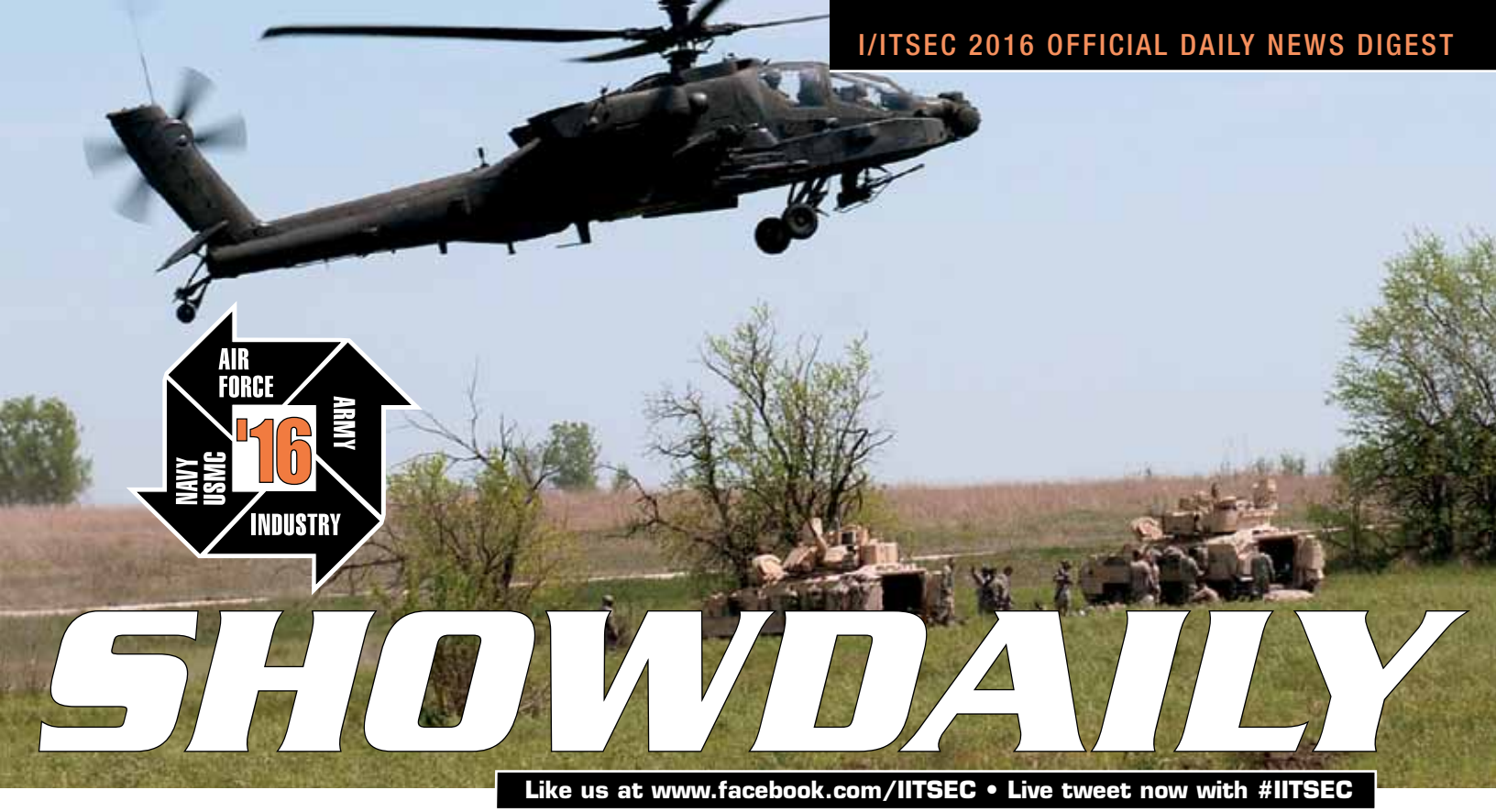

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THURSDAY, DECEMBER 1, 2016

Army Seeks Aviation Force-on-Force Training Feedback

(Submitted by PEO STRI Strategic Communications Support Staff)

Ever since the first aircraft was used in battle during the Italo-Turkish War in 1911, aerial superiority has played a decisive role in determining victory on the battlefield.

Since then, realistic combined arms training has become increasingly important to achieving that success from the air.

However, unlike their battle buddies on the ground who, since the early 1970s, have been equipped with the Multiple Integrated Laser Engagement System (MILES) for feedback as they staged mock battles, aviators have not had the technology available to relay to them or their commanders the cause and effect of their warfighting actions while involved in a combined arms training exercise.

The United States Army Aviation Center of Excellence along with the Maneuver Center of Excellence saw this as a critical need and, through the Training and Doctrine Command's Capability Manager – Live, funded a study to determine the feasibility of employing such technology.

Thanks to more than two years of dedicated efforts by a team from the Product Manager, Live Training Systems (PdM LTS) at the Program Executive Office for Simulation, Training and Instrumentation (PEO STRI) in Orlando, Army aviators may soon have a new high-fidelity training system to help hone their warfighting skills to an even higher level.

The new technology was recently tested in a 'proof of principle' demonstration when Soldiers from the 1st Squadron, 6th Cavalry Regiment, 1st Infantry Division Combat Aviation Brigade at Fort Riley, KS conducted an evaluation exercise from September 12-16.

The demonstration involved instrumenting six aircraft being used during multiple missions throughout the week so feedback could be attained through the Home Station Instrumentation Training System (HITS), which provides cause and effect of training performance during After Action Reviews (AAR).

The activity undertaken by the aviators during the exercise was captured by HITS and provided both ground-to-air (hostile action taken against the aircraft) and air-to-ground (action taken against the ground opposing forces) in the AARs.

"We are extremely pleased with the outcome of this test and feel it is a real game changer from a perspective of linking in live aviation assets into the Live, Virtual, Constructive – Integrating Architecture and gaming community," said Lieutenant Colonel Corey Hemingway, PM LTS. "I am very proud of our team for the hard work they put into this effort and the advanced training capability it will provide for Army aviators."

"Looking forward, we would recommend that we upgrade seven HITS with an aviation capability to reduce the need for redundant standalone aviation instrumentation currently being used at home stations for the Longbow Apache Tactical Engagement Simulation System," he added.

