

DEPARTMENT OF THE NAVY
SBIR/STTR TRANSITION PROGRAM
SPOTLIGHT

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Mira's SBIR Journey Bridges Air Force & Navy Innovation Ecosystems

By Esteban Castellanos, DoD program manager at Mira

The utilization of augmented reality (AR) in the Department of Defense is not new. In fact, the DoD was among the first to launch a functional AR product. In 1958, early head-up displays (HUDs) were used for the military in fighter aircraft, superimposing graphics onto the real world by projecting them onto a glass pane in the pilot's field of view. This ensured pilots no longer had to look "heads-down" at the instruments, hence the name "heads-up" display.

Despite this early success, achieving innovation within the DoD during modern times can be challenging, but not impossible. Many people work tirelessly to empower the Navy and Air Force to outfit servicemembers with modern technologies so that they can maintain the edge over adversaries while simultaneously progressing the AR industry in the United States. [Mira®](#), a Los Angeles-based AR headset manufacturer, has successfully partnered with the DoD to do just that.

[The Mira Prism Pro headset](#), which was originally an Air Force SBIR topic, caught the eyes of Navy personnel working in dry dock shipyards who wanted to focus on the critical issue of training and up-skilling their workforce within maintenance, repair, operations, and sustainment. After [Mira's success](#) with its Air Force partner for remote maintenance and troubleshooting, Mira's Navy partner, NAVSEA, wanted to utilize Mira's head-up and hands-free AR headset to accelerate and



Image courtesy of Mira

An audience member tries out Mira's headset during a presentation at Sea-Air-Space 2022.

enhance training in dry dock shipyards.

Patrick Violante, team lead for the Naval Surface Warfare Center, Philadelphia Division (NSWCPD) Advanced Data Acquisition Prototyping Technology Virtual Environments (ADAPT.VE Lab), Sustainment and Repair Knowledge Point Champion, put the initial innovation stake in the ground by championing this technology. He recognized that AR technology could be used to accelerate up-skilling in the Navy environment, where

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Mira's SBIR Journey Bridges Air Force & Navy Innovation Ecosystems...Continued

institutional knowledge existed in an unstructured format and was often lost when employees moved on. The stated goal was to equip new personnel with a headset to rapidly acquaint them with dry dock procedures, mirroring what the Air Force had previously achieved through its partnership with the Mira team.

Bill Fox, project manager at Portsmouth Naval Shipyard, led the charge, bringing on Nick Larabee, a training manager whose knowledge of navigating innovation with mobile devices was critical since a smartphone powers the Mira Prism Pro.

Gary Elvik, head of dry dock with an immense knowledge of dry dock operations, showed his commitment to improving the business of the shipyard through innovation and leveraging [Mira's Flow application](#), a workflow authoring tool, which is accessible through the headset, to capture

unstructured data in an accessible format so a frontline worker can put on Mira's headset and be led through processes intuitively, with minimal training. This yields accelerated training and

increased compliance with previously handheld checklists. As this technology continues to integrate within service branches it

grows in value, offering today's warfighters the necessary tools to perform a broader range of mission-related tasks at any time. For example, the Air Force can leverage the Mira headset for Agile Combat Employment (ACE) operations

to increase survivability and combat power by quickly dispersing small contingents of Airmen to remote bases. Now, any Mira headset wearer can

access subject matter experts anywhere in the world, getting the right knowledge, at the right time, at the point of need. This increases the Air

HARDWARE
Mira Prism Pro Headset
Hands-Free, Heades-Up Display

Camera
Built in wide angle 1.88 mm anti-reflective and scratch-resistant Camera

Battery
Built-in 17.6 watt-hour lithium-ion battery

Lens
PPE compatible hydrophobic, scratch-resistant, anti-reflective or reflective, retractable lens

PPE Compatible
MSA Type 1 V Gard Hard Hat

iPhone
Smartphone powered technology

Image courtesy of Mira

Naval Information Warfare Center Pacific's Battlespace Exploitation of Mixed Reality Laboratory has been testing the Mira headset.



SOFTWARE
Mira Flow
Handsfree Digital Workflow Guidance & Checklists

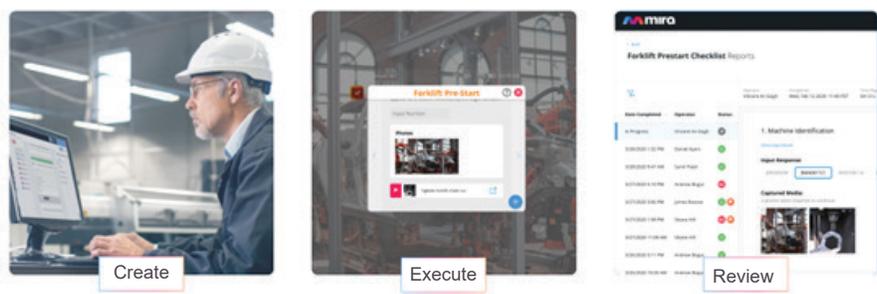
Image courtesy of Mira

Create

Execute

Review

Mira's Flow application, which is accessible through the headset, yields accelerated training and increased compliance with previously handheld checklists.



Force's flexibility to make targeting our forces more difficult for adversaries.

Additionally, the Naval Information Warfare Center Pacific's Battlespace Exploitation of Mixed Reality (BEMR) Laboratory seeks to leverage low-cost commercial technology in the mixed reality space for collaboration between warfighters, researchers, government, industry, and academia. BEMR has been [testing](#) the Mira headset. In May 2022, BEMR Labs explored more AR use-cases incorporating 5G capabilities for trans-shipments between shore facilities and Naval units to support a 5G Smart Warehouse initiative.

Moreover, with commercial airline, cargo, vehicle, and logistics ground maintenance applications, and a mushrooming business model of how AR will revolutionize collaboration, it is no longer considered an emergent technology. The technology has arrived and adoption in the Navy now will help the United States stay ahead of its adversaries. Everyone sees the value and utility of having a smartphone as a tool for work, and an AR headset powered by a smartphone can be equally beneficial. Mira is in the lead position to deliver operational AR to the Navy at the point-of-need.

Participating in the Department of Navy SBIR/STTR Transition Program (Navy STP) gave Mira additional insight into transitioning technology to the Navy. Navy STP connects SBIR/STTR-funded technologies with warfighters, government acquisition and technical personnel, prime contractors, and other potential partnerships. The program's Virtual Transition Marketplace ([VTM](#)) helps Navy STP participants showcase their products so members of the DoD and primes can connect and explore these Navy-supported technologies. [Mira's Tech Talk](#) can be found under

the VTM's keyword "Augmented Reality." Mira's Navy STP business consultant helped steer Mira toward other potential Navy opportunities, such as the Sea-Air-Space Exposition in

April 2022, in Washington, where Mira provided a live demonstration of the technology.

For more information, visit Mira's website at www.mirareality.com. To explore AR remedies for your team's problem sets, contact Esteban Castellanos, Mira's DoD program manager, by visiting www.mirareality.com.

