DMTC's portfolio of programs and projects, as well as delivering critical insights into Australia's defence innovation ecosystem.

The 2023 Annual Conference showcased advances in technology and in Australia's sovereign industrial capability, celebrating the impressive work being done across the Company and its partner group. A highlight of the event was a series of engaging presentations from early career researchers and students attached to DMTC programs and projects.

This year's Annual Conference took on an even greater significance, taking place in the lead-up to the highly anticipated public release of the DSR. This provided the opportunity for the Annual Conference to commence with several scene-setting keynote presentations that aimed to highlight this upcoming period of transition for Defence, while also emphasising the critical need for sustained, long-term and appropriately targeted investment in defence technology development. Keynote presenters included Dr David Kershaw (Chief Strategic Planning and Engagement – Defence Science and Technology Group), Fran Rush (Chief Counsel, Commercial and First Assistant Secretary Australian Industry Capability – Department of Defence), Brigadier Isaac Seidl (Director General Operation Health – Joint Health Command), Dr Mark Hodge (CEO – DMTC), Dr Leigh Farrell (Head – Health Security Systems Australia), and Peter Chesworth (Deputy Chief Executive – Universities Australia).



▲ Brigadier Isaac Seidl speaks about health security as a fundamental pillar of Australia's national security at DMTC's Annual Conference.

▲ Top: Chris Deeble AO CSC delivers the keynote address at the Conference's Gala Dinner.



▲ DMTC's Gala Dinner presented an opportunity for attendees to celebrate the individuals, project teams, and industry and academic partners that made outstanding contributions throughout the year.

The opening plenary session of the Annual Conference was followed by a variety of technical presentations from DMTC programs and projects, along with insightful panel discussions spanning DMTC's diverse portfolio of activities. These sessions highlighted the project outcomes achieved and capabilities advanced across the year. DMTC's unwavering commitment to nurturing the next generation of STEM talent was demonstrated through a Student Showcase session, featuring presentations from early career researchers and students linked to project teams or DMTC's Industry Capability Development Program.

On the evening of the first day of the Annual Conference, DMTC hosted its Gala Dinner, which included a keynote address from Chris Deeble AO, CSC (Deputy Secretary – Capability Acquisition and Sustainment Group) and the presentation of the Company's Awards for Excellence. Mr Deeble shared his perspective on the pivotal role of the Capability Acquisition and Sustainment Group in the evolving national security landscape and underscored the significance of procurement and organisational reform across Defence.

At the Gala Dinner, Dr Roger Lough AM was honoured with a DMTC Fellowship in recognition of his significant, meritorious contribution to the goals and objectives of DMTC Limited.



▲ DMTC CEO Dr Mark Hodge sets the scene on the first morning of the Conference.

The following day, the final plenary session focused on challenging attendees to think more broadly about promoting more inclusive workplaces, and allowed for reflection on the progress DMTC has made since the announcement of our Diversity & Inclusion Strategy at the 2022 Annual Conference.

DMTC is especially grateful to the diverse group of more than 60 presenters over the three-day event for contributing to the experience of all attendees. ▮

Governance & Organisation: Highlights



Gala Dinner
featuring the
2023 Awards for Excellence



High achievers

A prominent feature of the DMTC Annual Conference is the opportunity to celebrate the remarkable achievements of individuals and teams across DMTC's extensive portfolio of projects, and Australia's Defence R&D ecosystem more broadly. In 2023, Awards for Excellence were presented across seven categories.



Research Partnership Award

The Research Partnership Award recognises an individual DMTC project team member from industry who has provided invaluable industrial leadership or context to inform the application of research outcomes. This award was presented to **Liberty Wagner** of Bruck Textiles. Liberty has been a key member of the DMTC-led project that is advancing the development of breathable fabrics for combat uniforms that protect the wearer from a range of aerosolised threats (see page 18).

Project Leadership Award

Dr Joanne Macdonald from the University of the Sunshine Coast and Australian start-up BioCifer was awarded the Project Leadership Award. Joanne and her project team developed, and are now commercialising, a rapid diagnostic platform technology that accelerates point-of-care detection of bacteria and viruses, providing a critical capability advantage for deployed ADF personnel.

