



FACT SHEET

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Defence Technology Prize 2022 Team (Engineering) Award Winner

NEXT GENERATION ARMY COMMAND AND CONTROL INFORMATION SYSTEM TEAM

Defence Science and Technology Agency, Singapore Army, ST Engineering, NCS Pte Ltd

CITATION

The Next Generation Army Command and Control Information System (CCIS) Team, led by the Defence Science and Technology Agency with members from the Army, ST Engineering and NCS Pte Ltd, has delivered an advanced system for the Army. The system has reduced the battle procedure planning effort and shortened the decision process significantly for the Army through timely distribution of critical data across the forces and use of smart algorithms and automation to reduce the cognitive load. In recognition of its outstanding achievements and contributions, the team is awarded the DTP2022 Team (Engineering) Award.

ABOUT THE TEAM

The team comprises members from DSTA, the Army, ST Engineering, and NCS Pte Ltd with areas of expertise that include land combat systems design and integration, software engineering, cybersecurity, cloud, infocomm infrastructure, and building infrastructure. DSTA provided its multi-disciplinary expertise in spearheading the system design and managing the overall development of the CCIS. The Army provided operational insights and requirements to ensure that the system would meet its unique use-cases. ST Engineering and NCS Pte Ltd were the industry experts involved in the implementation of the system's cloud and network infrastructure.

TECHNICAL INNOVATION AND OPERATIONAL IMPACT

The team delivered the Next Gen Army CCIS, which transformed the way that the Army conducted battle planning and automated tedious processes to enhance mission efficiency. To achieve this, the team leveraged cloud technology to enhance collaboration and information sharing, developed smart applications to enhance mission effectiveness, and implemented unique cybersecurity solutions for tactical operations. Adopting an agile and continuous

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development approach, the team will continuously enhance the system based on user feedback and proliferate it to larger groups of Army users.

a) Leveraged cloud technology for enhanced collaboration and information sharing

The team delivered the first-of-its-kind cloud and cloudlets concept, comprising an on-premise cloud and cloudlets for operation in the battlefield. This has transformed the battle planning process by enabling planners to work concurrently instead of sequentially as done traditionally, thus increasing operational efficiency and effectiveness. The cloud infrastructure has also enabled the Army to move away from its current spiral equipping approach and replace the multiple generations of CCIS with a single generation across all Army Formations. This enables the entire Army to train and fight on a common CCIS, and enhance the experience for NSmen.

b) Developed smart applications to enhance mission effectiveness

The introduction of smart features and algorithms (e.g. automated terrain analysis and evaluation of plans) have enhanced ops planning by automating complex and manpower-intensive tasks, as well as enabling more data-driven decision-making and planning. The team also adopted industry best practices, such as design innovation and agile sprints to deliver a user-centric CCIS that is intuitive to operate and ease the learning curve for ops users, especially NSmen who only get to train during reservist. Agile sprints also accelerated the delivery of minimum viable products and ensured the software release remain relevant to meet users’ evolving requirements.

c) Implemented unique cybersecurity solutions for tactical operations

With greater collaboration and sharing of information, there are also cybersecurity risks. Hence the team had to develop and implement a multi-layered “Protect, Detect, and Respond” cybersecurity suite across the entire system. This included lightweight sensors and analytics for cyber defence monitoring at the tactical-level, with optimised alerts for reporting to higher HQ. In-house cyber analytics were also developed to further enhance threat detection and response time.

PROFILE OF TEAM LEADER

Name	Brendan Tan Weijian 陈伟健
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