

# Pursuit of the Possible

## USSOCOM's Technical Experimentation Program

Tom McGowan

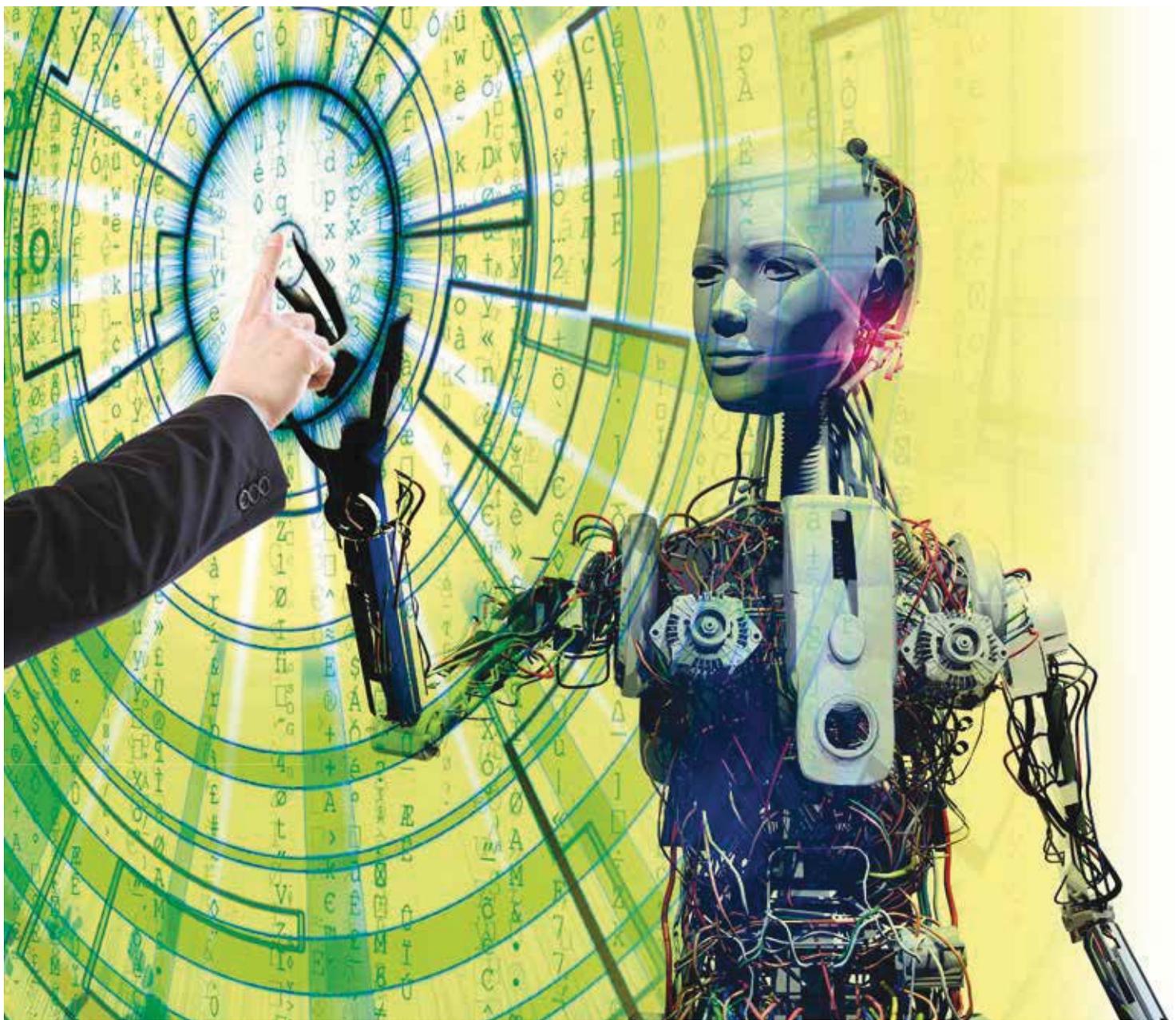


The U.S. Special Operations Command (USSOCOM) Technical Experimentation (TE) program brings together Special Operations Forces (SOF) operational users, acquisition program managers and technology developers (industry, government research and development labs and academia) in a collaborative environment to evaluate new technologies currently being developed.

