

## Virtual victories: Marines sharpen skills with new virtual-reality games

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Marines test out the HoloLens during a training exercise geared towards the development and strengthening of small unit-decision making at Camp Lejeune, N.C. The HoloLens is an augmented-reality system designed to overlay digital information on top of an actual field of vision, and is part of the tactical decision kits that the U.S. Marine Corps is distributing to 24 infantry battalions. Credit: Sgt. Kaitlyn V. Klein, U.S. Marine Corps

Battlefield commanders confront life-or-death situations requiring fast, yet informed, decisions. To develop, strengthen and accelerate these quick-thinking abilities—particularly among small-unit leaders—the U.S. Marine Corps is distributing new "tactical decision kits" to 24 infantry battalions.

The kits, to be rolled out over the next six months, include software sponsored by the Office of Naval Research (ONR). They can be used in field, barracks or classroom settings to provide warfighters with a versatile workspace to practice and hone their decision-making skills. The included software tools enhance existing training technologies like virtual first-person simulations or field exercises.

"This suite of new training tools is easy to implement and can be tailored to Marines' needs," said Dr. Peter Squire, a program officer in ONR's Expeditionary Maneuver Warfare and Combating Terrorism Department. "It will allow Marines to think more critically and adapt more quickly to changing environments and adversaries."

The ONR-sponsored [technology](#) includes (1) the Interactive Tactical Decision Game (I-TDG); (2) an augmented-reality Sand Table application that uses a HoloLens visual display to insert virtual objects into an actual field of sight; and (3) a quadcopter-based system for quickly surveying and modeling terrain.

- I-TDG is a web-based application that allows Marines to plan missions and conduct "what if" tactical-decision games. It supports capturing virtual or live exercise scenarios and incorporating them into games that can be shared battalion-wide. I-TDG links to the Sand Table app to support terrain visualization and collaborative planning and review.
- Sand Table allows multiple Marines to interact with a virtual "hologram"—generated by the HoloLens—of real-world, three-

dimensional terrain. I-TDG units are displayed on this terrain and can be moved around. Because this is a shared augmented-reality environment (virtual objects placed in actual physical setting), Marines can see their surroundings and fellow participants virtually while remaining rooted in the real world.

- To rapidly develop terrain models to support these technologies, Marines can operate the quadcopter-based terrain-mapping system to create a 3D model of a training area.

Among their many capabilities, the tactical decision kits literally bring training to where warfighters live. The kits are designed to be employed in barracks "decision rooms," where Marines can practice and compete in tactical decision-making on a routine basis.

In a recent media interview, Col. James Jenkins, director of Science and Technology for the Marine Corps Warfighting Lab, said the value of the system is in the ability of squads and small units to run the same scenario multiple times with detailed after-action feedback.

"Here's the debrief, here's who shot whom, when, and here's why—and go back and get better every time," he said.

The tactical decision kit technology was developed in close cooperation with 2nd Battalion, 6th Marines (2/6) based in Camp Lejeune, North Carolina. The battalion employed prototypes in barracks decision rooms, in events such as [Spartan Week](#), and in support of field activities such as a live fire exercise recently executed at 29 Palms, California.

These successes were largely responsible for inspiring senior Marine Corps leadership to select the tactical decision kits as the first experiment for the service's newly created Rapid Capabilities Office, which is designed to more quickly develop and deliver promising new technologies.

Provided by Office of Naval Research

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