

CAPABILITY THROUGH COLLABORATION

From the CEO

While I have heard from many of you individually, this is my first formal opportunity to reflect on the success of our Annual Conference in March. I was delighted with the quality of the speakers, the posters highlighting achievements by our project teams and the opportunities to engage openly across the two days.

A highlight, of course, was the keynote address from the Minister for Defence Industry, the Hon Christopher Pyne MP, which set a positive and constructive tone for the Conference. A number of people have enquired about the next steps following on from the Minister's clear direction for DMTC and Defence to work on a pathway for DMTC's continuing role with the Defence Innovation Hub into the future. These discussions are now underway and progressing well.

It was also our very great pleasure to welcome Senator David Fawcett, a long-time supporter of DMTC, as the special guest representing the Government at our awards dinner. I want to highlight and pay tribute to the achievements of every individual, and team, who were nominated for our awards. All should be very proud of this endorsement from your peers and your project leaders. While there does always have to be a winner, with this year's awards in particular they were very much – in my mind – a case of the 'first among equals'.

In a recent press interview I had the opportunity to reflect on the 10 years of achievements that the DMTC community celebrates this year. I'm proud of the industrial partnerships that we have built and maintained, and of the brilliant research that we have commissioned or supported.

The interview provided another opportunity for me to reinforce the company's commitment to putting the warfighter at the centre of our considerations. This, along with a commitment to effective collaboration, is non-negotiable in terms of our business model. Without these twin components in place, the model breaks.

This newsletter brings you up to speed on a range of recent announcements and achievements. Of particular note is the Queensland Government's support for our Industry Capability Development program.

This is also a good opportunity to welcome a new member of our head office team. Ms Anthea Silom has recently joined DMTC to support Steve Evans in the finance role. I look forward to working with Anthea and welcome her on behalf of all in the DMTC community.

Dr R. Mark Hodge
CEO, DMTC

Fuel demonstrator showcases alternative energy



Pictured: the fuel cell system demonstrator developed by DMTC partners RMIT and Thales Australia.

A DMTC project has developed a fuel cell auxiliary power unit (APU) concept demonstrator that could potentially replace or supplement diesel generators on armoured vehicles in the field.

The demonstrator was developed by lead researcher Mr Reza Omrani and his team at RMIT Bundoora with the collaboration of industry partner Thales Australia, and will be showcased on June 6 at RMIT's Green Engines Research Facility.

Project Leader Mr Rami Odish, who is a Design/System Engineer at Thales Australia, said the system uses a hybrid hydrogen storage method by utilising metal hydrides and high-pressure tanks packaged inside a standard locker typically found on armoured vehicles.

He said that, while fuel cell technology was not new, it had never been adopted for use on Australian Army vehicles due to the Army's single fuel policy and perceived risks associated with hydrogen.

While not actually fitted to a vehicle, the demonstration will show the fuel cell system's capability to operate as an APU on board an armoured vehicle.

Hydrogen fuel cells are quiet (can be used in silent watch mode), create a very low heat signature and emit only water vapour. They require very little servicing and few repairs due to the lack of moving components. This has a direct implication on the lifecycle costs incurred by the end user, making them a favourable option compared with diesel generators.

The project team proposes that, while hydrogen infrastructure is not as common or available as conventional fuels, it can be generated onsite as required, via electrolysis. The team's techno-economic study found that this alternative may offer a long-term cost benefit over purchasing and transporting diesel.

New partners begin sensor systems projects

Two new projects have commenced under DMTC's High Altitude Sensor Systems Program, which aims to build industrial capacity in sensor and on-board data processing technology for unmanned aerial systems and small-satellite platforms.

The first project – involving new DMTC partners Seaskip Pty Ltd and UNSW Sydney's Australian Centre for Space Engineering Research (ACSER) – aims to develop miniaturised, high frequency sensor systems for deployment on cubesats and other unmanned aerial platforms. This will advance passive radar technologies related to the processing of both line-of-sight and reflected GPS signals in real time.

The initial application of this technology could enable Defence to deploy unmanned aerial vehicles to accurately estimate sea-state conditions, leading to improved safety, speed and fuel consumption for Navy vessels.

The second project will advance the development of compact hyperspectral imaging sensors and is expected to significantly improve the military utility of hyperspectral sensor systems.

This project team comprises New South Wales-based company, HyVista, the University of Technology Sydney and DST Group. The initial focus will be on developing and testing prototype systems and data processing algorithms.

The HASS Program benefits from an investment by CSIRO of \$2.7 million, which will create, through the DMTC's co-investment model, a total program value of more than \$6 million over three to five years.

For more information click [here](#).

DMTC wins Innovation Hub contract for body armour

A new Innovation Hub contract announced by Minister for Defence Industry the Hon. Christopher Pyne MP, will advance the development of lighter body armour for soldiers.

The DMTC project will receive \$287,000 funding from the hub to develop lighter armour with improved protection levels and functional integration.