Under the sponsorship of the USSOCOM Science and Technology Directorate, these events are conducted throughout the year to rapidly assess the technical maturity and potential military utility of technologies, based on the areas of need identified by the USSOCOM Components, Theater Special Operations Commands (TSOCs) and Program Executive Offices (PEOs). Typically, the Directorate conducts three to four events yearly, at various military installations throughout the United States, often in field conditions. Depending on the need, the events focus on a broad operational theme or a specific capability area.

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During the events, technology developers describe and then physically demonstrate the current function and performance level of their technology products. In many instances, operators participate (hands on) in the demonstrations or experiments to more accurately evaluate the technology and provide constructive feedback to the developer. There are numerous benefits of these events, including discovery of emerging technologies, assessment of potential utility to SOF, program/project risk reduction, cost savings to developers, and, in general, promotion of technology information exchange between all participants. All TE events are held at the unclassified level to maximize participation by developers.

USSOCOM's TE program has evolved from a joint venture between USSOCOM and the Naval Post Graduate School (NPS) originally called Surveillance and Target Acquisition Network and later renamed Tactical Network Topologies (TNT). The TNT program drew many

of its technology topics from the efforts of NPS graduate students and primarily was characterized by networks, sensors and unmanned aerial systems experimentation. This program followed a quarterly schedule with a 2-week format. The first week consisted of technology-driven Capability Based Assessments and the second week featured tactical-scenario-driven Mission Based Assessments. Over time, diminishing funding and schedule and/or program issues drove the joint effort to evolve into three separate efforts. Although similar in appearance, these three programs are distinctly different:

- Joint Interagency Field Experimentation: Conducted by NPS, primarily at Camp Roberts, California, and other West Coast venues. The focus remains driven by NPS educational goals with experiments/demonstrations typically at lower Technology Readiness Levels.

**A very important aspect of these events is that they are not designed as a marketing event or trade show but rather as a venue where developer engineers can come out and experiment with their technology.**

- Technical Support Operational Analysis: Sponsored by the Assistant Secretary of the Army for Acquisition, Logistics and Technology and conducted by Army Adaptive Red Team at venues throughout the country. These events feature scenario-based experiments of relatively mature technology.
- TE: Conducted by USSOCOM specifically to address capability areas identified by USSOCOM Service Components, TSOCs and PEOs. TEs typically include equipment characterized as of midrange technical maturity, usually too immature for scenario-based events.

**Players:** The three key groups that participate in TE are the SOF operational user community, program managers and technology developers. Each group has a critical impact on technology development, and each has something to gain from the events. The operational users are representatives from each of the USSOCOM Service Components: United States Army Special Operations Command, Naval Special Warfare Command, Air Force Special Operations Command, Joint Special Operations Command, and the Marine Corps Forces Special Operations Command. Program managers and government project officers are primarily from USSOCOM's six commodity focused Program Executive Offices (Maritime, Fixed Wing, Rotary Wing, SOF Warrior, C4, Special Reconnaissance, Surveillance and Exploitation [SR]). USSOCOM Science and Technology Directorate's technology development leaders also are engaged throughout the process.

Technology developers can be from government organizations, academia or industry, with a large percentage of industry participants coming from small businesses.

**Process:** Themes and venues for TE events are developed annually and are based on input from USSOCOM Service Components and PEOs. The event process is initiated with a Request for Information (RFI) posted on Federal Business Opportunities (FBO.gov) approximately 4 months prior to the event. The RFI specifies the theme(s), technology areas of interest for the particular event, the submission format and other requirements. Technology developers respond



**Patriot 3 Inc.'s Jet Boots and Shark Marine Technologies Inc.'s Subnet Diver to Diver to Surface Data Communications, and a diver ready for action.**

*Photo by SSG Ian Brown, USSOCOM*

to the RFI with a white paper describing their technology and experiment qualifications. When the RFI closes (usually 30 days after opening), the TE team disseminates the submissions to USSOCOM PEOs, Service Components and TSOCs for review and selection. Based on this feedback and voting, selected nominees are invited to participate in the TE event. This notification or invitation usually happens approximately 45 days but never less than 30 days prior to the event. During this same time, there is coordination for assessors from each of the USSOCOM Service Components. Depending on availability, a minimum of four to eight representatives from each of the Service Components attend. They are augmented by assessors from the PEOs and other USSOCOM Headquarters elements. All assessors provide written feedback to the TE team, which is subsequently disseminated to the technology developers.