Collaboration Award

Often described as the MVP Award, this year's Collaboration Award was given to **Associate Professor Richard Taylor** from the Queensland University of Technology (QUT). This award recognises individuals who embody the spirit of collaboration, which is so integral to DMTC's strategic mission. Richard's nominators stressed his exceptional and inclusive leadership, harnessing a large multidisciplinary team of esteemed researchers from QUT's Power Engineering Research Group and the University of Wollongong's Facility for Intelligent Fabrication. Richard has played a pivotal role in managing projects within DMTC's Australian Maritime Superconducting Technologies (AMSTECH) Program. His leadership cultivates a culture of collaboration and teamwork, resulting in the successful completion of numerous research projects and earning national and global credibility for the Program.



▲ Members of the Smart Enough® Factory delivery team that received the DMTC Capability Improvement Award at the DMTC Annual Conference in 2023.

Capability Improvement Award

The Capability Improvement Award was presented to the **Smart Enough® Factory Delivery Team** for achieving a significant breakthrough in technical capability within its field of endeavour. To date, this Program has enabled more than 60 SMEs across Australia to embark on the digitalisation of their manufacturing operations and identify tailored next steps appropriate to their businesses (see page 34).



Industry Partnership Award

As a complement to the Research Partnership Award, the Industry Partnership Award honours an individual researcher who has significantly contributed to the industrial capability developed in a DMTC project. This year, the Industry Partnership Award was presented to **Dr Luiz Bortolan Neto** from ANSTO. Luiz has dedicated seven years to successive projects related to blast response modelling and life-of-type assessments for naval shipbuilding steels, playing a vital role in developing and enhancing complex deformation and failure algorithms.



SoldierOn Award

The SoldierOn Award, presented to an individual who embodies DMTC's values and possesses a strong work ethic as a 'quiet achiever', was awarded to **Jasmijn Westerveld** from Synthesis Technologies. Jasmijn's exceptional skills and talent significantly contributed to Synth's efforts to deliver a near real-time 3-D visualisation capability (see page 22). Jasmijn demonstrated dedication to her work, exceptional leadership skills, an impressive ability to engage with customers, and an unwavering willingness to assist her colleagues.

Early Career Researcher Award

Dr Lawrence Webb from Deakin University received the Early Career Researcher Award. Having received his PhD in 2019, Lawrence has been an integral member of a HSSA project that is developing a new, modified sub-unit vaccine against Q Fever for use in humans. His contributions have been pivotal to the project's success, including the development of novel tests to analyse vaccine material. /

Finance

DMTC maintained strong collaborations with defence, the National Security community, health security agencies, research and industry partners to engage in a diverse range of R&D and innovation endeavours throughout the reporting period.

DMTC continued to deliver activities across a broad portfolio of R&D and innovation programs, and secured new funding for a range of activities, including in relation to sovereign capability assessments.

Through DMTC's co-investment model, this investment leveraged additional cash and in-kind investment from Australian industry, research agencies, state government and other Defence Program sources. DMTC continued to demonstrate its focus on supply chain development with activities extending into regional Victoria, New South Wales, South Australia and Tasmania.

The Company took further steps to embed Health Security Systems Australia, the first division of DMTC Limited, to build on technology developments in the MedCM Program and extend into other priority areas of health security.

