SINGAPORE DEFENCE TECHNOLOGY SUMMIT

18 - 20 March 2025

DSTA Defence Science & Technology Agency

DSTA 25 Years FOUNDATIONS TO FRONTIERS

The Singapore Defence Technology Summit (Tech Summit) is a unique gathering of global thought leaders from government, industry, academia and think tanks, to network, confer and collaborate in the development of defence and security capabilities.

Tech Summit 2025 examined the roles of technology and partnerships in navigating an uncertain tomorrow, through engaging and thought-provoking discussions.


SINGAPORE DEFENCE TECHNOLOGY SUMMIT
18-20 March 2025
DSTA
Defence Science & Technology Agency
Plenary 4
Disruption by Digital and Emerging Technologies:
Bridging Today and Tomorrow
SINGAPORE DEFENCE TECHNOLOGY SUMMIT
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DSTA

CONTENTS

WELCOME ADDRESS

By Dr Ng Eng Hen, Minister for Defence (Singapore)

EXCERPTS

Tension & Dilemma with New Discoveries

"This difficult tension with new discoveries – new technology on one hand improving our lives while on the other potentially causing harm – is a recurrent theme in the progress of mankind … Today we grapple with the same conundrum applied to gene editing, gain-of-function research, social and digital media, quantum computing and AI. I hope that this [summit], in addition to being a platform to share scientific and technological know-how, also provides an avenue for you to have a voice in the use and safeguards for new discoveries."

Responsibility of Scientists and Engineers

"This meeting alone will not solve all ethical and social dilemmas that new technology brings … But what would be a fair expectation is that the discoverers and creators should form a view among themselves, because often the control and appropriate harnessing of new technology requires deep technical knowledge. But too often, those who are not proficient in the use of technology become the prime movers in its wanton application."

Increasing Urgency in a Fragmented World

"The need for those conversations takes on an added urgency as the world has become increasingly fragmented and contested. Primacy and self-sufficiency, whether of individual countries or blocs are now the more dominant calculus. In that context, the global commons of limiting power, destruction, collateral damage, proportionality, even no first-strike or restraint, lack a champion or moving spirit. The cataclysmic dangers of nuclear arsenals, chemical and biological weapons, cyber-attacks on essential services, disinformation campaigns, and AI-enabled weapons are all too clear. But in our fractious world, the voices of those who can put into place these guardrails have been rendered sotto voce, if heard at all."

Outcomes of These Challenges

"None here are naïve to believe that the competition to acquire first new and more powerful technology will abate … Not only will this AI race between countries persist, it will intensify. But the global commons here – whether in AI, nuclear weapons, etc. – that needs to be safeguarded is the survival of the human race. How does it benefit any one country, if it wins the race only to imperil humankind?"

KEYNOTE ADDRESS

By Mr Heng Swee Keat, Deputy Prime Minister (Singapore)

EXCERPTS

The Changing Nature of Warfare

"The nature of warfare has fundamentally changed. Today's security threats are not solely conventional military challenges. We are seeing the rise of asymmetric threats enabled by dual-use technologies – where innovations meant for civilian use can also serve disruptive military purposes. These include cyberattacks targeting critical infrastructure, AI-enabled disinformation campaigns and the use of autonomous, unmanned systems in contested environments. To counter and defend against these threats, our defences must be vigilant, innovative and agile, by similarly exploiting and adapting to emerging technologies and new tech capabilities."

Navigating Uncertainties Through Technology and Partnership

"We must recognise that while uncertainty is a challenge, it also presents an opportunity – to innovate, to build resilience, and to strengthen partnerships. To advance security and stability, technology must be harnessed not to widen vulnerabilities, but to mitigate them. Defence organisations must integrate cutting-edge innovations rapidly, tightening the coordination between operations and technological development. This means accelerating ops-tech cycles, while committing to the ethical and responsible use of emerging technologies. The defence technology community must find new ways to collaborate through deepening partnerships – across borders, sectors, and disciplines – to fully harness the potential of emerging technologies."

The Role of Technology: Opportunities and Risks

"Technological advancements will create new possibilities across multiple domains … allowing us to remain adaptable, secure, and future-ready … While technology presents tremendous opportunities, it also introduces risks that must be carefully managed. Emerging technologies can be misused to erode trust, disrupt societies, and create security risks … By building trust in technology and mitigating risks, we can ensure that innovation remains a force for progress … We should also be mindful of the unintended consequences of autonomous technologies … AI-powered autonomous systems … must be designed with safeguards to ensure ethical, transparent, and accountable decision-making. As technology continues to reshape our world, one truth remains clear: no country can navigate these changes alone. Our collective response to today's challenges will determine whether technology strengthens global resilience or exacerbates vulnerabilities."

Embracing the Future Together

"We must continue to progress, to protect and to partner. This summit is more than just an exchange of ideas – it is an opportunity to forge new connections, explore bold solutions, and push the boundaries of what is possible. Together, we can address the evolving security landscape, ensuring that technology and partnerships remain the bedrock of peace, security, and resilience."

GOVERNMENT & TECH LEADER REMARKS

MR SEOK JONGGUN
Minister, Defense Acquisition Program Administration (Republic of Korea)

Mr Seok highlighted that modern conflict is increasingly hybrid – merging conventional, irregular, cyber, electromagnetic, and media warfare – and that advanced technologies such as AI and unmanned systems are now strategic resources critical to national security. He explained that traditional government acquisition processes struggle to keep pace with rapid technological advancements, prompting the Republic of Korea to launch its Science and Technology Master Plan. This comprehensive policy outlines mid- to long-term defence R&D across ten strategic areas, with a focus on AI, manned-unmanned teaming, and quantum technology. Mr Seok detailed five key strategies, including boosted R&D investment, the establishment of an innovation-friendly institutional foundation, governance restructuring, workforce development, and enhanced civil-military cooperation. He also underscored the importance of robust AI governance and active international collaboration – exemplified by initiatives such as the Seoul Declaration and Blueprint for Action – to shape global norms for responsible and secure AI deployment.

