



Australian Government

Department of Defence
Science and Technology

PARTNERING
FOR IMPACT

15-16 AUGUST
DST EDINBURGH
SOUTH AUSTRALIA

2019
SCINDICATE

CONNECTING DEFENCE SCIENCE WITH INDUSTRY AND ACADEMIA

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WELCOME TO SCINDICATE 2019



Welcome to SCINDICATE 2019 hosted at our DST Edinburgh site in Adelaide.

I am pleased to see the growing interest in this flagship DST event which brings together our partners in industry, universities and research agencies from across Australia. It is a clear indication of the strong appetite for research collaboration to achieve capability outcomes for Australia's defence and national security.

Partnerships are critical in meeting Defence's technology challenges and it is equally important to think of the impact that these partnerships are delivering for Defence capability. Thus, for this year's event we have chosen the theme *Partnering for Impact* to focus on the end-result of our collaborative R&D efforts for Defence. You will hear from a range of keynote speakers from industry, academia and Defence on this theme.

During SCINDICATE 2019 our aim is to involve our partners more closely – and at the outset – in strategic discussions about how we can work together towards solving Defence's big challenges.

The centrepiece of the new Defence Science and Technology strategy, due to be launched early 2020, is a suite of aspirational Science and Technology Missions aimed at delivering leap-ahead capabilities for Defence.

Critical to the success of this Missions approach is the Next Generation Technologies Fund (NGTF). SCINDICATE provides the opportunity for you to hear about the NGTF outcomes and

importantly how the NGTF will be harnessed to help us deliver on the Science and Technology Missions. Your input will be invaluable in this venture.

There's a great range of activities on offer at SCINDICATE 2019 over the two days. I encourage you to take advantage of the laboratory tours, demonstrations, workshops, presentations, business match-ups and networking opportunities during your visit.

Our researchers are ready to explore business opportunities and collaborative partnerships that will be mutually beneficial.

We also welcome your feedback so that we can keep improving our SCINDICATE events.

Thank you for participating in SCINDICATE 2019 *Partnering for Impact*.

We hope that your visit will be both productive and rewarding.

Professor Tanya Monro

Chief Defence Scientist

INFORMATION

Arrival and departure

On both event days, all delegate registration and reserved vehicle parking is being coordinated within a secure area on the DST Edinburgh site.

Following a positive identification check on arrival, delegates will park or be dropped off and then escorted by bus to the event site; name badges will be issued and these need to be worn at all times.

When ready to depart SCINDICATE, please make yourself known to event staff and they will arrange your escort to the exit.

Taxi and rideshare

Delegates requiring taxis or Ubers for departure should pre-book and arrange to be collected; taxis/Ubers can also be booked for you from the SCINDICATE information desk.

Taxis will collect you from the designated SCINDICATE drop-off and pick-up zones. Our address is Third Avenue, Edinburgh and ask your ride to follow the event signs around the corner to collect you.

The travel time from the airport to DST Edinburgh is approximately 60 minutes in medium traffic.

Tech Deck

Need to charge and check your emails? Visit our Tech Deck stations located in Mission HQ, Impact Zone and The Collaboratory for access to Wi-Fi, power and comfortable seating.

Name Badges

Please wear the provided name badges and lanyards at all times while on the DST Edinburgh site. This event access pass does not permit you access to any other areas on the DST Edinburgh site.

Mobile phones, cameras and electronic devices

Delegates are reminded that while electronic devices (including mobile phones, laptops and personal electronic devices such as Fitbits) can be used in communal areas, they are prohibited from being taken on all tours. Cloaking facilities are available at the commencement of your tour at the Information Desk.

Refreshments

Morning tea, lunch and afternoon tea will be provided in the Impact Zone (see program).

Presentations

The event welcome will be held in Mission HQ (The Marquee) and all SCINDICATE 2019 activities are listed in the program.

Technology pitches

A series of technology pitches, each one minute in duration, will give a taste of partnership opportunities within DST. Experience these in Mission HQ on both days (see program for timings).

Exhibition display arena – Impact Zone

DST's research and major science and technology areas will be showcased in the Impact Zone.

Photography

You are welcome to take photos at SCINDICATE but they are strictly forbidden in the Scot Allison Theatre, The Conference Room and on the lab tours.

