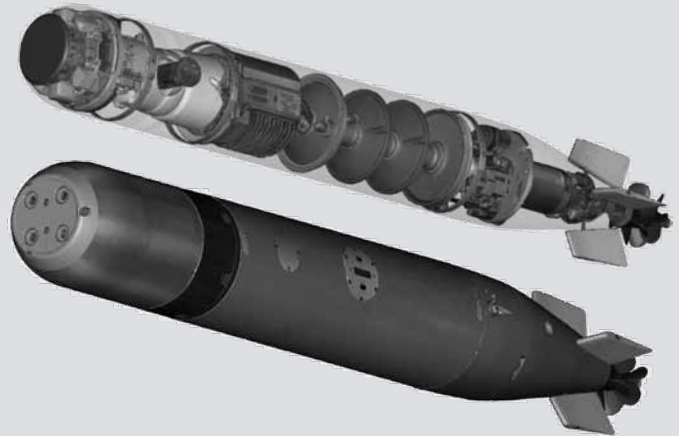


CANADIAN FORCES ACCELERATE AND ENHANCE TRAINING WITH TORPEDO TRAINING SOLUTION



PROJECT	MK-46 LIGHTWEIGHT TORPEDO VTT
CLIENT	CANADIAN FORCES 404 MARITIME PATROL AND TRAINING SQUADRON
KEY OBJECTIVES	<ul style="list-style-type: none"> ▶ INCREASE TRAINING THROUGHPUT ▶ IMPROVE COMPREHENSION OF INTERNAL COMPONENTS AND OPERATIONS ▶ ALLEVIATE INSTRUCTOR TIME SPENT ON DEVELOPING COURSEWARE

CHALLENGE

The MK-46 torpedo, a NATO standard, is designed to protect Canadian interests against naval threats from foreign submarines or surface vessels on both Atlantic and Pacific coasts. The torpedo may be launched from submarines, helicopters, and fixed-wing aircraft. The torpedo course, conducted at 404 (MP&T) Squadron, trains technicians on the installation/removal of flight accessories, component descriptions and interactions, and safe handling procedures, as well as Otto Fuel response. Each year, the course is conducted four times, has an average of four students per course, and takes 13 days to complete. With a shortage of skilled qualified technicians, the school needed to train new personnel – faster.

The original course utilized Microsoft® PowerPoint® presentations, manuals, and videos to train personnel, all of which had limitations in conveying information related to tasks and procedures. In addition to these training tools, two physical torpedo training aids provide personnel with hands-on practice, but these too had limitations, as it is difficult to show the internal components of the torpedo and related loading procedures.

Coupled with these limitations was the time it took to develop courseware. This was a challenge for the already busy instructors who spent a minimum of two hours to prepare one hour of instruction. With these limitations in mind, the school knew they needed a more effective training method that would enhance training.

BACKGROUND

The Canadian Forces 404 Maritime Patrol and Training (MP&T) Squadron at 14 Wing Greenwood on the east coast of Canada is the principal provider of aircrew and technician training for the CP-140 Aurora fleet. The 404 (MP&T) Squadron conducts weapons procedure training; specifically armament training for the MK-46 lightweight torpedo on the CP-140 Aurora.

Facing a shortage of qualified technicians, the Canadian Forces is adopting cutting-edge training technologies to accelerate the training of new personnel. The Directorate of Air Programs, responsible for the development and advancement of strategic Air Force projects, sponsored the development of an interactive 3D simulation-based training solution of the MK-46 torpedo to be used at both 404 (MP&T) Squadron and CP-140 technicians who are posted in Comox on the West Coast of Canada.

