DXC TECHNOLOGY

Virtual gaming-like experience helps Royal New Zealand Navy train for combat

CUSTOMER
Royal New Zealand Navy

LOCATION
New Zealand

INDUSTRY
Aerospace and Defence

Challenge

- The reliance on an operational platform (ship) to train Typhoon and Mini-Typhoon operators
- High cost and environmental impacts of conducting training on seagoing vessels
- Increasing requirement for trained personnel to ensure operational needs could be met

Solution

- Typhoon Classroom Training System (TCRTS) - a portable classroom training simulator for the Typhoon and Mini-Typhoon weapon systems
- A bespoke operator console that replicates the vessel's real-life switch panel with DXC's Combat System Simulator (CSSIM) providing the basis of simulation

Results

- Reduced time, cost, and environmental impact in running training onboard operational vessels
- Improved quality and intensity of training
- Better accessibility to training allows for more operators to receive training faster
- Reduced risk of damage to operational equipment through unfamiliar use and decreased wear and tear

Virtual gaming-like experience helps Royal New Zealand Navy train for combat

New Zealand Defence Force (NZDF) keeps New Zealand safe and secure. As part of the NZDF, the Royal New Zealand Navy (RNZN) provides a force of highly trained professionals to provide maritime security and plays an essential role in maintaining and preserving order in the region.

The project's key objective was to deliver standardised and realistic training to Combat Seaman Specialist personnel, with an enhanced training experience that achieved quicker skill acquisition.

While RNZN is prepared for combat, its technical skills, professional training, and high-end military equipment lend versability to a range of security and humanitarian tasks.

With around 90% of New Zealand's imports and exports transported by sea, RNZN ensures safe trade routes, which are critical for the country's economy. It also protects the natural ocean resources and those of its Pacific Island neighbours, and partners with other government agencies to provide humanitarian aid and disaster relief missions, fishery and border patrols, and other support where it is needed most.

Business challenge

The RNZN needed to improve the training of operators on the Typhoon, and its lightweight variant, the Mini-Typhoon, without relying on an operational platform (ship). Typhoon systems are a type of remote-controlled weapon station that forms part of a ship's protection system. With training delivered on ships and dependent on the availability of seagoing platforms, the RNZN wanted to remove that reliance on operational systems and enable safe classroom-based training via a simulation system.

This approach will reduce personnel training at sea, provide immediate access to training as and when required, and minimise the environmental impact of carrying out the exercise at sea.

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Solution

After a comprehensive RFP and evaluation process, the RNZN selected DXC Technology to design, install and configure a solution and provide ongoing support.

With an ongoing relationship with the NZDF, DXC has also been a trusted Australian Defence Force (ADF) service provider for 45+ years, and the RNZN was impressed with the work done to deliver simulation systems to the Royal Australian Navy (RAN). Based on DXC's Combat Systems Simulator (CSSIM), the RAN's highly successful Mobile Onboard Training System (MOBOTS) provides combat simulation training for ANZAC frigate operations crews to detect targets and fire weapons within safe, simulated combat environments.

DXC proposed the Typhoon Classroom Training System (TCRTS) for the RNZN based on CSSIM, which was developed to provide a virtual gaming-like experience for users. DXC designed the RNZN simulators with an operator console that replicates the vessel's real-life switch panel. TCRTS presents what users see on remote operators console in real life, providing geographical features to allow trainers to position the exercise anywhere in the world and the ability to introduce other vessels, targets, and activities that ensure a real-life training experience.

The system is also portable, offering the potential for the RNZN to take it on board for practice when a mission is deployed or to recruitment events to attract interest.

Implementation

The RNZN provided its requirements, and DXC came up with a detailed design, which was validated before development, extensive testing, and refinement. The testing and refinement process was ongoing, with several iterations before approval and finalisation.

DXC developed the turnkey solution with multiple simulators installed in a classroom at Devonport Naval Base's Maritime Warfare Training Centre (MWTC). Formal custom training for the instructors was also developed and provided onsite.

The bespoke approach required DXC to design and build a replica of the Typhoon management console from scratch since purchasing a switch panel from the original supplier was not cost effective. The software (CSSIM) was then configured to simulate the RNZN's operating procedures leveraging the expertise of DXC's highly experienced team. DXC employs ex-naval personnel with security clearance and specific defence industry knowledge and expertise on how these systems are used.

The system is also portable, offering the potential for the RNZN to take it on board for practice when a mission is deployed or to recruitment events to attract interest.

"The simulated environment is sufficiently realistic to allow both initial and advanced training resulting in proficient system operators. It was crucial that the TCRTS provide an identical experience to what our operators have on-board but without the prohibitive cost. DXC successfully delivered that."

— **Lieutenant Commander Nick Davey**
Project Manager Maritime Simulation, Capability Branch, Royal New Zealand Navy

Results and benefits

The classroom-based training simulator for the Typhoon and Mini-Typhoon systems supports the RNZN's mission to be a combat-capable force, trained, equipped, and ready to respond every hour of the day, every day of the year.

The new TCRTS emulates the functionality of the Typhoon and Mini-Typhoon systems on board RNZN vessels. Instructors can simulate events for students to respond to that provide the most demanding scenarios so they are ready and able to protect New Zealand's interests, whatever happens.

Significant benefits of the solution include reduced time, cost, and environmental impact, as well as improved training depth, complexity, and availability. The new TCRTS has removed the reliance on an operational system to conduct training and improved the quality of CSS career and operator courses conducted by the RNZN. It has also removed the risk of damage to operational equipment through unfamiliar use and decreased wear and tear.

Stuart Preston, Account Executive for DXC Technology said, "TCRTS allows a higher quality of training at a higher intensity. Training can be scheduled as required, and instructors can introduce faults into the game, providing opportunities for Combat System Specialists to practice more rigorous training."

Improved accessibility also means options to train more operators faster. The ship's bridge has one terminal in a fairly small space, limiting the number of people that can be taught together. In contrast, the classroom has three terminals, with two people at each, facilitating training for up to six operators at once.

Lieutenant Commander Nick Davey, Project Manager Maritime Simulation, Capability Branch from RNZN commented, "The simulated environment is sufficiently realistic to allow both initial and advanced training resulting in proficient system operators. It was crucial that the TCRTS provide an identical experience to what our operators have on-board but without the prohibitive cost. DXC successfully delivered that."

The solution has the potential for use by land-based forces to simulate remote weapon systems in armoured vehicles or other areas across Defence.

The future

While DXC works with other parts of the NZDF on various projects, it had not previously worked with the RNZN. However, following the success of this project, the RNZN continue to work with DXC, trusting them to provide ongoing local expertise, cost-effective support and issue resolution. It will also monitor any necessary upgrades to hardware, spares, and technical functionality to ensure continuous system optimisation.

This project is an example of a Navy Modelling and Simulation driven solution that optimises learning through an engineering mind-set, a systems perspective and as a lead user enables future product development opportunities. The ability to integrate the TCRTS into a simulated bridge (located in the same building) for an even more realistic training experience has been discussed. In addition, the solution has the potential for use by land-based forces to simulate remote weapon systems in armoured vehicles or other areas across Defence.

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