Please note that the Australian Department of Defence reserves the right to use any photography/video taken at any event, without the expressed written permission of those included within the photography/video.

A person attending SCINDICATE 2019 who does not wish to have their image recorded for distribution should make their wishes known to the photographer, and/or the event organisers.

Site tours

Tours to a number of DST Edinburgh site facilities are on offer. To enquire on availability for these tours please ask at the Information Desk. If you are already booked on a tour please arrive at the Information Desk 5-10 minutes prior to your tour time to ensure you meet your tour guide escort.

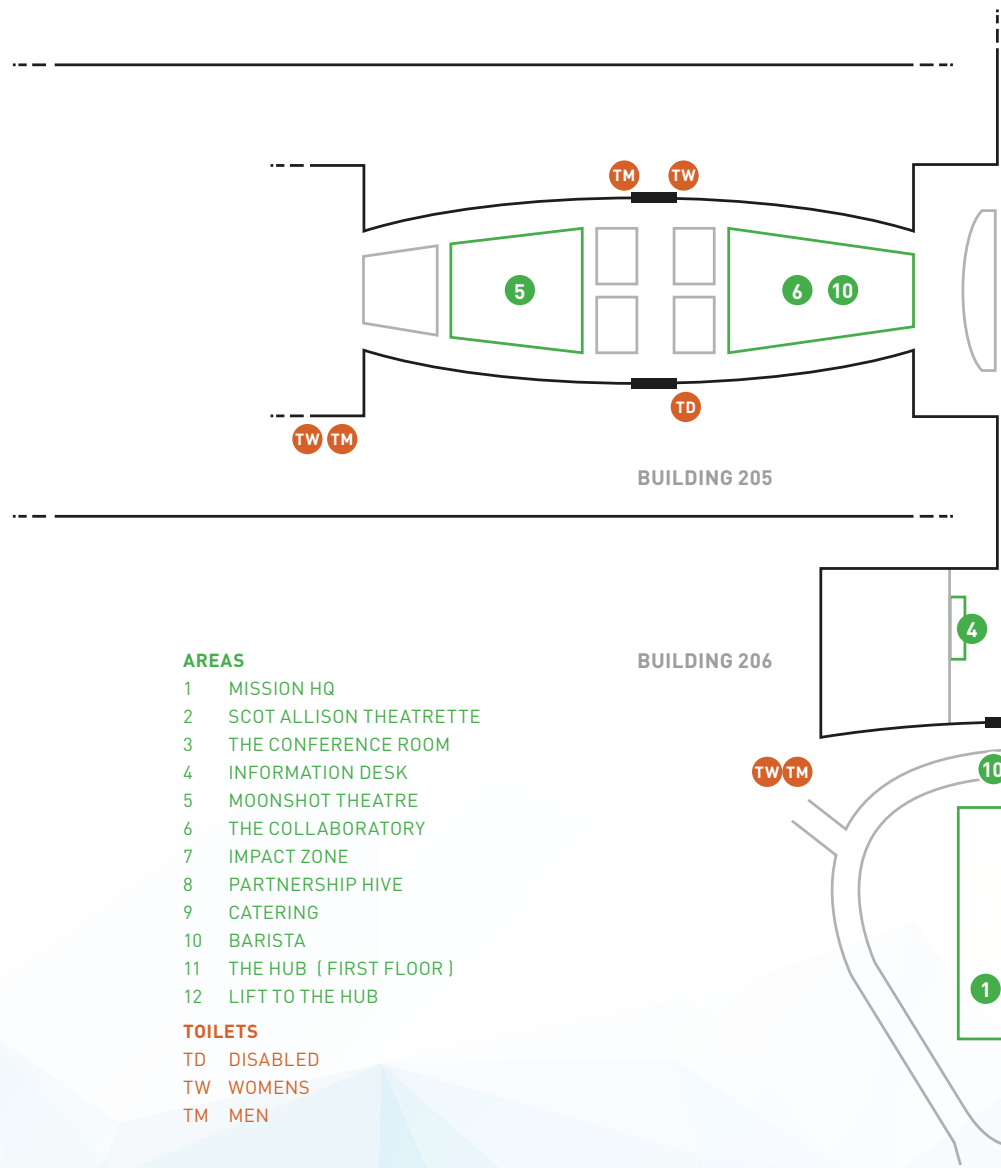
Social media

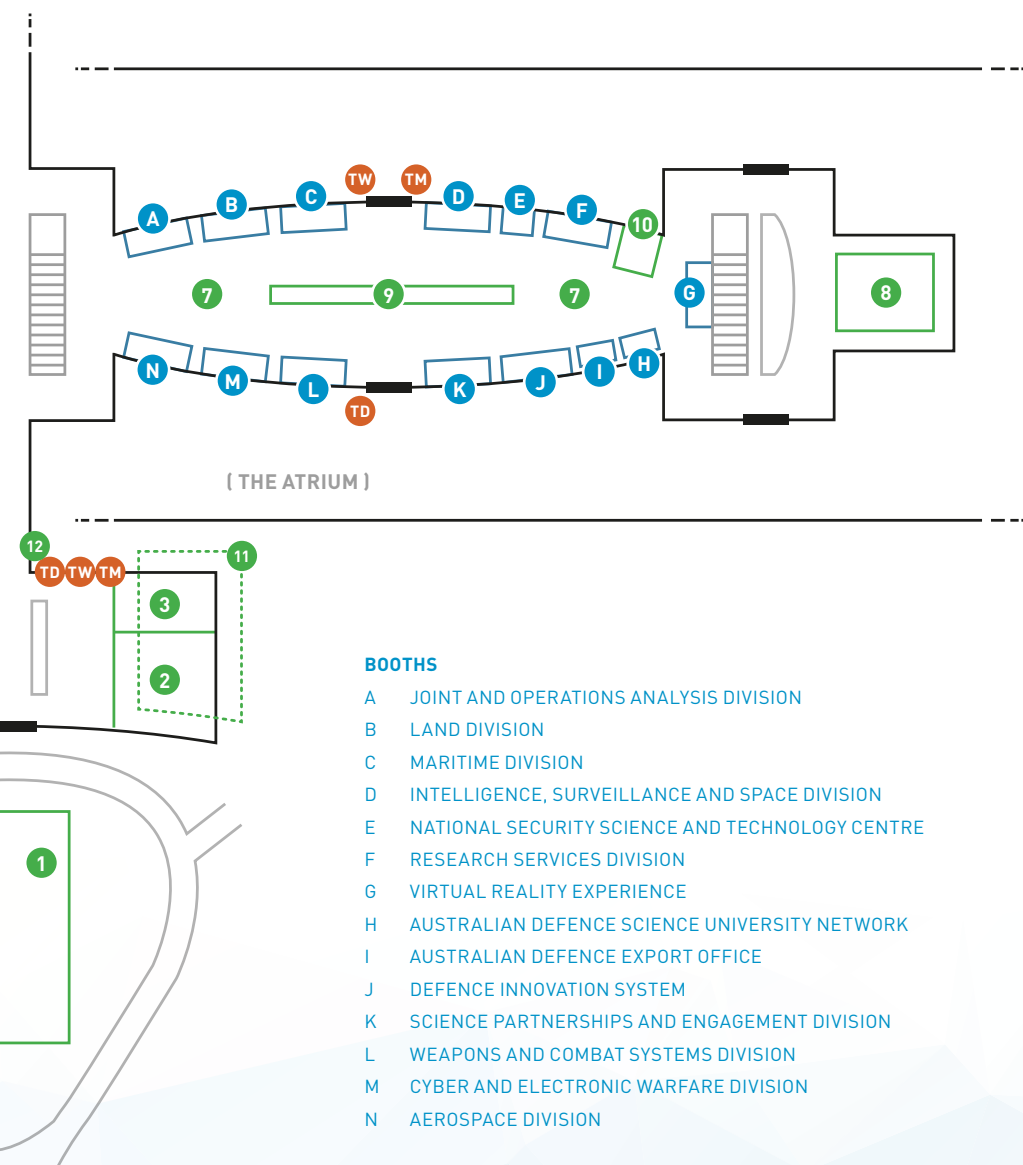
Follow the event program and photos on our Twitter and Instagram accounts **@defencescience**. Ask questions and share your thoughts on the event with **#scindicate2019**.