MG SALMAN ALHARBI
Deputy Minister of Defense for Strategic Affairs, Ministry of Defense (Saudi Arabia)

MG Alharbi emphasised that defence innovation is no longer a predictable "react, adapt and overcome" process but is evolving at a pace that challenges existing doctrines and policy frameworks. He noted that emerging technologies – including AI, cyber capabilities, and autonomous systems – pose both significant opportunities and serious risks if left unchecked. MG Alharbi stressed that while rapid technological progress can transform security operations, it must be governed responsibly to prevent these same tools from becoming threats. He highlighted Saudi Arabia's commitment to a cooperative, multilateral approach, noting that security is a shared global responsibility. He also warned of the illicit use of scientific and cyber expertise, calling for counterterrorism efforts focused on preventing the unauthorised spread of scientific expertise, cyber capability, and military intelligence. Finally, he reiterated the importance of ensuring that AI-driven systems remain under human control through strict testing, validation, and adherence to international standards, thereby reinforcing stability and ethical conduct in defence applications.

MR MELVYN ONG

Permanent Secretary (Defence Development), Ministry of Defence, Permanent Secretary (Development), Ministry of National Development (Singapore)

Mr Ong outlined the multi-faceted challenges in an increasingly volatile global environment, citing strategic, technological, operational, and organisational factors. Strategically, the world is fragmented by geopolitical rivalries, with cyber and information warfare now primary battlegrounds. Technologically, defence agencies must grapple with the rise of AI, hypersonic weapons, and quantum computing, while space is fast becoming a contested military domain. Operationally, the asymmetry introduced by low-cost commercial tech and the rise of hybrid warfare demand new tactics and logistics solutions, especially for dense urban environments. On the organisational front, Mr Ong emphasised the need for defence agencies to be agile in their policies, innovative in their partnerships, and resilient in their ecosystems – calling for responsible AI development, new talent pipelines in key tech domains, and procurement frameworks that can keep pace with technological change. He stressed the importance of partnerships, including co-development with industry, and fostering strong ops-tech integration to accelerate innovation. A resilient defence tech ecosystem – grounded in secure supply chains, strategic alliances, and rapid experimentation – will be vital to navigate future threats.

HONORABLE HEIDI SHYU

Former Under Secretary of Defense for Research and Engineering (USA)

Hon. Shyu reflected on her tenure navigating the complexities of modern defence as the Under Secretary of Defense for Research and Engineering, emphasising that today's security challenges require both technological innovation and agile organisational processes. She highlighted the necessity for government processes to become more flexible, advocating for a decoupling of hardware and software to reduce dependency and delay. Hon. Shyu urged that mature technologies should be prioritised over chasing the latest, often unproven innovations, ensuring that systems are developed iteratively with user feedback and tested in realistic environments. Moreover, she stressed the need for rapid design and scalable manufacturing to support timely fielding of systems. Emphasising an all-encompassing approach, Hon. Shyu called for agility not only in technology but across all aspects of military operations, from procurement to maintenance, to enhance adaptability in the face of inevitable countermeasures developed by adversaries.

FIRESIDE CHATS

MS SAFRA CATZ
Chief Executive Officer, Oracle (USA)

Ms Catz shared her journey with Oracle and the unique role of cloud services in transforming defence and government operations. She emphasised that while the Oracle cloud platform is a stable product, its true value lies in its vast data capabilities and the economies of scale, which many users have yet to fully exploit. Ms Catz noted that cloud services have evolved from basic repository storage to comprehensive Software-as-a-Service models, offering benefits such as enhanced scalability, availability, security, and high performance – all crucial for mission-critical applications. She underlined Oracle's long-standing commitment to protecting sovereignty by embedding security safeguards into its products and stressed that data protection remains the priority. Ms Catz also highlighted Oracle's readiness to forge innovative partnerships, citing the successful collaboration with the Defence Science and Technology Agency as a prime example of seamless integration between private sector capabilities and government requirements. For her, agility and rapid deployment are vital, as "time is of the essence" in today's security landscape.

MR PALMER LUCKEY
Founder, Anduril Industries (USA)

Mr Luckey discussed the founding impetus of Anduril Industries, driven by a perceived gap in the United States' engagement with defence technology. He explained that Anduril was born from a desire to apply innovative, agile solutions to national security challenges that traditional defence companies often overlook. Mr Luckey highlighted the transformative potential of asymmetric warfare, where low-cost drones and advanced software can disrupt conventional power structures and offer decisive advantages. He emphasised that hardware alone is insufficient; it is the software underpinning these systems that creates sustainable competitive advantages. Mr Luckey also touched on the need for reform in defence contracting to encourage rapid innovation and reduce inefficiencies. He concluded by reflecting on the importance of strategic partnerships between government champions and tech start-ups, remarking that sometimes it takes a few bold ideas to redefine the future of defence technology.

PLENARY ONE

Moderator (first from left):
Mr Ylber Bajraktari, Senior Advisor, Special Competitive Studies Project (USA)

Speakers (from left):
- **Dr Bastian Giegerich**, Director-General and Chief Executive, The International Institute for Strategic Studies (UK)
- **General Sir Jim Hockenhull**, Commander, UK Strategic Command (UK)
- **LG Aymeric Bonnemaison**, Commander, French Cyber Command (France)
- **Mr Waleid Al Mesmari**, President, Space and Cyber Technologies, EDGE Group (UAE)
- **Mr Hugh Webster**, Chief Technology Officer, Boeing Australia (Australia)

Evolving Threat Landscape

Mr Bajraktari opened the session by observing that geopolitics is becoming increasingly competitive and contested, with the traditional boundaries between crisis, competition and conflict growing ever more blurred. Dr Giegerich outlined a series of fundamental shifts: the established international order is fragmenting into polarised spheres of influence; defence spending is on the rise; and long-held military advantages are eroding as more lethal systems proliferate.

Preparing for Hybrid Warfare – Cyber and AI

LG Bonnemaison emphasised cyber as an ideal instrument for hybrid warfare, enabling operations below the threshold of open conflict and amplifying asymmetries. He noted that the proliferation of non-state and proxy actors complicates attribution and raises the risk of unexpected escalation. Mr Al Mesmari added that emerging drivers such as AI, autonomous systems, and space intelligence are fundamentally changing operational needs and technical solutions. He underscored that, in this evolving paradigm, agility and adaptability are paramount, and that ethical governance with robust human oversight must remain central to the adoption of these technologies.

Technology Evolution or Revolution?

The panel deliberated on whether today's technological advancements are evolutionary or revolutionary. Mr Webster opined that while technology has always been evolving, a shift in our underlying assumptions could indeed revolutionise military operations. He explained that as human limitations are reached, reliance on machines to generate rapid countermeasures becomes critical. General Hockenhull maintained that a revolutionary change in our approach is essential, advocating for openness to fundamental shifts that could dramatically enhance capabilities without unsustainable increases in personnel or budget.