USAF PANEL	ROBB REFLECTS	CYBER TRAINING
PAGE 8	PAGE 14	PAGE 25

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TODAY'S CONFERENCE

HIGHLIGHTS

THURSDAY, DECEMBER 1

SIGNATURE/FOCUS EVENTS

0830-1000 **Paper Sessions** *(Room W304ABEFGH)*

0830-1000 **Measurably Improving Mission Effectiveness with Human-Centered Technology** *(Room W304CD)*

1000-1130 **Operation Blended Warrior:** The Enemy Unmasked *(Booth 349)*

1030-1200 **Paper Sessions** *(Room W304ABEFGH)*

1030-1200 **Black Swan Challenges and Opportunities to the M&S Community** *(Room W304CD)*

1300 **Awards Ceremony:** Serious Games Showcase and Challenge *(Room 2081)*

1330-1500 **Paper Sessions** *(Room W304ABEFGH)*

1345 **Awards Ceremony:** Future Leaders Pavilion *(Booth 2081, Warfighters Corner)*

1800 **Host Reception** sponsored by Lockheed Martin *(Hyatt Regency, Windermere Foyer)*

1900 Conference Awards Banquet *(Hyatt Regency, Windermere Ballroom)*

PROGRAM BRIEF

1030-1200 Navy Vision from the Training System's Program Managers *(Room W306AB)*

COMMUNITY OF INTEREST

0830-1000 Geospatial Standards *(Room W306AB)*

EXHIBIT HALL HOURS

0930-1500

REGISTRATION HOURS

0700-1500

SHOWDAILY

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US Army to Spearhead I/ITSEC 2017

As I/ITSEC 2016 comes to a very successful close, plans are already well underway for next year's conference, which will rotate to the US Army as the lead service.

"The Air Force did an excellent job as the lead service for this year's conference and we look forward to mirroring their success when we meet back here next year," said Brigadier General William E. Cole, the Program Executive Officer for the Program Executive Office for Simulation, Training and Instrumentation, who will be representing the Army in the lead role.

Embracing the call from the Secretary of Defense for the military services to accelerate the spirit of technological innovation to maintain America's edge in a complex and changing world, the Army crafted the I/ITSEC 2017 theme of "Harnessing New Technologies to Win in a Complex World."

"Our military continues to train for the complexities of an ever-evolving future battlefield. I have no doubt the modeling and simulation industry will excel in meeting the challenge to ensure our warfighters are expertly trained to fight and remain the most lethal force in the world," Cole said.

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Virtual Maintenance Trainer Helps Keep UH-72A Lakotas Flying

(Submitted by PEO STRI Strategic Communications Support Staff)

There's a saying in the aircraft maintenance world that "You can teach a monkey to fly an aircraft, but not to fix it!"

When it comes to maintenance on the US Army's latest light utility helicopter, the $8.56 million UH-72A Lakota, the Army isn't monkeying around in ensuring that anyone putting the wrenches to the high-tech engine know exactly what they are doing.

The Army National Guard (ANG) was the recipient of the majority of the more than 300 delivered UH-72A helicopters, and initially relied on experienced aircraft maintenance contractors to maintain the fleet. Subsequently, the Army decided to shift the maintenance responsibility to Soldiers who serve in the military occupational specialty of 15T, Helicopter Repairer.

Soldiers attending a LUH-72 Lakota maintainer's course, at the Western Army National Guard Aviation Training Site in Marana, AZ, get their first look at the Virtual Maintenance Trainer, on June 6. The 12 workstations VMT provides students with the ability to familiarize and practice maintenance tasks prior to ever opening a door or hatch on the physical aircraft.

To fulfill the new training need, the Program Executive Office, Simulation, Training and Instrumentation (PEO STRI), located in Orlando, FL received the requirement of procuring and fielding a computer-based institutional training suite consisting of 12 interactive student workstations and one instructor/operator station for those Soldiers.

PEO STRI's Product Manager, Maneuver Collective Training Systems assigned a UH-72A team, led by project director Cindi Slepow, to undertake the task of delivering the final product to the Western Army National Guard Aviation Training Site (WAATS) located in Marana, AZ.

"The requirement we put out to industry in 2014 was for a virtual maintenance trainer (VMT) that would provide practical exercises for training the 15T Soldiers to their task standards," Slepow explained. "The tasks include removing and replacing parts, doing periodic inspections of the aircraft and troubleshooting any malfunctions."

In April 2015, a $4.4 million small-business contract was awarded for the training suite that also includes a 'reach-back' capability to supplement a Soldier's training by having the virtual training content on a hand-held mobile device.

Slepow said the milestones of fielding of the new UH-72A VMT are moving along nicely, including the recent Government Acceptance Testing (GAT) to ensure all contractual specifications were met.

"We conducted the GAT this past April with aircraft maintenance instructor subject matter experts participating," she said. "We ran more than 140 test procedures containing more than 17,000 action steps. We then fixed any discrepancies noted and rechecked them to ensure all procedures were running as they are supposed to."

She added that the contract award includes a two-year interim contractor support period that runs through June 2018 to further ensure the fidelity of the system.

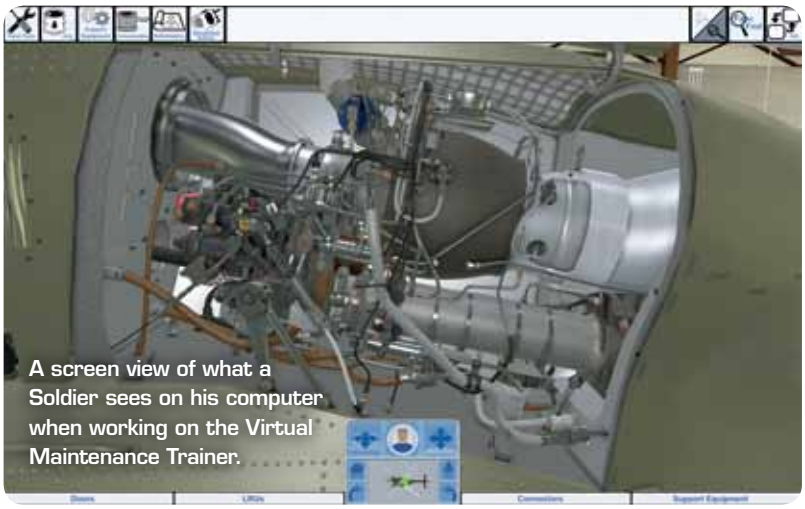
In an article written by Sergeant First Class Monette Wesolek for the Arizona National Guard, the battalion commander of the WAATS Total Army School System (TASS) was pleased when the VMT was received on June 6.