#scindicate2019

EVENT MAP





PROGRAM: DAY 1

Conference Room

11:30–13:30

Human Aspects of Cyber for National Security

Workshop examining human aspects of cyber security relevant to NS agencies. Strictly invitation only.

15:00–15:30

Next Generation Technologies Fund
Classified. Strictly invitation only.

	Mission HQ			Tours
09:00	MC Welcome Renee Kidson, Group Leader Force Effectiveness & Experimentation, DST			SATCOM
09:05	Welcome to Country			11:00, 11:30, 12:00, 14:00, 14:30, 15:00
09:15	Chief Defence Scientist Address Science and Technology Strategy for Defence			Combat Systems
09:30	Professor Dawn Freshwater, VC, UWA			Integration Laboratory
10:00	Mr Chris Jenkins, CEO, Thales			11:00, 11:30, 12:00, 12:30
10:30	Technology Pitches 11 Presenters			14:00, 14:30, 15:00
10:45	MC wrap-up			Towed Acoustic Projector
10:47	Morning Tea			11:00, 11:30, 12:00, 12:30
	Mission HQ	The Hub	Scot Allison Theatrette	Moonshot Theatre
11:30	Solving Defence's Big Challenges – Part 1 Prof Tanya Monro and DST Chiefs		Golden Rules When Partnering with Defence 1: New Approach to Security Allan Halsey, DST	Computational Science and Secure eResearch Services John Taylor, DST
12:00				Additive Manufacturing for Defence Applications Dr Alex Shekhter, DST
12:30	Exploring the Next Generation Technologies Fund Panel discussions and Q&A on NGTF Themes. The first half will focus on the Multidisciplinary Materials, Advanced Sensors and Quantum Technologies themes, while the second half will be focused on the Space Capabilities, Cyber and Trusted Autonomous Systems themes		Defence CRC for Trusted Autonomous Systems: Seeding Breakthrough Technologies Prof Jason Scholz and Stephen Bornstein	Engineering the Transition of Science and Technology to Industry Shyam Mehta, DST and Tim Teske, DST
12:45				Microengineering Capabilities in DST Shyam Mehta, DST and Tim Teske, DST
13:00		Designing Technology to Work with Humans (Human Systems Integration) Dr Susan Cockshell, DST and Suzanne Hanna, DST	Trends and Opportunities in Defence Science and Technology Professor Paul Bertsch, Chief Scientist Queensland	GovTEAMS – Building Connections Across Government and Industry Jasmin Brooks and Caitlin Harding
13:30	Lunch 13:45–14:15 Wargaming at JOAD Booth, Impact Zone.			
14:30	Partnering to Deliver Complex System of System Solutions for the ADF Chris Deeble, CEO Northrop Grumman		Defence Innovation System Update Dr Melissa Laws, DST, Mr Andrew Hodgkinson and Dr Dwayne Kirk	Golden Rules 2: Export Controls and Sensitive Technologies Mr Komal Sidhu, DST
15:00	Designing the Future Force COL Doug Mallett and Dr Yi Yue, DST	Golden Rules 3: Playing It Safe with Unmanned Aerial Systems (Workshop) WGCDR Nick Dyce-McGowan and Mr Michael O'Connell		
15:30	Afternoon Tea			Partnership Hive
16:00	University Networks Panel Discussion Jan Drobik, DST and Robin Nicholson	Export Journey for Innovative Companies Australian Defence Export Office, Austrade and Defence Export Controls	Update on Small Business Innovation Research for Defence (SBIRD) Craig Rogers, DST	Business Match-Ups
17:00	Event Close			

DAY 2

Event Key
 Things to Know When Partnering with Defence
 Partnering Opportunities
 DST and/or Partner Showcase