Re-Look at the Approach to Technology Development

Mr Webster stressed the need to abandon the outdated waterfall model in favour of an agile, outcome-based approach bolstered by strong stakeholder partnerships, fit-for-purpose contracting, and an infrastructure for sustained innovation. General Hockenhull reinforced this view by highlighting that the integration of operations across both traditional and new domains calls for harmonised development strategies to ensure continued relevance in a rapidly changing world.

PLENARY TWO

The Need to Take Risks

LTG Diaz de Tuesta emphasised that defence innovation requires a willingness to take risks and share the benefits of increased production volumes, appealing to industry patriotism as a driving force. Mr Lowery underscored that private entities face significant financial constraints, suggesting that structural changes are essential to foster an environment where investors are prepared to assume greater risks beyond the limitations of traditional taxpayer funding.

Change in Mindsets for Faster Tech Adaptation

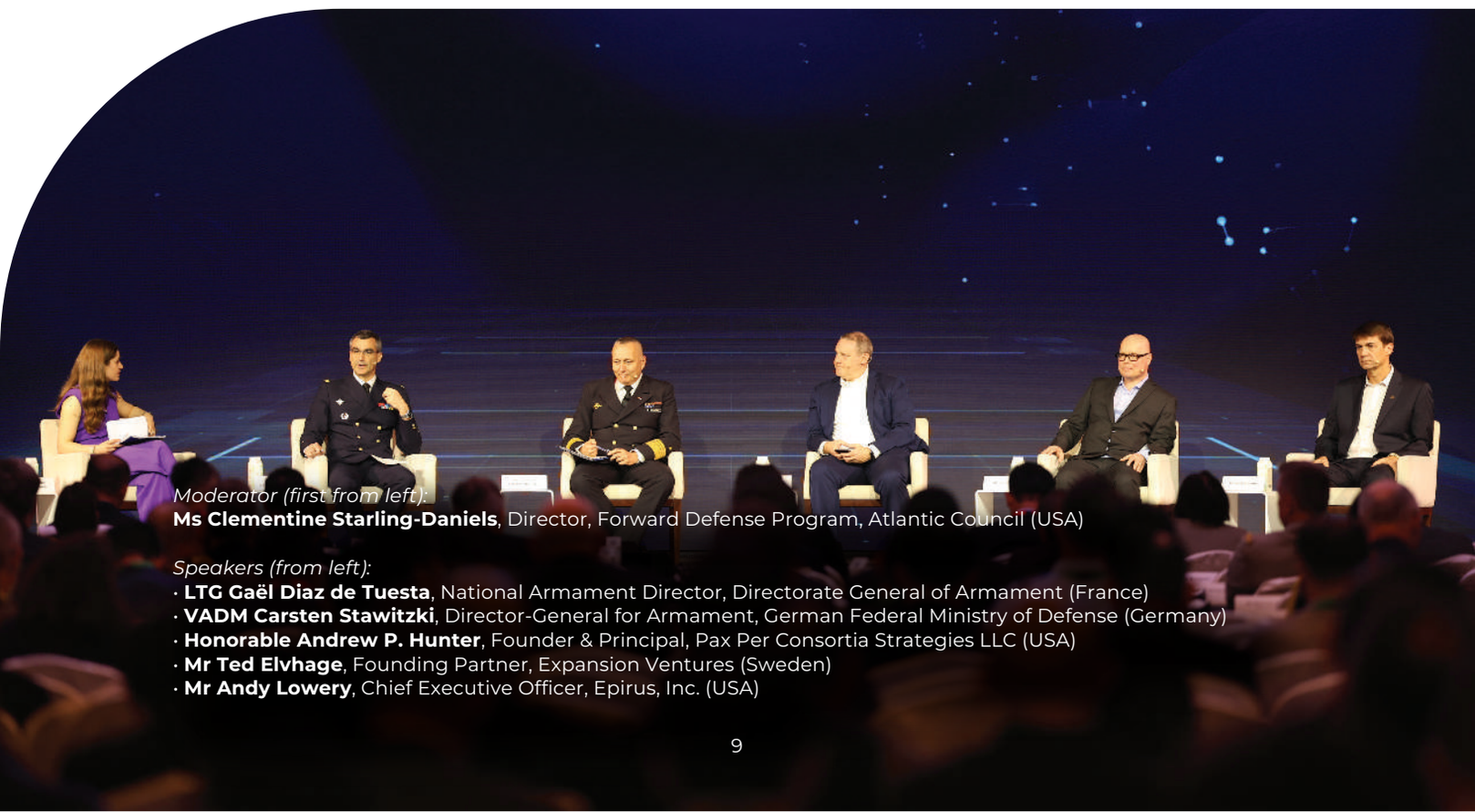
Hon. Hunter stressed that rapid technological adoption depends not so much on the technology itself as on a cultural shift within defence organisations. He advocated for thorough preparatory work – the "homework upfront" – to overcome barriers and resolve disputes early, enabling swift adaptation when circumstances demand rapid action.

Agile Procurement Systems

VADM Stawitzki explained that no single procurement model can address all defence needs. While conventional systems for air defence and battle tanks follow established processes, innovative and disruptive technologies demand different approaches. He noted that software-defined defence systems, which rely on rapidly evolving hardware and software integrations, cannot adhere to traditional procurement methods. Mr Lowery further highlighted the challenges associated with technologies like high-powered microwaves, which, being non-dual-use, face unique acquisition obstacles. Despite frameworks for urgent needs via rapid prototyping, a significant gap remains in procuring multifunction systems, particularly those that are software-defined.