"The repair course provides instruction of 66 essential maintenance tasks," said Lieutenant Colonel John Morelos. "By leveraging technology and learner-centric teaching strategies, the VMT provides a familiar digital platform that connects with the new generation of Soldiers."

The TASS first sergeant also was also excited about having the VMT as a major training aid for Soldiers passing through the school.

"The VMT will enhance training for the newer Soldiers who have grown up in this technology-laden environment while adhering to the Soldier competencies," said First Sergeant James Morrison.

The article pointed out that more than 100 Soldiers per year are expected to attend the new course using the VMT and it will serve as a reference for more than 150 student pilots and other aircraft maintainers.



A screen view of what a Soldier sees on his computer when working on the Virtual Maintenance Trainer.

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Air Force Needs to Leverage LVC Training

As it brings in fifth generation aircraft, faces an increasingly contested space environment and grapples with the cyber domain, the US Air Force (USAF) is looking at live, virtual, constructive (LVC) to address the resultant training needs.

At a panel on LVC Operational Training (LVC-OT) at I/ITSEC 2016, senior USAF leaders explained how the service is looking to leverage new training approaches across the commands to meet such new realities.

Major General Thomas Deale, Director of Operations, Headquarters, Air Combat Command, said while the service had an excellent grasp on the live and virtual parts of the puzzle, the introduction of constructive training was essential to meet the changing threat landscape.

"As we are fielding a more and more predominant fifth generation fleet with the F-22 and F-35 but also as you look at the high-end fight – that anti-access, area denial environment that we are potentially going against – our infrastructure for training doesn't necessarily meet all of our training needs. That's what's really driving our shift towards an LVC training construct," Deale explained.

Live training will remain a key part of the equation because training is different "when you have skin in the game" and it is also "a team sport," training the entire chain that gets an aircraft in the air.

"Virtual has continued to increase, in both capacity and capabilities. It is a way for us to simulate that environment. It is also a way for us to address some of the security concerns we have related to the capabilities of our systems and weapons as well as the tactics, techniques and procedures we would use in a modern battlefield," Deale said.

"But there is going to be a shift towards a common environment with which we can all play in the constructive or virtual, and we need that to be an open system itself – we can't have proprietary ownership of that. That environment will also include the threat emulation, the weapon systems emulation and the connectivity and protocols that go into connecting to this training environment. And we are working towards that approach."

Among the technical challenges Deale identified were the significant networking requirements for a constructive training environment, and the fact any LVC-OT construct must be multi-domain, cover the full spectrum of operations and be scalable, supporting day-to-day training all the way up to large exercises.

Brigadier General William Holt, Director of Operations for Headquarters, Air Force Special Operations Command, noted that the majority of simulators in operation were built before the widespread adoption of distributed learning and are inadequate to train for the complexity of modern operations.

"One example of modern complex environments: our simulators were built for primary training but over the last 15 years we have morphed from aircraft operating by themselves, with maybe one or two other aircraft in the airspace to stacks of aircraft, with JTACs [joint terminal attack controllers], Navy SEALS, Army Special Forces, Marines on the ground, ISR [intelligence, surveillance, reconnaissance] aircraft, helicopters, Air Force C-130 gunships," Holt said.

"That is complex and being able to get together as a live scenario is very difficult so we need to be able to do that in a virtual environment."

At Headquarters, Air Force Space Command, the leadership is facing the prospect of a contested space environment in the future but currently lacks the resources to train for such scenarios.

"There is a lack of adequate training resources at the unit level. At the moment there are just procedural trainers," Brigadier General Stephen Whiting, Director of Integrated Air, Space, Cyberspace and ISR Operations, stated.

"They were not built for the contested, degraded operational environment where you need to operate against a red threat, whether that's human-in-the-loop or constructive. The procedural trainers are inadequate and we have some concurrency and fidelity issues that we need to get after."

Several of the speakers noted that the service was currently hindered by operating a plethora of different simulators, which were built by different manufacturers, at differing stages of technologies, and currently had little commonality.

"Coupled with all that, we have to come up with a responsive acquisition strategy. We have 48 different simulators out there and if we want to change one piece, for example missile dynamics, we have to change that 48 different times. We are going to price ourselves right out of business. We have to get agile acquisition of weapons procurement and sustainment that brings us that common training environment," Deale said.

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NRL Highlights New Model Enhancements

The US Naval Research Laboratory (NRL) is supporting the US Navy (Booth 1239) presence at I/ITSEC with a technology outreach to the broader modeling and simulation community.

According to Steven Strang, a section head in a modeling and simulation branch for tactical electronic warfare at NRL, his organization produces models that are used by the Department of Defense for real-time data analysis as well as mission planning and tactical decision making purposes.

"I/ITSEC is a show we have come to over the years to reach other DoD customers," he said. "Our software is government off-the-shelf (GOTS) software, so that means it's free for use in other DoD organizations. Ultimately, what we are trying to do is save the government money by spending a little bit of ours and introducing as many people as we can to these models and simulations that have a lot of research behind them."

NRL is highlighting two specific models at I/ITSEC 2016: the SIMDIS 3D Analysis and Display Toolset and the Interactive Scenario Builder 3.

"SIMDIS is a three-dimensional data analysis tool for distributed and real-time simulation," Strang explained. "For example, if you are instrumenting a test out in Hawaii and the Pentagon is very interested in the test, they can watch it real-time on monitors back at their location. It's an instantaneous visual result that can also be used for after action reviews. So it's heavily used in the test and evaluation community when you are trying to do runs for record or scores for operational test and evaluation."

"Ultimately, what we are trying to do is save the government money by spending a little bit of ours and introducing as many people as we can to these models and simulations that have a lot of research behind them."