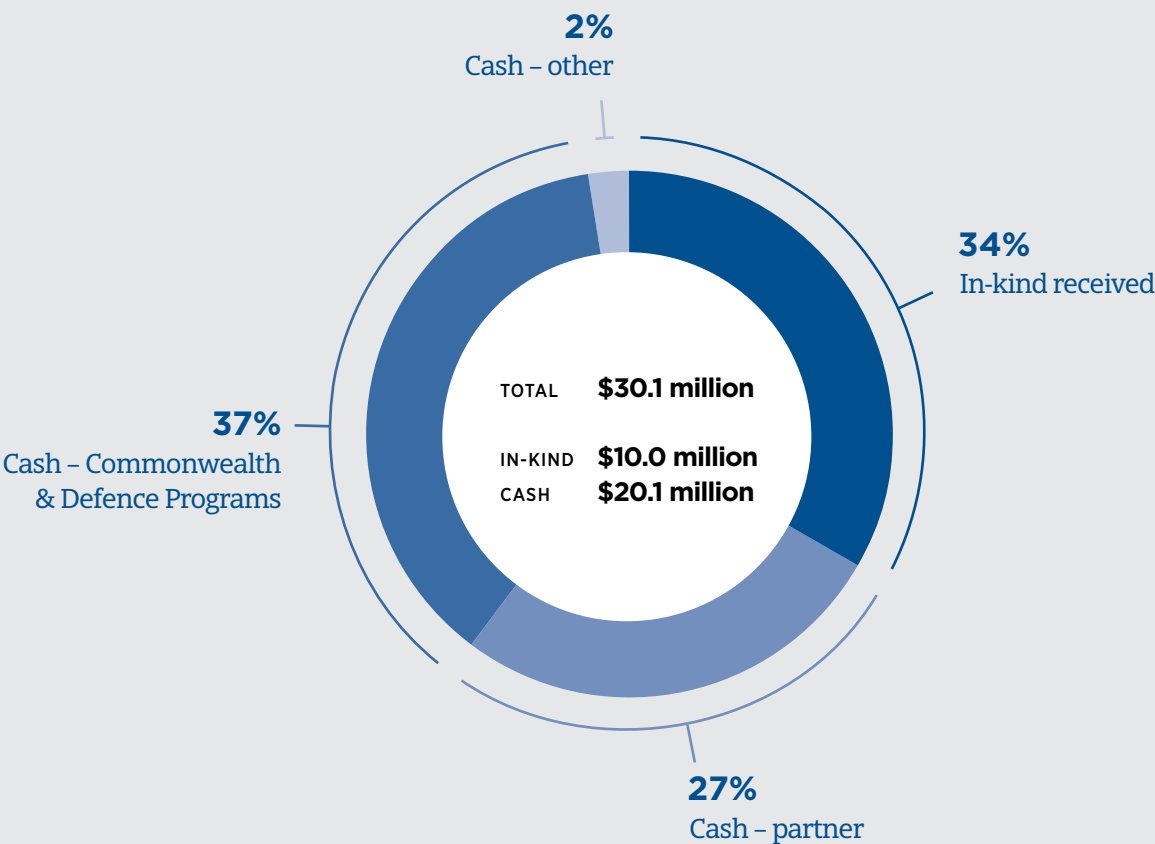
Resources applied for in the financial year amounted to \$32.5 million, including \$10.0 million of in-kind contributions from industry and research partners. Resources applied for the year translated to a massive 14.4% increase over prior year activity. A net surplus of \$101,000 was realised for the year ending 30 June 2023, lower than the prior year. This net surplus has primarily resulted from an increased utilisation of the Program Opportunity Reserve to support heightened enabling research activity.

Cash funding and associated in-kind contributions received for the financial year totalled \$30.1 million, supplemented by an increased utilisation of the Program Opportunity Reserve to support heightened enabling research activity, noting the ongoing slowdown in current Defence activity.