Other Enablers for Faster Tech Adaptation

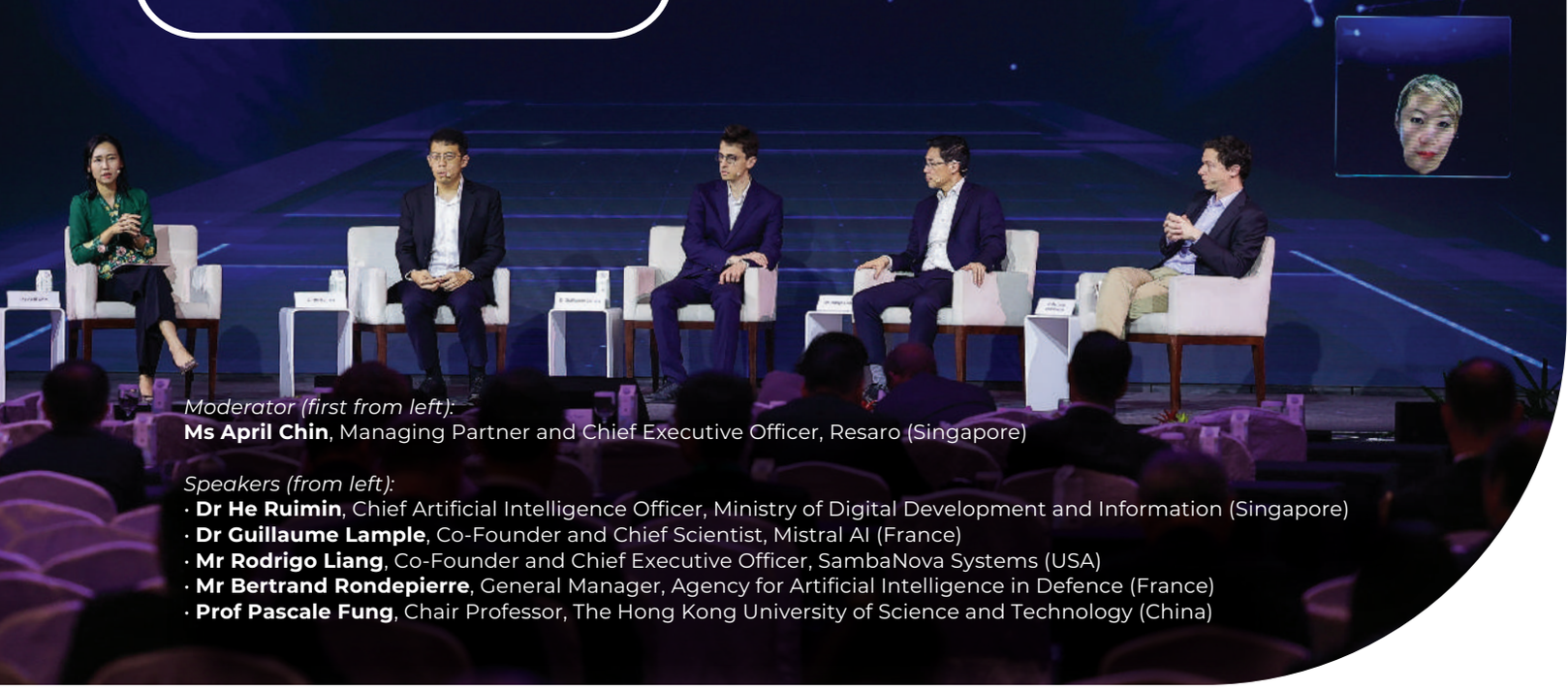
Mr Lowery stressed the need for robust standards to support rapid technological adaptation, citing initiatives like Meta's open compute project as examples of how common standards can streamline manufacturing and boost efficiency. Mr Elvhage highlighted the importance of talent, noting that even one breakthrough idea can drive impact – such as Spotify's founder investing in defence tech. Hon. Hunter noted that collaboration among allies and across industries is vital to compete with adversaries, reinforcing the need for ongoing, iterative dialogue among stakeholders to keep pace with the evolving technology landscape.



Moderator (first from left):
Ms Clementine Starling-Daniels, Director, Forward Defense Program, Atlantic Council (USA)

Speakers (from left):
- **LTG Gaël Diaz de Tuesta**, National Armament Director, Directorate General of Armament (France)
- **VADM Carsten Stawitzki**, Director-General for Armament, German Federal Ministry of Defense (Germany)
- **Honorable Andrew P. Hunter**, Founder & Principal, Pax Per Consortia Strategies LLC (USA)
- **Mr Ted Elvhage**, Founding Partner, Expansion Ventures (Sweden)
- **Mr Andy Lowery**, Chief Executive Officer, Epirus, Inc. (USA)

PLENARY THREE



Moderator (first from left):
Ms April Chin, Managing Partner and Chief Executive Officer, Resaro (Singapore)

Speakers (from left):
- **Dr He Ruimin**, Chief Artificial Intelligence Officer, Ministry of Digital Development and Information (Singapore)
- **Dr Guillaume Lample**, Co-Founder and Chief Scientist, Mistral AI (France)
- **Mr Rodrigo Liang**, Co-Founder and Chief Executive Officer, SambaNova Systems (USA)
- **Mr Bertrand Rondepierre**, General Manager, Agency for Artificial Intelligence in Defence (France)
- **Prof Pascale Fung**, Chair Professor, The Hong Kong University of Science and Technology (China)

Strategies to Embrace AI

Dr He emphasised that the key to integrating AI into defence lies not in the timing of its adoption but in ensuring a mindful and thoughtful deployment that addresses real operational challenges. He stressed that every initiative must be underpinned by accountability and measurable returns and noted that the foundations – comprising the right data, appropriate computing methods, and high-quality outputs – must be firmly established to harness AI's potential effectively.

Over and Underestimation of Large Language Models

Dr Lample provided insights into the overestimation and underestimation of large language models (LLMs). He illustrated how models trained in simulated environments often face discrepancies when deployed in real-world scenarios, particularly in robotics and multilingual contexts. Dr Lample also noted that open-source models, when properly calibrated, can offer a cost-effective and efficient alternative to proprietary systems.

Maximising the Potential of Foundation Models for Defence

Mr Rondepierre discussed the imperative for defence organisations to surpass civilian AI advancements. He noted that the rapid proliferation of AI – driven by both public and private sector contributions – means that adversaries are also innovating at breakneck speed.

Mr Rondepierre stressed that defence agencies should collaborate with entities that already excel in certain technologies rather than reinvent the wheel.

Open-Source versus Closed-Source Models

Professor Fung advocated for the utilisation of open-source AI within defence applications, arguing that open systems offer greater transparency, safety, and the ability to integrate safety measures. She contended that maintaining open-source practices is essential for progress in AI, as it allows for broader community engagement and ensures that military applications remain under human control. Mr Liang reinforced this view by emphasising the importance of inspectability and collaboration in AI development, noting that leveraging private data to train open-source models can help build sovereign AI systems that are robust and adaptable.

Infrastructure Needed for AI Advancements

Mr Liang concluded the session by outlining the critical infrastructure requirements for specialised AI applications. He highlighted that the deployment of Graphics Processing Units – typically optimised for large-scale data centres – poses challenges, particularly when some use cases do not require such high performance. Mr Liang stressed the importance of tailoring infrastructure solutions and emphasised the need for energy-efficient power sources to support low-latency, high-performance AI systems.