He estimated that the publicly releasable software is currently used by 18,000 - 20,000 users "with that number still growing."

"We're currently improving the software, so it's supported by lots of research through lots of evolutions," he said.

Interactive Scenario Builder 3 allows building and analyzing a radio frequency scenario for pre-test or pre-mission planning purposes.

Strang said that Builder contains quite a bit of critical or controlled technology, which translates to export limitations and ITAR restrictions. As a result, Strang estimated the current user base at approximately 2,000.

"In part that is due to the restrictions and in part to the audience," he said. "SIMDIS can be used for any sort of data display, where 'Builder' is designed specifically for RF prediction capabilities."

Emphasizing the importance of I/ITSEC and other large conferences, Strang summarized: "The government needs to be aware of the tools available in both industry and government, or else the government will create tools that they need to do their job. And if they don't have a mechanism like I/ITSEC for finding solutions already available, then I feel that the government could potentially waste money by doing so."


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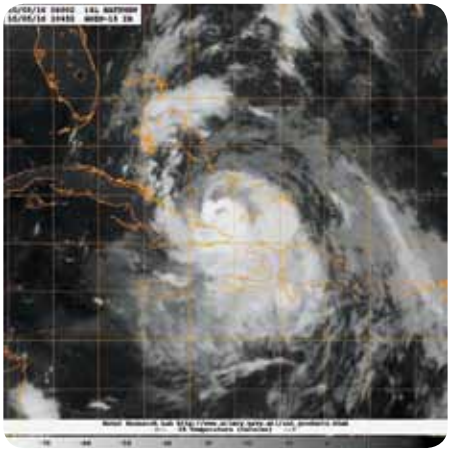
Focus Event Examines M&S Role in Black Swan Preparedness

Hurricane Matthew in September-October was the first Category 5 Atlantic hurricane since 2007. The June 12 terrorist attack/hate crime in an Orlando nightclub killed 49 people and wounded 53 others. The inaugural Black Swan event at I/ITSEC 2015 started discussions on how such high impact/low probability events have affected our lives and may affect our future. This year Black Swan at I/ITSEC asks the difficult question of how the modeling and simulation community can help us better understand the circumstances leading to Black Swan events and how we might prepare for their effects.

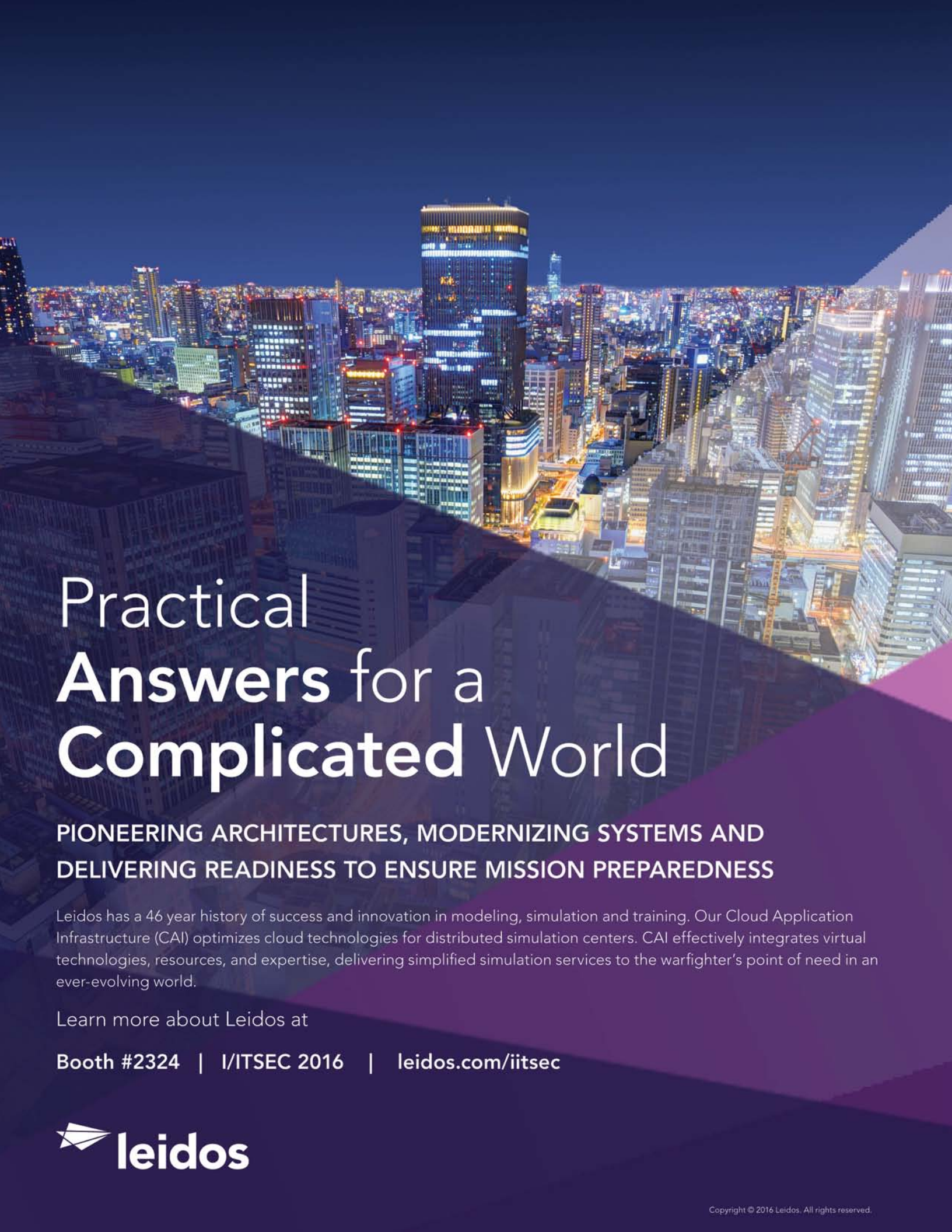


Many government organizations such as the Department of Defense and the Transportation Security Administration, as well as first responders, would like to better prepare and build resiliency for these types of events. However, it is clear that investigating Black Swan circumstances will require very different modeling techniques than have been used in the past.