	Mission HQ			Tours
09:00	MC Welcome	Renee Kidson, Group Leader Force Effectiveness & Experimentation, DST		
09:05	Chief Defence Scientist Address	Science and Technology Strategy for Defence		
09:20	Dr Cathy Foley, Chief Scientist, CSIRO			
10:00	GPCAPT Jerome Reid – Plan Jericho (RAAF)			
10:30	MC Wrap-Up			
10:32	Morning Tea			
	Mission HQ	The Hub	Scot Allison Theatre	Moonshot Theatre
11:00	Solving Defence's Big Challenges – Part 2 Prof Tanya Monro and DST Chiefs		Computational Science and Secure eResearch Services John Taylor, DST	
11:30			Assessing the Military Utility of Emerging and Future Tech (Workshop) Nikoleta Tomecko, DST	
12:00	Exploring the Next Generation Technologies Fund Panel discussions and Q&A on NGTF Themes. The first half will focus on the Multidisciplinary Materials, Advanced Sensors and Quantum Technologies themes, while the second half will be focused on the Space Capabilities, Cyber and Trusted Autonomous Systems themes	Successful Partnering for Impact: Narrative Visualisation for Law Enforcement Marcin Nowina-Krowicki, DST and Dr Andrew Cunningham	Defence and the Australian Research Council (ARC) Dr Robert Mun	Engineering the Transition of Science and Technology to Industry Shyam Mehta, DST and Tim Teske, DST
12:15		Technology Pitches 15mins 11 x 1 min technology pitches will provide a taste of partnership opportunities with DST		Microengineering Capabilities in DST Shyam Mehta, DST and Tim Teske, DST
12:30		A Start-up's Perspective on Partnering with Defence Dr Alex Grant, Co-founder and CEO, Myriota	Epi-Centre microFab Capability Dr Petar Atanackovic (Chief Scientist, Silanna Semiconductor)	Combat Cloud Dr Duncan Fletcher, DST
13:00	Lunch 13:15–13:45 Wargaming at JOAD Booth, Impact Zone.			
14:00	Designing the Future Force AIRCDRE Richard Lennon and Dr Yi Yue, DST		Quantum Research Dr Anthony Szabo, DST	
14:30	SmartSat CRC Andrew Seedhouse, DST and Prof Andy Koronios			
15:00	Innovation and Entrepreneurship in SA Jim Whalley – SA Chief Entrepreneur			Advancing Structural Simulation for Innovative Sustainment Technologies Madeline Burchill, DST
15:30	Afternoon Tea			Partnership Hive
16:00	Information Warfare Dr Dale Lambert, DST, Chief Cyber & Electronic Warfare			Business Match-Ups
17:00	Event Close			

EVENT GUIDE: DAY 1

Mission HQ

Technology Pitches | 11 Presenters

A series of technology pitches, each one minute in duration, will provide a taste of partnership opportunities with DST.

Solving Defence's Big Challenges (Part 1)

Panel discussion with industry and universities on big challenges facing Defence and exploring future S&T missions to address them.

Designing the Future Force

COL Doug Mallet, Dr Yi Yue. Force exploration is the method by which the ADF develops ideas that embrace the opportunities and confront the challenges that we will face in the future operating environment. This presentation will introduce Defence's exploration process and products in Joint Concepts which inform the Integrated Investment Program and design of the future Joint Force. This is integrated with the exploration activities of the Emerging and Disruptive Technologies Assessment Symposium and Defence Megatrends Study, also to be presented.

Exploring the Next Generation Technologies Fund

Join us for panel discussions and Q&A on the NGTF Themes. The first half hour will focus on the Multidisciplinary Materials, Advanced Sensors and Quantum Technologies themes, while the second half will be focused on the Space Capabilities, Cyber and Trusted Autonomous Systems themes.

The Hub

Golden Rules 3: UAS Safety Panel + Workshop

Raoul Pietrobon. The Defence Aviation Safety Authority role in oversight and regulation of Unmanned Aerial Systems in Defence to ensure a safe work environment.

Export Journey for Innovative Companies

Explore the defence export journey for Australian

industry. Learn from real-world case studies to understand the initiatives and support offered by the Australian Defence Export Office, Austrade and Defence Export Controls, to assist Australian companies to grow their export capability, identify export opportunities and competitively position themselves in new markets.

Scot Allison Theatrette

Golden Rules 1: Defence Research Collaboration and Security – A New Approach

Allan Halsey. Enabling secure partnerships through the Defence Industry Security Program.

Human Systems Integration – Designing Technology to Work with Humans

Dr Susan Cockshell and Suzanne Hanna. Future technology and capability have the potential to change warfighting, but it will only be able to do this effectively if it is designed to work collaboratively to support humans to achieve a mission. Employing user-centred design and knowledge of human factors will enable the shaping of technology to create effective human-machine teams to achieve decision superiority.