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**Above: Morning briefing on maritime diving equipment and how it will be used in operations.**

*Photo by SSG Ian Brown, USSOCOM*

**Below: Ad hoc experiment with a Shark Marine-equipped diver on the move.**

*Photo by SSG Ian Brown, USSOCOM*



**Benefits:** For USSOCOM, the events provide the opportunity for program management personnel, engineers and operators to identify and evaluate potential technology solutions to current capability gaps. Operational users get to evaluate the latest technology developments that may address needs relevant to their command. Program managers have the opportunity to evaluate emerging technologies pertinent to their portfolios and to establish awareness of companies that operate in their particular interest areas. The payoff for participating technology developers includes the unique opportunity to interact face to face with SOF operational personnel and other members of the SOF community. This significantly increases their understanding of how their technology may be



employed by the SOF community and in what direction their future development efforts should be focused. This can help conserve the developer's independent research and development dollars, refine developmental focus and shorten development cycles. Another spinoff benefit of these events is the opportunity for the technology developers to collaborate and integrate their technologies with each other during the event. These occurrences, referred to as "ad hoc" experiments, often produce very valuable lessons learned.

### Recent Events

- *TE 16-1 Biomedical and Sensitive Site Exploitation on Dec. 1-3, 2015, at the National Forensic Science Technology Center in Largo, Florida.* TE 16-1 focused on technologies that support medical training and/or simulations and Sensitive Site Exploitation. The technologies evaluated included replica physiological and environmental phenomena, high-fidelity human surgical and medical simulators, canine medical simulations as well as multiple portable biological agent/explosives detection devices. A good example of an ad hoc

experiment is the photo at left.

- *TE 16-2 Command, Control, Communications, and Computers and Mobility on March 7-11, 2016, at Camp Roberts in California.* TE 16-2 focused on mobile ad hoc network radio systems, ground and air commercial and military vehicle networking architectures and systems, reliable network security standards, encryption algorithms, commercial solutions for classified architectures to the end user's device, securing one-to-one or one-to-many video collaboration architectures for mobile devices, and software-defined networking for tactical environments, etc. As part of the

mobility theme, operators evaluated armored vehicle extraction tools, tools and devices to lift the vehicle or breach the vehicles armor without injuring the occupants. Several follow-up and more in-depth technology assessments are anticipated as a result of this event.

### Planned Events and New Developments

■ *TE 16-3 Urban Operations/Unconventional Warfare July 11-15, 2016, at the Camp Atterbury-Muscatatuck Center for Complex Operations in Indiana.* The TE 16-3 event focuses on technologies capable of supporting urban, unconventional warfare operations. The typical technologies of interest for this event include: the ability to communicate and navigate in a Global Positioning System degraded environment, navigational accuracy, Intelligence, Surveillance, Reconnaissance (ISR) technologies, unmanned systems, scalable effects weapons, employment of weapons, concealable soft body armor, social network analysis, improved visual augmentation devices and standoff weapon/explosive detection devices, just to name a few.

■ *TE 16-4 Maritime surface operations, Sept. 19-23, 2016, in Virginia Beach, Virginia.* TE 16-4 will focus on technologies applicable to current and future SOF maritime craft. Typical technologies of interest may include improved communications/antennas, navigational devices, ISR technologies, shock mitigation, ballistic protection and active ride control.

New developments for the TE program include:

- Reducing the length of the events from 2 weeks to 1 week. This has created a refined focus and selectivity on desired technologies, increased the availability/participation of government programmatic and operational assessors, while enabling increased participation by small businesses.
- Improving the TE programs presence on social media. The TE program can now be found on Facebook (<https://www.facebook.com/SOCOMTE>), LinkedIn (<https://www.linkedin.com/groups/6559158/profile>) and Twitter (<https://twitter.com/SOCOMTE>). These sites provide a great way to stay up to date on TE program developments and news.
- Providing written assessment and feedback to all technology developers who participate in the events. This written feedback is an addition to any verbal feedback received at the event. This is a significant improvement over the past practice of providing only verbal feedback.

The USSOCOM TE program will continue expanding SOF's awareness of emerging technologies while offering technology developers the opportunity to collaborate with SOF operators and the acquisition community. For more information on the TE program, readers should visit the TE website at: <http://www.socom.mil/sordac/Pages/ExpWithUS.aspx>. 

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