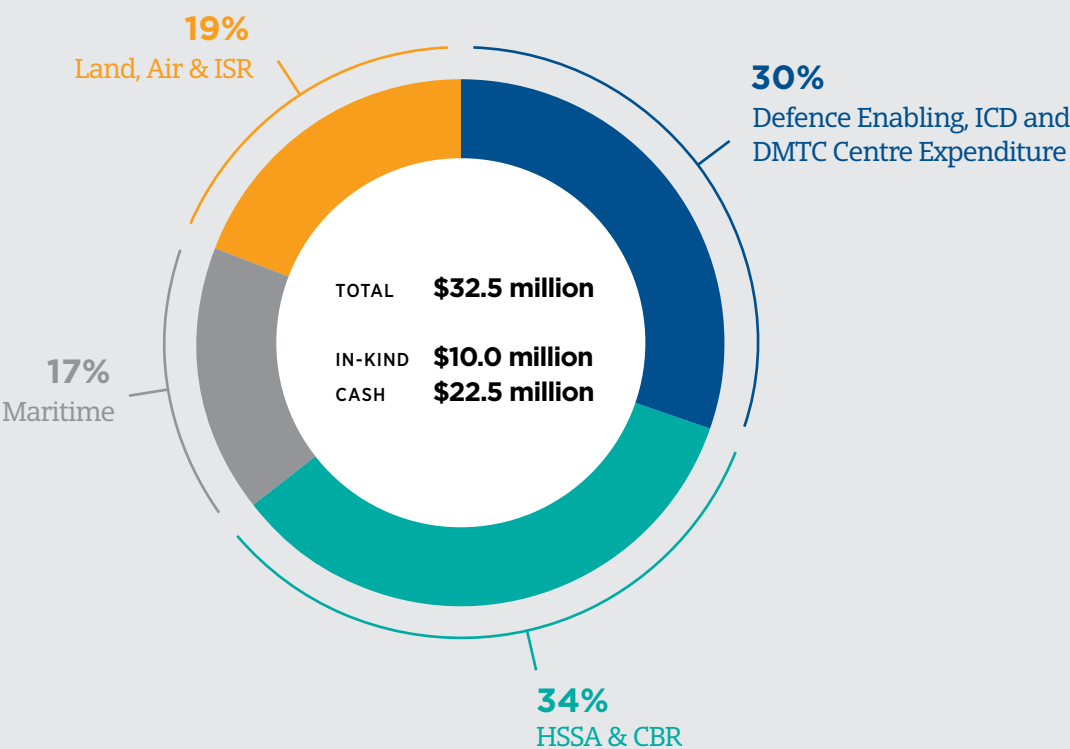
Cash reserves including cash on deposit totalled \$33.6 million as of 30 June 2023, and included \$27.7 million of unearned revenue from Commonwealth and Defence program funding. These funds have been committed to fulfil existing and new research activities in future periods.

Copies of the Company's statutory Financial Report for the year ending 30 June 2023 are available on request. [/](#)

Resources received



Resources applied



Governance & Corporate Responsibility

The DMTC Board is responsible for overseeing the management and strategic direction of the Company. Each Director is elected for a two-year term by the Company's members at the Annual General Meeting (AGM). As required in DMTC's Constitution, the Directors have a comprehensive and complementary range of skills and experience.

AGM and Participant Workshop

The DMTC AGM was held on 2 December 2022. In accordance with the Company Constitution, Directors Patricia Kelly, Michael Grogan and Marc Peskett retired by rotation at the meeting, were re-nominated and re-elected for a new two-year term. As a companion to the AGM, DMTC's CEO presented an update on the Company's achievements for the financial year ending 30 June 2022 and anticipated future activities.

Audit, Risk and Remuneration Committee

The Audit, Risk and Remuneration Committee is a formal sub-committee of the DMTC Board. The Committee assists the Board in its decisions on financial reporting, internal control structures, internal and external audit functions, compliance, governance and risk management systems and remuneration policies. The Committee is comprised solely of Non-Executive Directors of DMTC, the majority of whom are independent.

Guest of the Chair Fellowship

In April, DMTC announced Yang-Ming Goh as the inaugural recipient of a DMTC Guest of the Chair Fellowship.

An electrical engineer at BlueScope, Yang-Ming is currently a Leadership scholar within the Australian Academy of Technological Sciences and Engineering (ATSE) Elevate: Boosting Women in STEM program, which is providing financial support and additional training opportunities while she pursues a Master of Business Administration.

DMTC has designed the Guest of the Chair position as a mentoring and Board observership experience within Australia's innovation ecosystem. As the Guest of the Chair, Yang-Ming will gain skills and capacity as a future industry leader, and a new level of management, financial planning and corporate governance experience.

DMTC believes the opportunity is a win-win for the organisation, for Yang-Ming and for the sector.

'As Guest of the Chair, I've had the privilege of observing governance as it happens in real time,' Yang-Ming said. 'Guided by invaluable mentorship from the Chair and complemented by learnings from the Australian Institute of Company Directors' Foundations of Directorship course, my understanding and respect for director duties, responsibilities and governance processes have broadened immensely. This experience has also given me insights into the diverse network of organisations, including DMTC and its partners, that make important contributions to Defence. I am grateful to DMTC for facilitating this valuable experience.'