Dr Coleman opened the session by outlining how cloud technology and software are transforming defence systems, noting that even consumer devices – such as cellphones – are increasingly employed for military functions. She observed that while emerging technologies like AI and autonomy hold immense potential, their effective adoption is challenged by the inherent complexities of the defence ecosystem.

Solutions to Adopt Emerging Tech

Mr Burkhard stressed that organisations must break from routine to accelerate technology adoption, citing thyssenkrupp Marine Systems as an example of innovation born from challenging the status quo. BG Lotsne echoed this view, emphasising that militaries must shed bureaucratic constraints and decentralise decision-making so that risky projects can be managed at lower levels, ultimately reaping cost efficiencies and enhancing agility.

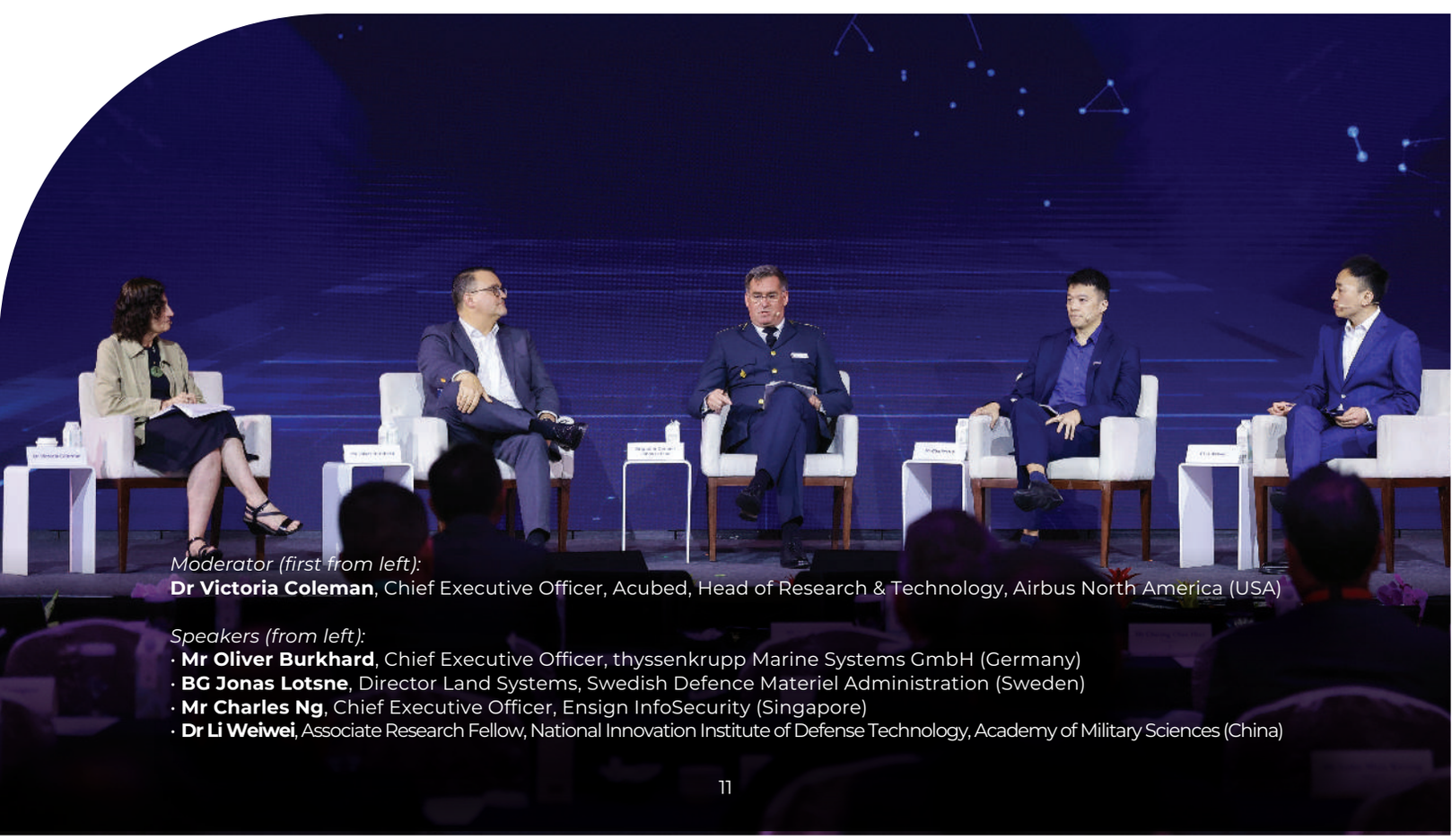
Leveraging Commercial Tech

Mr Ng suggested that private companies should leverage their commercial innovations and assets, with Ensign's focus on rapid cycles and close customer collaboration highlighting the shift in defence-tech partnerships. Dr Coleman added that commercial solutions offer benefits like shorter cycles, proven products and reduced learning curves.

Role of Emerging Tech in Military

Dr Li underscored that advanced technologies are fundamentally reshaping warfare. He detailed how innovations like AI, big data, autonomous systems, digital twins, and drone swarms are enhancing operational effectiveness – from improving decision-making to revolutionising combat strategies. BG Lotsne added that the use of simulation in military, such as virtual UAVs and digital firing ranges, also fosters a future-ready defence posture by enhancing training and operational readiness.