Garth Jensen, Director of Innovation at the US Navy's Naval Surface Warfare Center, will moderate the Focus Event, Opportunity from Chaos: Real Benefits of Black Swan Preparedness, from 1030-1200 in Room W304CD.

BLACK SWAN @I/ITSEC

The Black Swan panelists are: David C. Earnest, Ph.D., Computational Social Scientist, Old Dominion University, author of *Massively Parallel Globalization*; Gary Horne, D.Sc., Research Analyst at the Blue Canopy Group Specializing in Data Farming and Collaborative Analysis; Mark C. Nesselrode, Ph.D., Principal SME for Modeling and Simulation, GDIT; and, Michael Simone, Ph.D., Director, Nexus Lab for Transdisciplinary Informatics, Arizona State University.



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Robb Points to "Overwhelming" Government Support

In his initial review of I/ITSEC 2016, NTSA President RADM James Robb, USN (Ret), was quick to identify continually growing levels of government support.

"My takeaway is that the government is back," Robb told the *Show Daily*. "The overwhelming support by senior leadership in the military was incredible. We had nearly 100 distinguished military visitors. I've interacted with a lot of them, and, in almost every case, when they come here and see this they are amazed by it."

In addition to the quantity of government visitors, Robb emphasized the quality in terms of benefits to industry exhibitors.

"They were of extremely high quality," he said. "We had operators. We had representatives from a wide variety of organizations – not only in training but also acquisition and headquarters staff and leadership. And they were very, very impressed with what they saw here. I'm very pleased."

Robb was equally pleased with overall attendance, which he estimated as "up a couple of percent from last year."

In terms of specific discussion areas, he offered the representative example of "substantive discussions" focused on the challenges of connecting live, virtual, constructive elements together.

"It's important when you can have those discussions with senior leaders, because many of these challenges are related to policy in areas like the balance between IT safety and IT capabilities," he said. "When you are pushing you are usually pushing into resistance from policy that is designed to stop bad things from happening. Unfortunately, that can also prevent good things from happening. So a discussion about how to find the right balance is really critical. It's not that we don't want to be safe. We just need to put out that the person who says 'No' can't be the last to answer. Somebody has got to come in and say, "Not, no. But go and figure this out and get on with it.'"

Robb also had high praise for the second iteration of OBW.

"We've had a lot of great comments and some discussions about the OBW future – maybe OBW 2.0 – which is possibly a more persistent environment," he said, adding that NTSA efforts include promoting OBW as a unique laboratory and development environment.

"One of the main reasons is because it's 'government-like' but it's not 'government,'" he explained. "That way industry can come and plug in much more easily than they could with a pure government environment. The power of a 'government-like' architecture is that people don't have to go out and get all the government approvals to 'play in the sandbox.' That means they can go in much faster and do development kinds of things: see how it really works; see how it interacts with the rest of the systems; and see how it could be compliant. Industry can then go back and either refine it or use it as a sort of transition tool. The government can say, 'This has been pre-certified on the OBW framework.' And that could help things go faster when they try to get it plugged into the real government architecture."

"The capabilities are actually on the floor," he added. "The challenge is in getting them integrated, which can take years in many cases."

Echoing a theme shared by the CNO on Wednesday morning, Robb agreed on the critical need for things to move faster and the rapid acquisition advantages of expanded engagement between government and industry.

"If you look inside the OBW planning cycle, you'll find a microcosm of that arrangement, because the industry is in the room with the government people, collaborating on the development of the OBW integrated network," he said.

"This whole year has been about LVC," he concluded. "And LVC is important. But to really make the LVC vision work we have got to solve the mechanics and IT complexities in the back end, while more clearly defining the requirements on the warfighter end. And those are two areas we're working."

I/ITSEC Offers Professional Development Workshops on Friday

The National Training and Simulation Association is sponsoring Professional Development Workshops on Friday as part of its STEM Workforce Initiative at I/ITSEC 2016. A detailed description of each workshop can be found in the I/ITSEC 2016 Program Guide. The sessions are coordinated by the University of Central Florida Division of Continuing Education.

There will be a morning session from 0800-1200 tomorrow and an afternoon session from 1300-1700. All registrants of I/ITSEC are welcome to attend without paying a fee. Paid I/ITSEC Conference registrants are eligible to receive CEU/CLP credits. If not a paid attendee, a $45 fee will be charged only to those who wish to receive the CEU credits. Registrations are accepted on-site during I/ITSEC registration hours.

PDW1: Modeling & Simulation for Acquisition (0800-1200 in Room W309A)

PDW2: Certified Modeling & Simulation Professional (CMSP) Exam Preparation (0800-1200 in Room W309B)

PDW3: Seamless Mobile Learning and Simulations (0800-1200 in Room W310A)

PDW4: Serious Game Design (0800-1700 in Room W310B)

PDW5: Big Data: Harnessing the Power of Data Analytics to Optimize Training (0800-1200 in Room W311B)

PDW6: Live-Virtual-Constructive (LVC) Interoperability Techniques (0800-1200 in Room W311C)

PDW7A: Measuring the Impact and ROI of Training, Simulation, and Education Programs (0800-1200 in Room W311D)

PDW7B: Measuring the Impact and ROI of Training, Simulation, and Education Programs (Repeat Session at 1300-1700 in Room W311D)

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Mindset Best Established in a Training Environment

Following his participation in the I/ITSEC 2016 General/Flag Officer Panel, Frank C. DiGiovanni, Director, Force Training, in the Office of the Assistant Secretary of Defense for Readiness, sat down with the *Show Daily* to elaborate on a few of the issues that had surfaced during that Signature Event.

"To expand on the trend that I presented on the panel, we need to recognize the importance of 'mindset,'" he began. "Too many times we're conditioned to playing a game that has an end to it. And that can get us into trouble."

DiGiovanni shifted to a comparison of infinite versus finite game theory, noting, "Many times we go into a conflict with a finite approach, where we have a specific objective we are trying to achieve. And when that objective is achieved, we state that the game is over. Sometimes, though, we really need to understand that maybe the game isn't over. In fact, if the adversary has an infinite game approach then the finite strategy isn't the right one."

He continued, "As a result, you really need to understand what game you are in. You need to understand what game the adversary wants to play. And then you need to make sure that your strategy is at least equal to, if not greater, than their strategy."

