EDITORIAL

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Our world today continues to change rapidly. Novel technologies and ideas are emerging every day which bring forth many possibilities. Many creative and enterprising individuals and companies have sprung up to provide new services and products to meet market demands. The eleventh issue of DSTA Horizons, to some extent, encapsulates DSTA's efforts to face new challenges in the modern environment through innovation and collaboration in its support of the Ministry of Defence (MINDEF) and the Singapore Armed Forces (SAF). Nine articles have been chosen to reflect how we have developed new capabilities and deepened our knowledge in a diverse range of disciplines.

Realising large-scale enterprise IT solutions is a complex undertaking for many organisations. **'Enterprise Architecture, Design Thinking and Agile Development – New Strategies for Large-scale Enterprise IT Projects'** showcases how DSTA is incorporating Design Thinking and Agile Development into its Enterprise Architecture practices. It offers much insights into the use of this approach in the development of LEARNet Portal 2.0, an online platform that offers an enhanced learning experience for our serviceman in the SAF. **'Private Cloud Computing – Our Journey'** introduces the concept of cloud computing that can lead to greater agility and efficiency in the delivery of IT services. It traces DSTA's foray into this practice to augment the effectiveness of its IT services, as well as shares some key design considerations learned in the process.

DSTA also explores new approaches and solutions to shape the security landscape of MINDEF and the SAF. **'Smart Network and Security Operations Centre'** examines how IT visualisation and analytics can be leveraged in an integrated Network and Security Operations Centre to enhance the monitoring of the SAF's IT systems and streamline the incident management process. **'Challenges in Mobile Security'** shares the systematic approach adopted by DSTA to address the security challenges of adopting mobile technology. It touches on some design considerations for mobile solutions and delves into emerging technologies in mobile malware detection and analysis.

'Dietary Requirements' Review for the SAF' details the collaborative efforts between DSTA and SAF partners to review soldiers' dietary requirements, in accordance with national and international guidelines. The nutritional needs of SAF servicemen are regularly reviewed in tandem with changing training conditions, advances in technology and healthier food options.

Our project management teams continue to embrace new ideas and perspectives. DSTA harnesses its people's creativity and deep engineering expertise to provide holistic support for MINDEF and the SAF. **'Making a Difference Through Innovation: Missile Corvettes Upgrade Story'** outlines DSTA's novel approach in upgrading the Republic of Singapore Navy's Missile Corvettes. It chronicles how DSTA overcame key

engineering challenges to equip the vessels with enhanced surveillance capabilities, advanced communication systems and an unmanned aerial vehicle system to create better sensor coverage as well as improve its combat effectiveness. **'An Assessment of Land Vehicles Trafficability'** examines the performance and feasibility of wheeled and tracked platforms over different terrains using terramechanics analysis and calculation. With the growing popularity of wheeled platforms, the article also discusses the potential use of technologies that would boost the mobility of wheeled platforms so that they can be deployed across a wider range of missions and terrains. **'Development of Capability to Assess Explosion Effects for Protective Building and Infrastructure Design'** highlights how DSTA is developing its capabilities in modelling and analysing explosion effects through extensive research and collaboration with local and overseas partners to enable DSTA to better conceive and apply protective solutions in defence infrastructure facilities. These efforts included the conduct of large-scale explosive tests, the creation of a tool for computing blast loading in tunnel systems, and the development of a modelling approach. In **'DSTA's Application of Analytic Hierarchy Process for Tender Evaluation'**, the adoption of the Analytic Hierarchy Process (AHP) by DSTA is illustrated in greater detail. The article looks at how AHP can be applied for effective quantitative tender evaluations and describes some of the emerging challenges that users experienced in selecting the most cost-effective solutions.

We hope that the articles will give our readers a better understanding of DSTA's diverse competencies and experiences accumulated over the years. We would also like to express our appreciation to the authors and reviewers for their hard work and dedication. DSTA Horizons has come a long way since it was first published in 2005, and it is our wish that it will continue to serve as a useful and comprehensive knowledge repository for our defence professionals working in the ecosystem as well as contribute to the references for academic research in selected domains. Thank you.