Environmental and Social Impact

The DMTC Management Team continues to work towards realising its commitment to corporate social responsibility. In addition to initiatives such as social impact procurements and eliminating avoidable business travel, individual team members engage in corporate volunteering programs. On behalf of the team, the Company makes an annual donation to financially support the work of Defence-related charities. /

PARTNERS





Tony Quick

CHAIR
MA



Patricia Kelly

DIRECTOR
BA, GAICD



Marc Peskett

DIRECTOR
BBUS, CA (AUSTRALIA),
FTI (AUSTRALIA), MAICD



Michael Grogan

DIRECTOR



Dr Caroline McMillen AO

DIRECTOR
PHD, BA (HONS), FAHMS



Dr John Best

DIRECTOR
PHD, BSC (HONS), MBA, GAICD



**Air Marshal (Retd)
Dr John Harvey AM**

DIRECTOR
PHD, MIS, MLITT, BSC, BA, GAICD

Governance & Organisation: Management Team



Dr Mark Hodge

CHIEF EXECUTIVE OFFICER



Steve Evans

CHIEF FINANCIAL OFFICER



Jim Arthur

CHIEF SECURITY OFFICER
CHIEF COMMERCIAL OFFICER



Dr Matt Dargusch

CHIEF TECHNOLOGY OFFICER,
PROGRAM LEADER
AIR



Dr Leigh Farrell

HEAD
HSSA



Dr Felicia Pradera

GENERAL MANAGER
HSSA



Dr Martin Veidt

PROGRAM LEADER
ENABLING TECHNOLOGIES



Charlotte Morris

PROGRAM LEADER
INDUSTRY CAPABILITY
DEVELOPMENT



Deepak Ganga

HEAD
PROGRAM MANAGEMENT



James Sandlin

HEAD
NEW CAPABILITY



Shraddha Gatiya

FINANCE MANAGER



Miles Kenyon

HEAD
MARITIME STRATEGY



Megan Champion

MANAGEMENT ACCOUNTANT



Callum Evans

DEVELOPER
INDUSTRY CAPABILITY
DEVELOPMENT



Dr Stephen van Duin

PROGRAM LEADER
MARITIME



Bronwynne McPherson

OFFICE AND BUSINESS SUPPORT
MANAGER



Steven Champion

PROJECT MANAGER
INDUSTRY CAPABILITY
DEVELOPMENT



Elisa Woodlock

QUALITY ASSURANCE MANAGER,
SECURITY OFFICER



Steve Patrick

HEAD
STRATEGY,
GENERAL COUNSEL



Dr Scarlet Kong

PROJECT MANAGER
APMA PROGRAM



Harry Baxter

HEAD
GOVERNMENT RELATIONS



Dr Emily Kibble

PROJECT MANAGER AND ANALYST
HSSA



Patrick Crosling

ASSOCIATE
GOVERNMENT RELATIONS



Sharne Millen

ADMINISTRATIVE ASSISTANT



Dr Julia Cianci

PROGRAM LEADER
MEDICAL COUNTERMEASURES



Fred Eske AM

GENERAL MANAGER
INNOVATION & MARITIME
CAPABILITY DEVELOPMENT



Amy Conrad

PROGRAM LEADER
MODELLING & SIMULATION AND
SENSING SYSTEMS



Dr Luke Hamlin

SECONDEE
DSTG NAVIGATE PROGRAM

Diversity & Inclusion

DMTC is committed to diversity and inclusion because it is the right thing to do and has been demonstrated to enable better business outcomes.

DMTC's Diversity & Inclusion Strategy was launched in April 2022. The commitments made in both the Strategy and in the Company's Reconciliation Action Plan (RAP) are being tracked and regularly reported at management and Board levels, as well as through annual Impact Surveys conducted by Reconciliation Australia.

'While I have a role in laboratory-based biochem research in my sights once I graduate, the time I've spent with the HSSA team in DMTC and the people I've met have helped me see the value of project management as a skill set, and shown me the value of multi-party collaborations.'

**ISAAC KATHNER,
DMTC CAREERTRACKERS INTERN**

An internal Diversity & Inclusion Working Group is providing direction and momentum for initiatives to improve diversity and inclusion. DMTC's end goal is to integrate diversity and inclusion principles, learned through implementation of the Strategy and RAP, into everyday business to create and sustain a diverse organisation with inclusion embedded in its DNA.



▲ (Left to right) ANU Senior Lecturer Cameron Roles with DMTC CEO Mark Hodge at the DMTC Annual Conference in Canberra.