Asked about earlier panel comments that "infinite strategy will always trump finite," he offered the example of "an exit strategy" versus "a transition strategy."

"An exit strategy means that there is a finite end to whatever it is that you were doing," he said. "However, a transition strategy is different. It recognizes that maybe the game isn't over. Perhaps my role is over. But the game may not be over. So I need to have a strategy that transitions responsibility for whatever the mission was to someone else."

In addition to the challenge for strategists, DiGiovanni said that there were also related issues in the training arena.

"As you recall, I said that it starts with a cultural mindset. And that mindset is best learned in the training environment," he said.

Admitting that it would be a very rough analogy to tie military training to "a big sophisticated B.F. Skinner training box," he offered, "In the end, what you are doing is looking for a certain behavior in the training environment. It's certainly more complex than that, but if you take it to the most simplistic terms that's what we're talking about. So if you want that mindset, it starts first in getting people in the training environment comfortable thinking like that and rewarding those that do think like that."

DiGiovanni was quick to acknowledge that the military did not drive national security strategy, but also pointed to "another component" where the "military, as the advisor, needs to help advise."

"For those who come from industry, I would also argue that innovation is not a finite game," he added. "It's an infinite game. Your ability and desire to stay in business is, hopefully, an infinite game. But, unfortunately, even companies fall prey to finite versus infinite strategies."

"Training doesn't have to be a physical thing," he asserted. "It can be a cognitive thing too – like strategy…It's about repetition. It's about cognitive apprenticeship. It's about getting people to think beforehand about the objectives they are trying to achieve and how best to achieve them."

Turning to his specific experience at I/ITSEC 2016, DiGiovanni said that both he and his team have been impressed with the diversity of systems and capabilities on display.

"But where are the cognitive trainers?" he asked. "Where are the capabilities that are focused on teaching problem solving? In terms of cognition and the learning sciences, we've learned quite a bit in the last 10 years about how human beings learn. We need to really think about how we take that learning science and put it into the things that we are used to seeing in the training environment.

"So I think there definitely needs to be a move to focus on training that's all about cognition," he added. "But we should also actually apply the science of learning to the training that we are producing. At the opening ceremony, you heard a similar message from our military keynoter [USAF Major General Robert D. McMurry Jr.].

"The last thing I would observe is that there are very few cyber training capabilities on the I/ITSEC exhibit floor. I just came back from one of them. And it's a cyber range. It's a range, but it needs a training audience and a training curriculum."

He concluded, "So, in response to your question about how industry can help, it would be getting about the serious business of learning science; helping us with the cyber training problem; and helping us with problem solving and cognition. Those are all things that the Department of Defense needs, because we simply can't afford to get it wrong."

MODSIM World 2017

I/ITSEC 2016 attendees across the modeling and simulation community are urged to explore MODSIM World 2017. The event, which will be held at the Virginia Beach Convention Center April 26-28, 2017, is a multi-disciplinary M&S activity that provides a unique opportunity to learn about new applications and practices across diverse domains.

"What's unique about MODSIM World is that it looks at modeling and simulation through a lens that goes across multiple domains of application," observed Eric Weisel, Ph.D., Director of Applied Research, Office of Research, Old Dominion University, Norfolk VA. As MODSIM World Conference Chair, Weisel explained, "I/ITSEC primarily looks at simulation and training. Other conferences look at things like game development. In contrast, we are looking at modeling and simulation in a holistic way across all of those domains."

"The conference theme is 'Modeling and Simulation in the Age of Data,'" he added. "That theme came from the fact that one recent technology advancement has been the accessibility of vast quantities of data. So, it's very important to address how the M&S community interfaces with the Big Data and Data Science communities and how this new and improved access to data can be an enabling technology for M&S and how M&S can take greater advantage of this improved access to data."

For more information:
www.modsimworldconference.com

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CNO Welcomes I/ITSEC Attendees to Navy Panel

As a preface to Wednesday morning's signature event, A Design for Maintaining Maritime Superiority, the participating panel of senior service leaders was preceded by the observations of Admiral John M. Richardson, USN, Chief of Naval Operations.

"If you've got any sense of what I think is important, then you know that I am completely committed to learning," Richardson began. "If you just close your eyes for a minute and lean back in your seat, you can feel the pace of our environment accelerating. You feel yourself pressed back in your seat. And what I'm worried about is, when we open our eyes and look out the window, we see too much of the world moving past us. We're not quite achieving the velocity that we need to keep up with the environment."

"This is our fundamental problem," he said. "And I think the teams that are here are a fundamental part of us solving that problem."

The CNO then assembled what he jokingly termed "a feral presentation," in which he solicited audience input, primarily from industry, on the types of notional headlines that they would like to see two years hence at I/ITSEC 2018.

"It strikes me that, for our internal process, all of us folks wearing uniforms on the government side have an awful lot to learn about how we can do business better; start conversations earlier; and define requirements together with industry."

During several subsequent give and take discussions with audience members over training related issues, the CNO attempted to establish a roadmap to the desired headline outcomes, including identifying the first step, identifying the current challenges and generally identifying other impediments to success.

Summarizing several of his takeaway lessons and priorities, he offered, "I've got a few headlines: The idea of feedback and tailorization in terms of learning; The idea of investing in expert people – I think that's really important – people who actually know what they're doing; The idea of focusing on operational outcomes, software definition and flexibility – We'll see what we can do and talk about that in two years; and, the idea of really overhauling our approach to information technology and networks – is something that we've really got to get moving on."

Richardson was followed by a panel of Navy leaders that included Rear Admiral Ronald Boxall, Director, Surface Warfare; Rear Admiral Michael White, Commander of Naval Education and Training Command; Rear Admiral Michael Manazir, Deputy Chief of Naval Operations for Warfare Systems; Vice Admiral Robert Burke, Chief of Naval Personnel; and Vice Admiral Mike Shoemaker, Chief of Naval Air Force, U.S. Pacific Fleet.

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NAVAIR Commander Looks to LVC Future

With 2016 marking his second experience at I/ITSEC, Vice Admiral Paul A. Grosklags, Commander, Naval Air Systems Command, talked with the *Show Daily* about the continuing expansion of LVC capabilities in support of naval air operations.