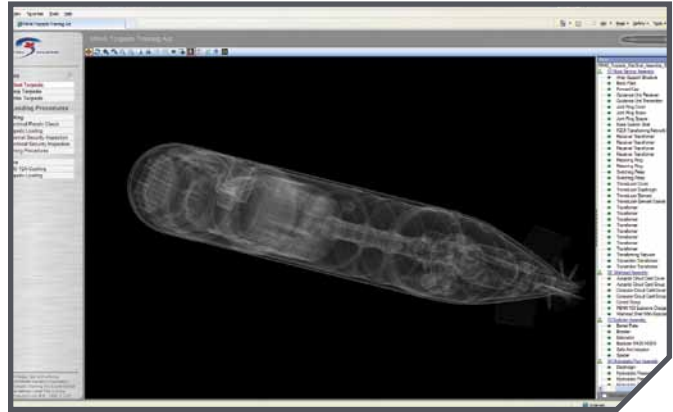
SOLUTION

The Directorate of Air Programs responsible for the development and advancement of strategic Air Force projects sponsored the development of an interactive 3D simulation-based MK-46 torpedo training solution to help train personnel more effectively and efficiently. With the support of subject-matter-experts from 404 (MP&T) Squadron and access to the equipment, NGRAIN® developed a Virtual Task Trainer™ to provide:

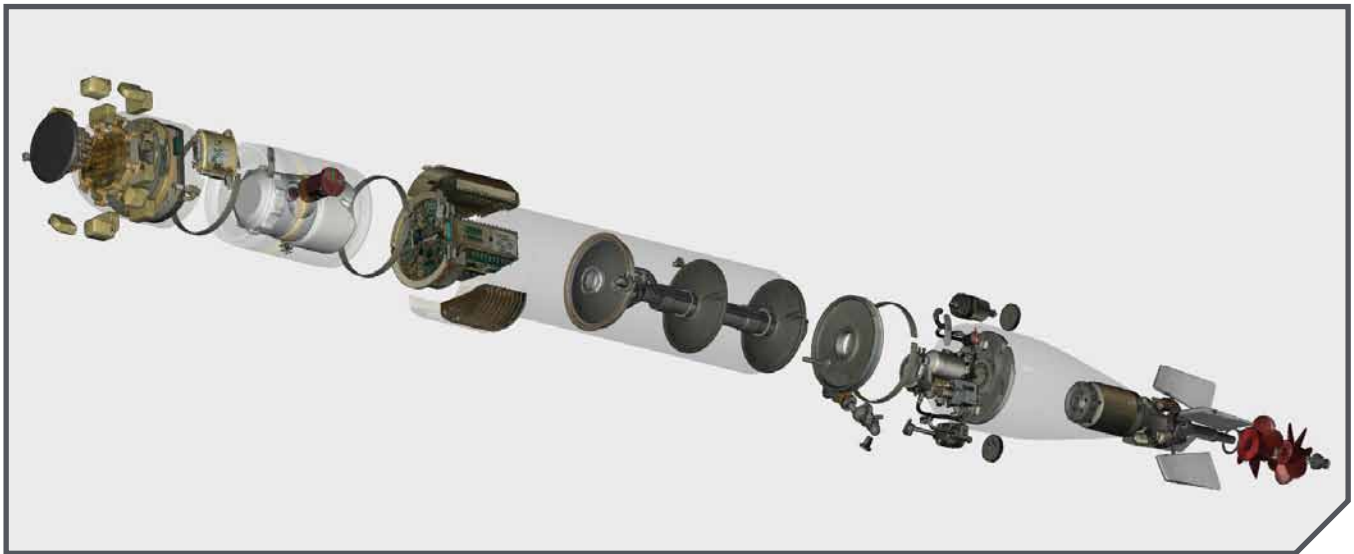
- ▶ **Parts Familiarization:** NGRAIN created interactive 3D simulations of three types of the MK-46 torpedo. Students are able to explore the torpedo by cross-sectioning the torpedo to view the internal components and viewing a part within the context of the entire torpedo assembly. The solution offers students a virtual hands-on experience.
- ▶ **Skill Acquisition:** NGRAIN created 3D procedural animations demonstrating how to prepare, load, unload and maintain the torpedo on an Aurora aircraft. These simulations support the visual learning style of today's student demographic and improve knowledge retention and student success rates.

RESULTS

From the previous prototype stage, the NGRAIN Virtual Task Trainer of the MK-46 torpedo garnered extremely successful results. In its first use, the solution increased student success rates through improved knowledge retention and test results increased to 91 percent (from 85 percent). The current solution will also help to provide training solutions that can be accessed by CP-140 technicians posted in CFB Comox, on the opposite coast from the school in CFB Greenwood.



NGRAIN Virtual Task Trainer | MK46 Torpedo VTT X-Ray View



NGRAIN Virtual Task Trainer | MK46 Torpedo Exploded View