Perspectives on diversity

DMTC sees its role in relation to promoting diversity and inclusion as an opportunity for influence among our partner group. At our Annual Conference in April, DMTC was delighted to host a session examining different, real-world perspectives on inclusion.

Cameron Roles, Australian National University senior lecturer and Vision Australia board member, challenged attendees to consider the employment of people with a disability as an opportunity to involve proven and resilient problem-solvers in a highly contested and pressured labour market. Marcaill Roe, CEO of STEM Returners Australia, spoke about the benefits of employing STEM specialists coming back into the market after a career break, and Lee Davelaar, Pfizer Australia executive shared insights on behalf of the Pharma Australia Inclusion Group.

A notable focus of the session was to seek to empower DMTC and its partners to take positive action, rather than simply admiring the problem.

Legal Services

Reconciliation in action

DMTC has taken a number of important steps in delivering on commitments in its RAP.

In July, DMTC took on its first intern under a partnership with CareerTrackers, a national initiative supporting undergraduate Indigenous university students by linking them with employers to participate in paid, multi-year internships. Students engaged in CareerTrackers internships have an excellent track record in completing university. Isaac Kathner, a final-year undergraduate student at the University of Adelaide, is working with the HSSA team at DMTC.

In March, the DMTC Board of Directors issued a public statement in support of the *Uluru Statement from the Heart* and the call for a First Nations Voice to the Australian Parliament. DMTC staff have also participated in a national series of roadshows hosted by Reconciliation Australia. /

Consolidating capability

The Office of the General Counsel supports DMTC's current operations and development, playing a key role in maintaining exceptional outcomes in collaborative innovation, and contributing to the organisation's evolution as a primary stakeholder in the sovereign research, industrial and Defence ecosystems.

In an increasingly sophisticated operational and strategic environment, the General Counsel provides dedicated legal coordination and advice in support of corporate and program leadership. As multi-party, multi-jurisdictional projects with sophisticated IP arrangements become the norm, it is critical that pre-execution decisions are made in full consideration of relevant factors and complexities. Working closely with our partners and stakeholder agencies, the General Counsel ensures that DMTC's impressive output in development and innovation is properly buttressed by the right legal protections and arrangements.

The in-house legal function provides program leaders with fast, easy-reach support, increasing the tempo and quality of DMTC's operations. The General Counsel also plays a role in ensuring DMTC is abreast of the ever-evolving strategic landscape and that its corporate and operational structures pre-empt and adapt to changing requirements.

The General Counsel has taken carriage of advice on broader issues, including Defence Export Controls, interjurisdictional engagement, IP, and Freedom of Information, ensuring that DMTC's stewardship of projects remains in accordance with the highest standards and that it retains its position as a trusted partner of Defence and defence industry.

As DMTC grows and adapts in response to the evolving priorities of the Defence and national security community, the General Counsel will continue to provide advice and support to the management team and the Board on specific elements of DMTC's strategy, structure and systems. /

PARTNER

CareerTrackers™ 

Quality & Security

Striving to improve

Quality systems accreditation remains a vital asset for DMTC in its engagement with the Department of Defence and, more broadly, in the Australian and international defence and national security sectors.

In the reporting year, DMTC was re-certified against ISO 9001:2015 and ISO 44001:2017 standards. The ISO benchmark represents a globally recognised endorsement of our systems and processes.

DMTC's focus on managing collaborative projects, as a specialist endeavour, pre-dates the development of the ISO 44001 standard. A focus on applying structural flexibility in the way that multi-party collaborations are managed, with a view to delivering value for all partners, has been acknowledged in the defence sector for many years, and more recently through this certification outcome.

The ISO certifications are a significant recognition of DMTC's collaborative model, but the Company's approach to quality and improvement goes beyond an annual stream of audits and compliance.

Building on a long history of involvement in the internationally benchmarked Supplier Continuous Improvement Program, DMTC continues to conduct annual self-assessments. These are useful as a 'health check' on the organisation, and to monitor the ongoing strategic focus and alignment of continuous improvement initiatives.

Through both of these initiatives, DMTC continues to maximise the effectiveness and efficiency of its program delivery, together with its supporting corporate systems and operations.