Grosklags is quick to highlight the significance of a live, virtual, constructive (LVC) environment in naval air training, noting that the LVC environment "is going to enable us to test initially, but more importantly train, some of those fleet operations that are really difficult to train today."

F-35B

"The one example I like to use is Navy Integrated Fire Control-Counter Air," he explained. "That's a very complex problem, where you combine our surface ships with a couple of different aircraft type model series and put them in a very complex environment. To fully train to that today we almost have to get an entire carrier strike group underway. And we still can't then simulate or emulate the threat sufficiently to make it real."

"In a live, virtual, constructive environment, when we get to that point, we'll be able to do all that. We'll be able to get the required repetitions – the 'reps and sets', if you will – for those operators of the aircraft systems, the ship systems, and our command and control folks, so that they can do this over and over again. They can become proficient in those very complex missions that we just have a terribly hard time doing today," he said.

Asked about the LVC impacts of new technologies entering the fleet – specifically the expanding role of unmanned aircraft systems (UAS) – he offered, "In some ways a UAS is actually easier to incorporate into an LVC environment. We don't have to worry about the man-in-the-loop. It's just easier. So technologies like that don't concern me about LVC."

However, he quickly acknowledged that there are other technologies that do present LVC concerns.

"As an example, as we upgrade our electronic warfare (EW) environment, we've got to be able to make sure that our LVC environment is capable of replicating it," he said. "So as we bring in new technologies to the fleet we're going to have to bring those same new technologies to some degree into our live, our virtual or our constructive environments–or into all three. And that's one of the things we'll have to decide in time: how much to invest in each one of those. We know what we're going to put in the live environment because we're going to put that new electronic warfare capability in the aircraft or on the ship. But will that go in my simulators? Probably. So now I've got it in the virtual environment. Do I also create a constructive environment with that new EW capability? All of that costs money and takes time and resources."

He added that industry is already helping the process today, offering, "What you see on the floor here at I/ITSEC, with Operation Blended Warrior, is a huge help in determining where we want to go with LVC."

He cautioned, "But we need collectively to decide upon the standards and interface requirements to make all of this stuff interoperable. It's easy to talk about, but it's much more difficult to do. How do we make sure that they can play in the same environment?"

Krosklags said that the platform that will bring this issue to a head is the F-35.

"Air Force, Navy, Marine Corps, eight partner nations, and three FMS [foreign military sales] countries today," he observed. "We need to be able to train with all of those entities in an LVC environment with multi-level security. How do we do that successfully without breaking the bank?"

Asked about any surprises that he might have encountered here at his second I/ITSEC, Grosklags responded, "I think my surprise was not this year. My surprise was last year, which was my first year.

He continued, "When I walked around the floor last year it was pretty amazing to me to see the diversity of talent and diversity of approach on how the folks represented here at I/ITSEC could solve some of our challenges. It wasn't just the usual group of industry members who support the Department of Defense that you see at most of our conferences. It's across the spectrum: the gaming industry; the modeling industry; the entertainment industry. And it's just a different way of looking at the problem. So when I saw this stuff last year it very much opened my eyes. And I'm very excited to come back here to participate again."

America's Teachers at I/ITSEC

The America's Teachers at I/ITSEC program, organized by NTSA, brings classroom teachers and administrators to see the amazing advances of industry in the area of modeling and simulation.

Teachers find it invaluable to be able to talk directly to M&S professionals to see how they can help to promote this industry through the lens of STEM/STEAM (STEM plus art) and 21st century skills of collaboration, creativity, communication and critical thinking.

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MetaVR Offers Hyper Realism to Enhance Training

MetaVR (Booth 1026) has become well known for creating 3D real-time PC-based visual systems that provide the fidelity of geospecific simulation with game quality graphics. MetaVR's software products, such as the Virtual Reality Scene Generator, enable users to build high-fidelity geographically-specific virtual worlds.

At I/ITSEC 2016 W. Garth Smith, President and co-owner of MetaVR, is keen to draw the attention of visitors to the company's library of hyper-realistic ship models. "We have a scenario taken from the headlines of today," Smith told the *Show Daily*. "Two Iranian speed boats, being masked by a dhow, sweep out and veer to harass US Navy ships. If you watch it closely, when the US ships fire warning shots across the bow of the speed boats, splashes appear in the water. If the rounds go over you see them bounce as they go over the waves. When you switch to the sensor model on the P-8A maritime patrol aircraft you will see the explosion that blooms."

"We build things that are not demos to be forgotten after a show but allow our customers to appreciate the functionality of our systems to create very realistic-hyper-realistic-scenarios. The Iranian speedboats are taken from photographs of the most current speedboats that the Iranians build. We're trying to build an infrastructure that allows people to replicate things they might really see in the real world, things that are tactically significant." Users can distinguish if the missile launcher on the boat is closed or open, ready to launch, the actual launch and the missile in flight.

"What we're trying to do is create the infrastructure that will allow users to do things that are not just pretty looking but valuable for training. You could change the seascape. You could change the weather conditions, the haze, the level of visibility."