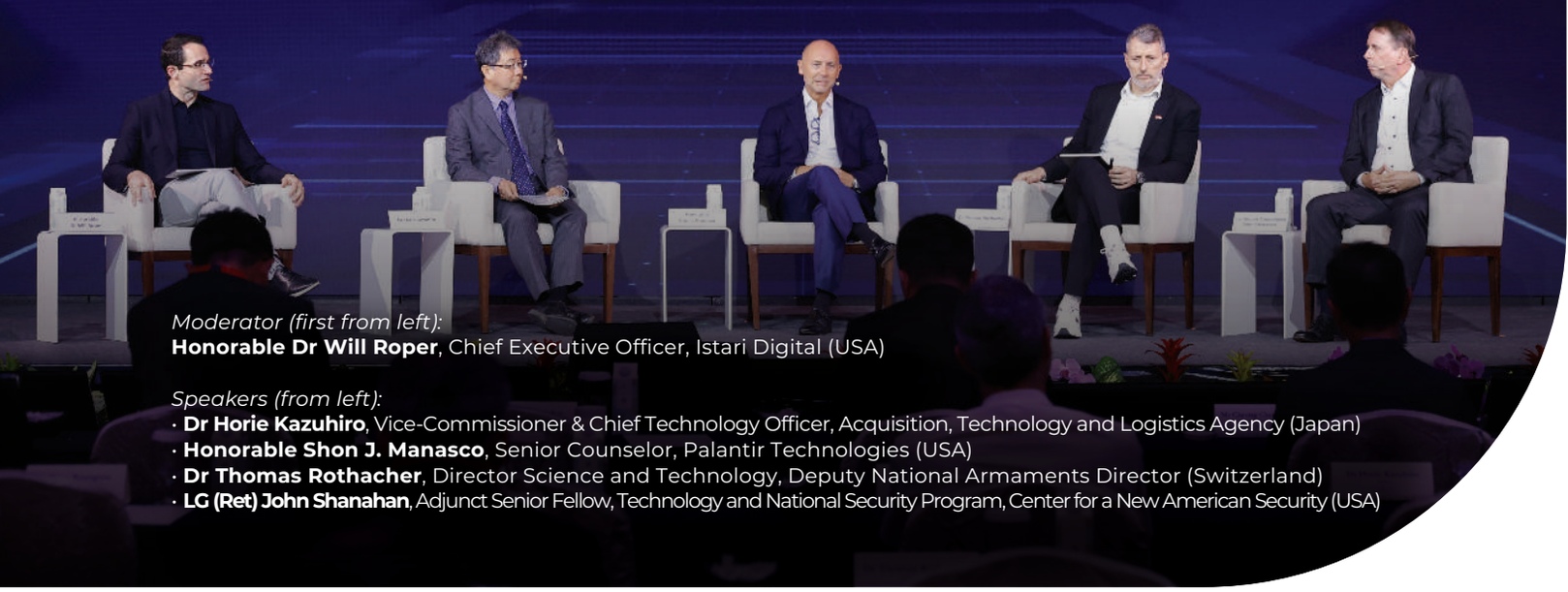
In closing, the panel stressed the importance of bridging today's capabilities with tomorrow's demands through collaboration among governments, private sectors, and allied nations. The discussion highlighted the need to convert technological aspirations into actionable solutions that secure peace and advance national security.



Moderator (first from left):
Dr Victoria Coleman, Chief Executive Officer, Acubed, Head of Research & Technology, Airbus North America (USA)

Speakers (from left):
- **Mr Oliver Burkhard**, Chief Executive Officer, thyssenkrupp Marine Systems GmbH (Germany)
- **BG Jonas Lotsne**, Director Land Systems, Swedish Defence Materiel Administration (Sweden)
- **Mr Charles Ng**, Chief Executive Officer, Ensign InfoSecurity (Singapore)
- **Dr Li Weiwei**, Associate Research Fellow, National Innovation Institute of Defense Technology, Academy of Military Sciences (China)

SUMMARY PLENARY



Moderator (first from left):
Honorable Dr Will Roper, Chief Executive Officer, Istari Digital (USA)

Speakers (from left):
- **Dr Horie Kazuhiro**, Vice-Commissioner & Chief Technology Officer, Acquisition, Technology and Logistics Agency (Japan)
- **Honorable Shon J. Manasco**, Senior Counselor, Palantir Technologies (USA)
- **Dr Thomas Rothacher**, Director Science and Technology, Deputy National Armaments Director (Switzerland)
- **LG (Ret) John Shanahan**, Adjunct Senior Fellow, Technology and National Security Program, Center for a New American Security (USA)

Resiliency in Supply Chain & Logistics

Hon. Roper opened the panel by pointing out how resiliency of all kinds was brought to the forefront due to COVID-19. LG(Ret) Shanahan observed how defence companies shifted focus from just-in-time logistics to building resilient supply chains – those that grow stronger with disruption. He opined that AI can help companies map out their supply chain comprehensively and better react to real-time disruptions. Hon. Manasco added that during the pandemic, valuable time was lost accounting for inventory like masks, highlighting the need for an end-to-end understanding of supply chains. He shared that integrating disparate datasets to guide decisions is now a core capability for resilient operations.

Resiliency in Reaction and the Ecosystem

Dr Rothacher shared how Switzerland developed simulation models to predict outcomes and guide optimal troop deployment during COVID-19, showing how science and technology strengthen response resilience. Dr Horie offered a broad perspective, emphasising ecosystem resilience through industrial capacity building. He explained how Japan has been investing in domestic manufacturing, including advanced methods like additive manufacturing, to create a more robust and self-reliant defence production base.

Stress-Testing and Investing in Resiliency

The panel discussed the need to actively stress-test resilience strategies. LG(Ret) Shanahan and Dr Rothacher agreed that exercises and scenario planning are key to preparing organisations for unpredictable threats. They also highlighted the importance of nurturing adaptable talent and leveraging AI for red-teaming and decision support. Hon. Manasco noted that beyond government action, commercial partnerships are critical. By viewing factories as strategic assets and working closely with tech companies, organisations can build more adaptable and flexible supply chains that better withstand shocks.

Defining Innovation

Hon. Roper opined that effective innovation involves solving problems quickly and accurately, and innovative companies are characterised by fast cycle times and having people who understand problems well. LG(Ret) Shanahan highlighted that true innovation challenges culture and status quo – particularly in large bureaucracies. On the front lines, he added, innovation is about rapidly finding practical solutions. Hon. Manasco underscored that innovation also requires courage: leaders must be willing to make difficult calls about when to pivot or end programmes, and create space for friction and fresh thinking.

TECH TALKS

Dr Christopher Kirchhoff, Author of Unit X: How the Pentagon and Silicon Valley are Transforming the Future of War (USA)

Dr Kirchhoff outlined the founding and journey of the Defense Innovation Unit Experimental (DIUx), formed in 2016 to help the US Department of Defense rapidly adopt commercial technologies. DIUx aimed to close the gap between Silicon Valley's innovation and the military's slower acquisition processes, offering cost-effective, cutting-edge solutions in areas like AI and cybersecurity. Dr Kirchhoff outlined early resistance to non-traditional partnerships, complex bureaucratic processes, and funding challenges. He shared ten key lessons, emphasising the importance of strategic focus, flexible funding, senior-level backing, collaborative partnerships, and cultivating agile teams. He also highlighted the value of bypassing bureaucratic constraints when needed and the global benefits of international collaboration, including successful engagements with partners like Singapore. Ultimately, DIUx's experience offers a valuable blueprint for driving innovation within large, conservative organisations, proving that with the right approach, commercial technology can effectively transform national defence operations.