It builds on work already completed with the Diggerworks organisation – an award-winning partnership involving DMTC, the Australian Army and the Department of Defence (through DST Group and CASG).

DMTC CEO Dr Mark Hodge said every dollar of the contract would be passed on to DMTC's industry and research partners.

"The warfighter will always be at the heart of DMTC's considerations and we will work to deliver this next phase of soldier protection systems for our dismounted personnel in harm's way," he said.

Minister Pyne said Innovation Hub contracts would further develop innovative technologies to maintain the ADF's warfighting advantage.

To view the Minister's media release, click [here](#).

Delegates flock to DMTC's annual conference and awards



Pictured: Minister for Defence Industry, the Hon. Christopher Pyne MP addresses DMTC's annual conference.

This year's annual conference was an outstanding success, with expansion of the organisation attracting new delegates and keynote speakers from Australia and overseas.

In July 2018, DMTC will celebrate 10 years of service and commitment to enhancing Australia's Defence and national security.

Australia's Minister for Defence Industry, the Hon. Christopher Pyne MP, told delegates that DMTC continued to have a 'vital' role to play, with the prospect of more than a dozen new industry and research partner organisations joining it in the first half of 2018 alone.

DMTC was also honoured to have several keynote speakers share their insights at the conference, including:

- Mr Paul Johnson of the Centre for Defence Industry Capability (CDIC) Advisory Board
- Mr Brent Clark of Naval Group Australia
- Air Vice-Marshal Tracy Smart, Commander Joint Health and Surgeon General of the ADF
- Mr Brian Hickey of Defence's Capability Acquisition and Sustainment Group
- Dr Rob Grenfell of CSIRO's Health and Biosecurity Business Unit
- Mr Chris Hewett of the Australian Geospatial Intelligence Organisation.

The DMTC Awards for Excellence were presented by DMTC CEO Dr Mark Hodge and Senator David Fawcett at the annual conference dinner at the National Gallery.

DMTC Maritime Program Leader Dr Stephen van Duin won the prestigious DMTC Collaboration Award for his outstanding leadership of the program. Dr van Duin is an Associate Professor at the University of Wollongong, a long-time research partner of DMTC.

The DMTC Board inducted three DMTC Fellows at the event, in recognition of their contribution to the establishment and success of the organisation.

Click [here](#) for a full list of award recipients.

DMTC gains insight into factory digitalisation in Germany



Pictured: Australian delegates visiting Siemens in Germany to learn about their implementation of Industry 4.0.

Australian defence manufacturing representatives have toured defence industry companies in Germany with the support of Siemens Australia, to learn how the current trend of automation and data exchange in digital manufacturing technologies is progressing there.

Australia and Germany are collaborating to improve bilateral relations, including through the work of the Prime Minister's Industry 4.0 Taskforce.

DMTC Maritime Program Leader Dr Stephen van Duin, who travelled with 11 other Australians, said the April trip had been invaluable in light of the large Australian defence contracts held by Australian subsidiaries of German companies.

He said it was interesting to see how digitalisation was changing modern factories.

"The software tools being developed for the digital factory of today will be transformational in the context of Australia's naval shipbuilding and land vehicle manufacture.

"As factory digitalisation, or 'Industry 4.0' technology, advances we will be looking at how the key enabling technologies that we're developing in DMTC can make a major contribution."

Dr van Duin said attending the world leading fair, Hanover Messe, had been a highlight: "The Hanover Messe is the biggest fair in the world for digital technologies and just to see what the current trends are was really important for our forward planning."

The delegation also toured Luerssen Shipyards, Rheinmetall land vehicle manufacturing facilities and Siemens Corporate Technology division.

Benchmarking workshops get the go-ahead in Queensland

DMTC's Industry Capability Development Program continues to grow, with recent confirmation of funding from the Queensland Government for an additional four workshops in regional centres.

DMTC is working closely with Defence Industries Queensland to help manufacturers maximise opportunities to enter defence industry supply chains.

The DMTC program aims to create a network of 'Defence-ready' companies across the country with benchmarked, globally competitive capabilities. It is a natural fit with DMTC's strong focus on engaging SMEs in its research and development activities.

Following a successful pilot in the Mackay region in 2017, the additional workshops funded in Queensland will target companies in Cairns, Townsville, Brisbane and Rockhampton.

Click [here](#) for more information.

ANSTO hosts careers workshop for DMTC students

PhD students participating in DMTC's Education Program have attended a professional development workshop at ANSTO and a tour of its facilities.

The workshop in May was run in collaboration with the Research Training Centre for Naval Design and Manufacturing (RTCNDM) and focused on career pathways.

Speakers from Thales Australia, ANSTO, DST Group and the University of Wollongong, provided examples of those who had navigated successful careers in science and research in the Defence sector.

A panel session to conclude the workshop gave the 26 attendees a chance to share their own stories and question presenters.

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