Defence Innovation System Presentation

Combining the experience from Next Generation Technologies Fund (NGTF), Defence Innovation Hub (DIH) and Centre for Defence Industry Capability (CDIC) in an informative presentation about the successes of these initiatives so far and what the future is shaping up to look like.

Update on SBIRD

Craig Rogers. This session will provide an update on the SBIRD Topic: A Joint Effort: Integrating Advanced Materials onto Military Platforms which is also a parallel call with the Defence and Security Accelerator/dstl in the UK. This will include background on the call, current status of Stage 1, successful applicants and information on Stage 2.

Trends and Opportunities in Defence Science and Technology

Paul Bertsch, Queensland Chief Scientist. This is a presentation addressing global technological development from a Qld perspective. There are unique and evolving demands for domestic defence research, not the least of which is the role of innovation in maintaining our alliances and the importance of building collaboration.

The Conference Room

Human-Cyber Interface – NSSTC

Dr Katerina Agostino, Dr Marcus Butavicius.

This session is strictly invite only. Cyber security is often thought of as a largely technical problem. However there is increasing evidence that human error, either benign in origin or the result of social engineering by a malicious actor, plays a role in the majority of cyber security incidents. This Human-Cyber interface will be the basis of a National Security S&T Centre (NSSTC) sponsored mini workshop during SCINDICATE. The intent of the workshop will be to discuss research topics in the human aspects of cyber security that are of importance to National Security agencies and to draft corresponding research concepts and ideas to address them. Outputs will be explored further by NSSTC and our clients with a view to developing any that resonate.

Next Generation Technologies Fund (NGTF)

This session is strictly invite only.

Moonshot Theatre

Computational Science and secure eResearch Services

John Taylor. How academia/industry can partner with DST to access high performance computing capabilities for advanced modelling and simulation, Artificial Intelligence and Deep Learning research.

Additive Manufacturing

Dr Alex Shekhter. As a manufacturing technology, AM of Defence components is a powerful technique that can produce and repair parts on demand anywhere, anytime. Aerospace Division has been leading the way in metallic AM in the repair and re-manufacture of parts for Aerospace, Land and Navy, and engaging with Academia and Industry to transition the technology to Defence.

Engineering the Transition of Science and Technology to Industry

Shyam Mehta and Tim Teske. Several mechanisms exist for Industry and Academia to collaborate with DST to safeguard Australia through advancement of Science and Technology. DST can provide Academia and Industry access to engineering research capabilities to support collaborations by lowering the risk of transitioning prototype technology to production. Specific examples will be discussed.

Microengineering Capabilities in DST

Shyam Mehta and Tim Teske. This presentation focuses on the advanced microengineering capabilities within DST. Collaborations in microengineering with DST, Academia and Industry will be discussed.

GovTEAMS – Building connections across government and industry

Jasmin Brooks and Caitlin Harding. A modern digital collaboration service providing the tools for government to work across organisational boundaries.

Business Match-Ups

Meet with Chiefs of Division and Research Leaders from across DST in our SCINDICATE Business Match Ups activity which will operate as a speed networking or speed business meeting session. This is a pre-booked activity. The session will run for 90 minutes with individual one-on-one meetings running at 5 minute intervals.

EVENT GUIDE: DAY 2

Mission HQ

Solving Defence's Big Challenges (Part 2)

Panel discussion with industry and universities on big challenges facing Defence and exploring future S&T missions to address them.

Successful Partnering for Impact Story: Narrative Visualisation for Law Enforcement

Marcin Nowina-Krowicki and Dr Andrew Cunningham.

A presentation highlighting the impact of a successful collaboration project between DST and UniSA on Narrative Visualisation. The result is a novel narrative visualisation system and related techniques for communicating the complexities present in law enforcement cases and has subsequently found wider application outside of this domain.

Designing the Future Force

AIRCDRE Richard Lennon, Dr Yi Yue. Force exploration is the method by which the ADF develops ideas that embrace the opportunities and confront the challenges that we will face in the future operating environment. This presentation will introduce Defence's exploration process and products in Joint Concepts which inform the Integrated Investment Program and design of the future Joint Force. This is integrated with DST's exploration activities of Emerging and Disruptive Technologies Assessment Symposium and Defence Megatrends Study which will also be presented.