Mr Ivan Zhang, Co-Founder, Cohere (Canada)

Mr Zhang shared insights on the evolution and deployment of AI agents, drawing from his experience building Cohere since its founding in 2019. Motivated by the realisation of pre-trained transformers' vast potential, Cohere now develops large language models for both commercial and public sectors. Mr Zhang explained that early AI agents struggled with consistency, but breakthroughs in teaching models how to reason improved their situational awareness. He showcased real-world use cases – from summarising complex military logistics manuals to enhancing cybersecurity operations and translating across languages. Despite these advances, he cautioned that AI struggles with rare or multimodal reasoning tasks. Mr Zhang also identified two key roadblocks: limited access to high-end computing and policy considerations for the responsible use of AI. He concluded by highlighting future deployment scenarios, such as AI-powered robotics and SIGINT applications, predicting that with more efficient models and improved hardware, edge deployment will become increasingly viable.

Mr Brandon Tseng, President and Co-Founder, Shield AI (USA)

Mr Tseng presented a compelling case for transforming military force structures through autonomous technologies. He warned that current strategies, which rely on centralised, high-value assets, are increasingly vulnerable to cheap, effective threats – highlighting the cost asymmetry that undermines deterrence. The solution, he suggested, lies in shifting towards intelligent, affordable mass, enabled by autonomy. Shield AI's Hivemind Enterprise software ecosystem empowers partners to build indigenous autonomous capabilities, with features like real-time navigation and rapid deployment tools. Mr Tseng cited Shield AI's success in bringing drones like the MQ-20 from concept to flight in just six weeks. Using the analogy of moving from desktop to mobile computing, he advocated for "DOGE-ing" military assets – skipping costly legacy systems in favour of scalable, distributed autonomous platforms. He concluded by reaffirming that autonomy is the most strategic technology of our time, capable of transforming warfare by enabling mass, coordinated operations with minimal human oversight.

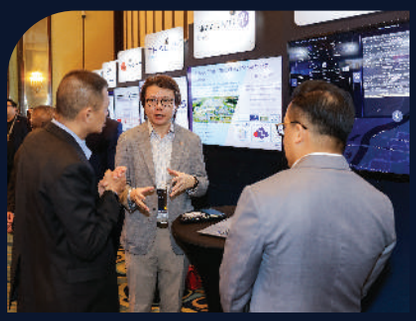
Mr Ryan Westerdahl, Chief Executive Officer and Founder, Turion Space Corp. (USA)

Mr Westerdahl stressed the need to build foundational infrastructure in space, noting that the opportunity to do so is now open. Turion Space is addressing national security and sustainability challenges through vertically integrated satellite and software development. Its first satellite, Droid.001, has taken the first non-Earth object image, while the recently launched Droid.002 furthers the company's mission of enhancing space domain awareness and orbital debris monitoring. Mr Westerdahl emphasised that over one million untracked objects in orbit pose significant risks, and Turion's non-Earth imaging capabilities are designed to detect threats and provide real-time intelligence. Looking ahead, Turion plans to scale up production via two satellite factories and expand its constellation through the Star Fleet initiative. The company also explores asteroid mining as a future dual-use application. He concluded by highlighting the responsibility of using advanced technology to build rather than destroy civilisation.

STRENGTHENING PARTNERSHIPS

Partnerships were announced on the sidelines of the summit, underscoring a strong commitment to collaborative innovation in defence technology.

TECH SHOWCASE



The showcase featured 20 exhibitors, highlighting innovative applications of emerging technologies across various fields, including AI and robotics.

NETWORKING

Beyond insightful discussions, the summit fostered meaningful connections and partnerships. Meetings took place alongside the main programme, bringing together defence tech leaders and experts from government, industry and academia to exchange perspectives on the latest trends.

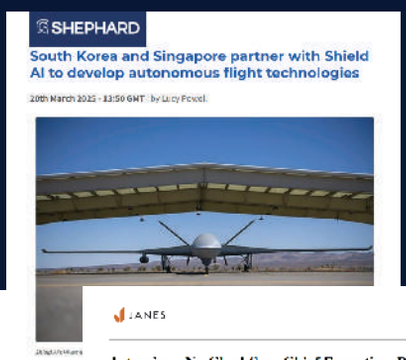
STUDENT ENGAGEMENT

The summit was also a platform to inspire the next generation of defence technologists. Around 120 students were invited to specially curated talks featuring industry leaders, including Cohere Co-Founder Mr Ivan Zhang and Resaro Managing Partner and CEO Ms April Chin.

TECH SUMMIT IN THE MEDIA AND ON SOCIAL MEDIA

The summit and its activities garnered significant international coverage and local media attention, with coverage across multiple platforms. It also sparked vibrant online engagement, as participants took to social media to share thought-provoking insights, key takeaways and memorable moments.


Safeguards needed for responsible use of defence innovations: Minister


SHEPHARD

South Korea and Singapore partner with Shield AI to develop autonomous flight technologies

20th March 2025 - 13:50 GMT - by Lucy Powell


4 WASHINGTON

ThyssenKrupp's warship division expects its market size to triple as defense spending surges

KEY POINTS

CEO Oliver Burkhard said reforms to Germany's "debt brake" shows that "when it comes to the defense budget, there is more or less no limit anymore."

ThyssenKrupp Marine Systems, or TKMS, is the warship division for German industrial engineering conglomerate ThyssenKrupp, and manufactures naval vessels and submarines.

Burkhard revealed TKMS' spinoff from parent ThyssenKrupp is aimed at being completed this year


AVIATION WEEK

Anduril Secures Singapore As Partner For Lattice Autonomy


JANES

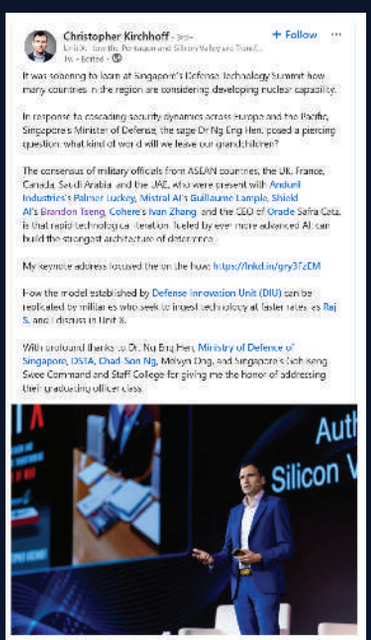
Interview: Ng Chad-Son, Chief Executive, Defence Science and Technology Agency

Date Posted: 29 Apr 2025

Author: Ridzwan Rahmat, Singapore

Publication: Jane's Defence Weekly

As battlefields continue to be shaped by autonomous and artificial intelligence driven systems, Singapore's DSTA ensures that the country's military remains a formidable force. *Ridzwan Rahmat* spoke to its chief executive to understand how


Christopher Kirchhoff · 3rd+ · Follow

It was sobering to learn at Singapore's Defense Technology Summit how many countries in the region are considering developing nuclear capability.