Participants in DMTC projects, along with government agency customers, can have confidence that DMTC's focus remains squarely on the delivery of practical, tangible outcomes for Australia's defence capability and support for the local defence industry and research sectors. /

Security

DMTC continued to monitor and review security requirements and maintained its Defence Industry Security Program (DISP) membership during the financial year. Security training has been provided to all team members to inform them of emerging risks and good practices, and the DMTC team members who hold formal security clearances have continued to comply with mandatory training and other requirements. /

PARTNERS



Glossary

ADF	Australian Defence Force
ADFMIDI	Australian Defence Force Malaria and Infectious Disease Institute
ADSTAR	Australian Defence Science and Technology and Research
AGM	Annual General Meeting
AIR	Artificial Integrated Respiratory
AMSTECH	Australian Maritime Superconducting Technologies
ANSTO	Australian Nuclear Science and Technology Organisation
APMA	Advanced Piezoelectric Materials and Applications
ASCA	Advanced Strategic Capability Accelerator
ATSE	Australian Academy of Technological Sciences and Engineering
BAESA	BAE Systems Australia
BAESMA	BAE Systems Maritime Australia
CASG	Capability Acquisition and Sustainment Group
CBRN, CBR, CB	Chemical, Biological, Radiological and Nuclear
CFRP	Carbon-fibre reinforced polymer
CSIRO	Commonwealth Scientific and Industrial Research Organisation
DI-AS	Defence Industry Advisory Services
DISP	Defence Industry Security Program
DSI	Defence Science Institute
DSR	Defence Strategic Review
DSTG	Defence Science and Technology Group

GWEO	Guided Weapons and Explosive Ordnance Group
HSSA	Health Security Systems Australia
HTS	High temperature superconductor
HTSA	High temperature sub-assemblies
ICD	Industry Capability Development
IP	Intellectual property
JCU	James Cook University
MedCM	Medical countermeasures
MWIR	Midway infrared
PhD	Doctor of Philosophy
POC	Point of care
QUT	Queensland University of Technology
RAAF	Royal Australian Air Force
RAP	Reconciliation Action Plan
R&D	Research and development
RMIT	Royal Melbourne Institute of Technology
SEF	Smart Enough [®] Factory
SME	Small to medium-sized enterprise
STEM	Science, technology, engineering and mathematics
SUT	Swinburne University of Technology
SWAP-C	Size, weight, power and cost
TRL	Technology Readiness Level
UAS	Uncrewed aerial systems
UNSW	University of New South Wales
UOW	University of Wollongong
UQ	The University of Queensland

Credits

Photos

Page(s)

Australian Government Department of Defence	Cover, 5, 7, 9, 14, 15, 17, 19, 20, 28, 29, 35, 55
Darren W. Begley et al. A Structural Biology Approach Enables the Development of Antimicrobials Targeting Bacterial Immunophilins. <i>Antimicrob. Agents Chemotherapy</i> . 2014, 58 (3), 1458–1467.	13
T J Garvie Photography	13, 18, 34, 38, 42
Mike Baker Photography	13, 23, 26, 35, 48, 49
Jovian Kan/Unsplash	14
BAE Systems Australia	16, 32
Skyborne Technologies	17
Opt Lasers/Unsplash	21
Lily Attwood. Application of CFRP Material Systems to Internal Structure on High-speed Vehicles. Presentation at DMTC Annual Conference. April, 2023.	21
Synthesis Technologies	22
AMDA Foundation	23
University of Wollongong	24
Steve Keough Photography	27, 39, 40, 41, 42, 43, 50
James Cook University	30
Frank600/istockphoto	30
ZIP Diagnostics	31
Fusion Medical/Unsplash	31
James Henry Photography	47, 48, 49
Simona Janek Photography	48, 49

Publication management

Harry Baxter, Patrick Crosling & Emily Kibble

Design

BLKBOX Brand Consultants

► Royal Australian Navy Boatswains Mate Able Seaman David Nona takes look-out from the bridge of HMAS *Canberra* during Indo-Pacific Endeavour 2023.





DMTC LIMITED

Wurundjeri Country
Level 1 – 620 High Street
Kew, VIC 3101, Australia

Phone +61 3 8840 5200
Email information@dmtc.com.au
Web dmtc.com.au
Or follow us on LinkedIn or on X @DMTCLtd



DMTC