SmartSat CRC Uni SA and CISSD

Andrew Seedhouse and Prof Andy Koronios, DST. The SmartSatCRC aims to catapult the nation in the global space industry playing a leading role in niche areas of intelligent satellite systems, advanced communications and analytics. The impact of this research will be to develop game-changing technologies that will spawn new businesses and underpin the next wave of growth in critical industries such as agriculture, mining

and creating export economic value, generating new high-tech jobs whilst strengthening national defence and security.

Exploring the Next Generation Technologies Fund

Join us for panel discussions and Q&A on the NGTF Themes. The first half hour will focus on the Multidisciplinary Materials, Advanced Sensors and Quantum Technologies themes, while the second half will be focused on the Space Capabilities, Cyber and Trusted Autonomous Systems themes.

The Hub

Technology Pitches | 11 Presenters

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Scot Allison Theatre

Defence and the Australian Research Council

Dr Robert Mun. We explain how universities can work with Defence in accessing the Australian Research Council National Competitive Grant Program for Defence-related projects.

Computational Science and Secure eResearch Services

John Taylor. How academia/industry can partner with DST to access high performance computing capabilities for advanced modelling and simulation, Artificial Intelligence and Deep Learning research.

Assessing the Military Utility of Emerging and Future Technologies (Workshop)

Nikoleta Tomecko. Opportunity for industry and universities to contribute their techniques and tools in evaluating the military utility of emerging and future technologies and develop a common assessment framework for working together.

Epi-Centre MicroFab Capability

Dr Petar Atanackovic (Chief Scientist, Silanna Semiconductor). DST, University of Adelaide and Silanna are partnering in a joint venture to establish a rapid device prototyping and pilot facility for semiconductor device fabrication. This facility will support and enable research and development of new materials, processing and devices. The brief will outline the proposed capabilities of the Epi-Centre UFab facility, and the opportunities for innovative R&D.

A Quantum Leap Forward for Defence

Dr Anthony Szabo. Under the Quantum Technologies Theme of the Next Generation Technologies program, Defence is seeking to develop leap-ahead technologies in quantum sensing, quantum timing and quantum communications. Quantum theme leader Anthony Szabo explores several partnership vehicles including the newly created Quantum Research Network and support for two ARC Centre of Excellence - the Centre for Quantum Computing and Communications Technologies and the Centre for Engineered Quantum Systems.

Defence Innovation System Presentation

Combining the experience from Next Generation Technologies Fund (NGTF), Defence Innovation Hub (DIH) and Centre for Defence Industry Capability (CDIC) in an informative presentation about the successes of these initiatives so far and what the future is shaping up to look like.

Moonshot Theatre

Engineering the Transition of Science and Technology to Industry

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Microengineering Capabilities in DST

Shyam Mehta and Tim Teske. This presentation focuses on the advanced microengineering capabilities within DST. Collaborations in microengineering with DST, academia and industry will be discussed.

Combat Cloud

Dr Duncan Fletcher. The Combat Cloud program is about constructing an ecosystem for the evolution and integration of military systems to produce combined effects.

Computational Science and Secure eResearch Services

John Taylor. How academia/industry can partner with DST to access high performance computing capabilities for advanced modelling and simulation, Artificial Intelligence and Deep Learning research.

Advancing Structural Simulation to drive Innovative Sustainment Technologies (ASSIST)

Madeline Burchill. An interactive session with academic and industry representatives to provide information and foster discussions about the challenges to be overcome to advance structural test and simulation technologies.

Business Match-Ups

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OUR PARTNERSHIPS

Defence Science and Technology enhances its science and technology impact by collaborating with research and industry partners, nationally and globally.

We access and leverage world-leading science, technology, knowledge and innovation, through collaboration with industry, academia and international agencies. We work closely with these partners in order to provide quality advice and innovative solutions for Defence and national security.

For more about how to partner with us, see our Technology Partnerships Office representatives in the Exhibition Display Arena or contact us on the details below.

+61 8 7389 7002 | PartnerwithDST@dst.defence.gov.au

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