In response to cascading security dynamics across Europe and the Pacific, Singapore's Minister of Defense, the sage Dr Ng Eng Hen, posed a piercing question: what kind of war will we leave our grandchildren?

The consensus of military officials from ASEAN countries, the UK, France, Canada, Saudi Arabia, and the UAE, who were present with Anduril Industries's Palmer Luckey, Mistral AI's Guillaume Lample, Shield AI's Brandon Tseng, Cohere's Ivan Zhang, and the CEO of Oracle Safra Catz, is that rapid technological iteration, fueled by ever more advanced AI, can build the strongest architecture of deterrence.

My keynote address focused the on the how: https://linkd.in/gry3TcDM

How the model established by Defense Innovation Unit (DIU) can be replicated by militaries who seek to ingest tech idiocy at faster rates as Raj S. and I discuss in Unit X.

With profound thanks to Dr. Ng Eng Hen, Ministry of Defence of Singapore, DSTA, Chad-Son Ng, Melvyn Ong, and Singapore's Teh Keng Swee Command and Staff College for giving me the honor of addressing their graduating officer class.

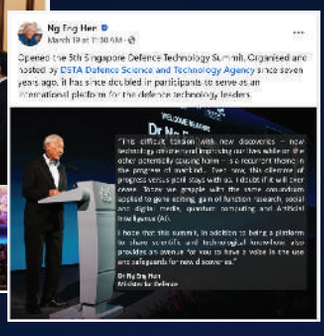

Hang Swee Keat · 3rd+ · March 20 at 10:25 AM

Glad to welcome key global leaders, innovators, and experts to the Singapore Defence Technology Summit 2025, organised by DSTA Defence Science and Technology Agency.

The theme of this year's Summit, "Navigating an Uncertain Tomorrow: Technology & Partnership", is particularly fitting. Technology is rapidly advancing, which presents both challenges and opportunities. Amidst growing technological contestation globally, it is vital that we build strong partnerships to harness technologies positively to mitigate vulnerabilities and improve lives, while safeguarding against harmful and irresponsible exploitation.

I shared with the Summit three Ps which anchor Singapore's approach to technology development. Progress to seize growth opportunities and develop talent in emerging areas; Protect to safeguard trust and security in a digital age; Partner to jointly navigate the changes that technology will bring. These principles guide our initiatives, like the National AI Strategy 2.0 and National Quantum Strategy.

Singapore will continue to foster partnerships in our tech start-up ecosystem. We hope to serve as a living laboratory, where partners from around the world can collaborate to develop new solutions, and scale this to Asia and beyond. I thank the DSTA for organising this biennial Summit.


Ng Eng Hen · 3rd+ · March 19 at 7:30 AM

Opened the 5th Singapore Defence Technology Summit. Organised and hosted by DSTA Defence Science and Technology Agency since seven years ago, it has since doubled in participants to serve as an international platform for the defence technology leaders.

Dr Ng...

"The difficult terrain with new discoveries – new technology and material inspired by nature while on the other potentially causing harm – is a recurrent theme in the progress of mankind. Even now, this dilemma of progress versus good stays with us. I doubt it will ever cease. Today we grapple with the same conundrum applied to gene editing, gain of function research, social and digital media, quantum computing, and Artificial Intelligence (AI).

I hope that this summit, in addition to being a platform for share scientific and technological knowhow, also provides an avenue for you to have a voice in the use and safeguards for new discoveries."

Dr Ng Eng Hen
Minister for Defence


Artificial Intelligence in Defence and Security: The Technology Gamechanger

+2

TESTIMONIALS

Mr Waleid Al Mesmari
President, Space and Cyber Technologies, EDGE Group (UAE)

"I extend my gratitude and thanks for this opportunity to exchange views … Joint collaboration is always better than competition … The evolving threat landscape necessitates not only innovation in how you develop, but also in how you partner with [others]."

Mr Oliver Burkhard
Chief Executive Officer, thyssenkrupp Marine Systems GmbH (Germany)

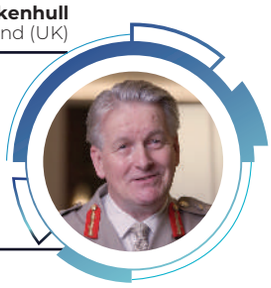
"[The summit] is very vibrant, I would say, because I've met a lot of people who are in charge of different functions from different countries … It's necessary to have events like this – we need to know [one another] and recalibrate our partnerships."

Ms April Chin
Managing Partner and Chief Executive Officer, Resaro (Singapore)

"It's been wonderful to have the opportunity to meet different technology providers as well as defence representatives from all over the world … It's wonderful that DSTA was able to facilitate a very rich discussion on what it means to grow defence technology capabilities."

General Sir Jim Hockenhull
Commander, UK Strategic Command (UK)

"One word [to summarise] today? I'd say it's inspiring … It's been a real alchemy – bringing together people with deep technological understanding … I was amazed at the scale, the range, the number of international partners that are here."



Honorable Andrew P. Hunter
Founder & Principal, Pax Per Consortia Strategies LLC (USA)

"In one word, I would call it invigorating … The variety of speakers, the different perspectives – from different nations, and also different actors within our science and technology space, all bringing their perspectives together to reach a higher answer."

Mr Seok Jonggun
Minister, Defense Acquisition Program Administration (Republic of Korea)

"I would describe my experience at the summit as an awakening. Defence technology is driving paradigm shifts on future battlefields, while also promoting technological advancements in the civilian sector. [It] also plays an important role in shaping the future of a nation."

Mr Hugh Webster
Chief Technology Officer, Boeing Australia (Australia)

"Summits like these are a good opportunity to reflect on technology, to reflect on the human part of technology … It's an opportunity to share thoughts and ideas about where that technology is going."

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