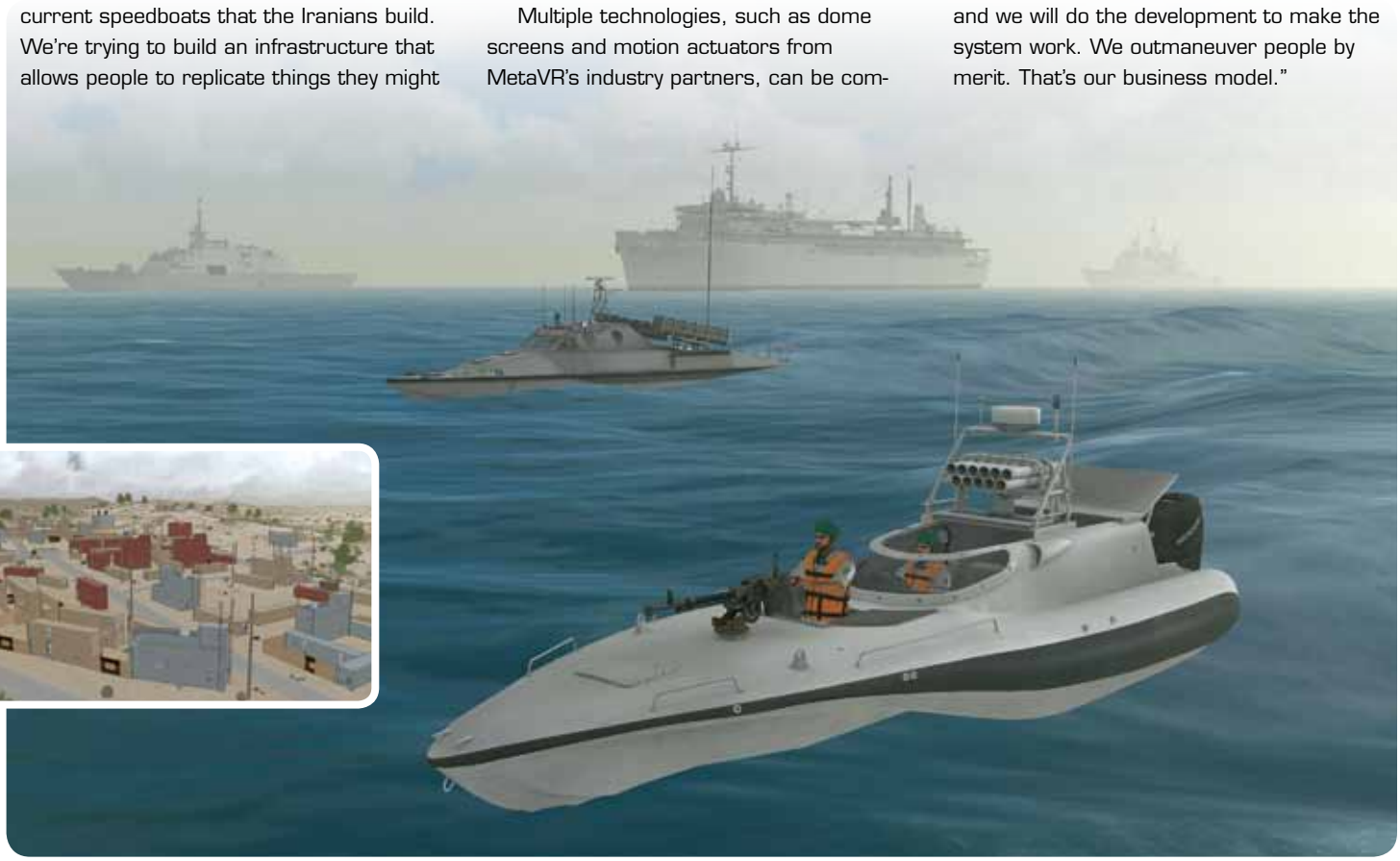
This level of detail ensures that tactical decisions at multiple levels can be exercised. "How many sailors have actually been on the receiving end of a swarm of boats?" asked Smith. "What would that look like? How would you protect yourself? How would you identify their intent? What happens when you fire warning shots and they don't respond? What's a legal engagement range that would be defensible in international court if you have to shoot at the boat?"

Multiple technologies, such as dome screens and motion actuators from MetaVR's industry partners, can be combined to make the experience even more realistic for the trainees.

At I/ITSEC, MetaVR is demonstrating two new 3D terrain datasets:

- A high-resolution geospecific Camp Pendleton terrain with two modeled military operations in urban terrain sites which the company built for participants in the Operation Blended Warrior LVC event who will be running their simulators with MetaVR visuals. The virtual terrain was built with 30cm per-pixel resolution USGS satellite imagery and 60cm LIDAR elevation data.
- Geospecific terrain at 2cm per-pixel resolution of the Prospect Square area of the US Army's Yuma Proving Ground built for the Special Operations Terminal Attack Controller Course, using 17km^2 of 2cm per-pixel resolution imagery captured by the company's MetaVR small unmanned air system.

Smith believes that "there are very big programs, multi-million dollar programs, absorbing enormous amounts of resources that are not able to produce the same quality or fidelity that we do. Our stuff is much less costly. We get significant advocacy from end users. They need something that works and we will do the development to make the system work. We outmaneuver people by merit. That's our business model."



General Dynamics Offers Leading Mission Command Training

General Dynamics Information Technology (GDIT) (Booth 1113) is a leading provider of Department of Defense (DoD) Mission Command Training capabilities, playing a significant role in helping operational commanders achieve their training objectives. GDIT integrates live, virtual, constructive and gaming capabilities into training events replicating today's complex operational environments.

DeLoyd Voorhees, Jr., Vice President, Business Development Integrated Simulations & Training Solutions, told the *Show Daily*: "Our primary message for ITSEC 2016 is to showcase what we are currently doing on the Army's premier contract, Warfighter FOCUS (Field Operations Customer Support) and how we have positioned ourselves for the transitions to take place as Warfighter FOCUS concludes in two years and the new contracts come out. That's what we're trying to display in the two stanchions we have that talk about current programs and future programs."

Voorhees highlighted two of the major elements which GDIT, as a subcontractor, provides for Warfighter FOCUS. "The first is the work we do at Fort Huachuca, AZ, the home of the Army Intelligence School and also the home of the Army's Unmanned Aerial Systems School (UASS). We provide platform instructors for the intelligence school and for all of its directorates, and we provide both instructors and maintainers for the UASS.

"The second area is the work we do in support of the Army's Mission Training Complexes, where the Army teaches staff training using the world command and control systems, and we use the Army's constructive simulations to stimulate those real world systems and work with the Army to develop the enemy force that that unit is getting ready to encounter in an operational environment. We do that so they understand what they will face when they get there. Currently we run the mission training complex for the XVIIIth Airborne Corps, which is at Fort Bragg, NC and its spokes at Fort Polk, LA, Fort Stewart, GA, Fort Drum, NY and Fort Campbell, KY."

Voorhees noted that GDIT is bidding for other Army contracts. "We submitted a bid last week for the Joint Multinational Simulation Center in Grafenwoehr, Germany, which has spokes at Hohenfels and Kaiserslautern in Germany, and Vicenza, Italy. That contract is directly in support of US Army Europe, NATO, US European Command and African Command. A lot of that training is done forward deployed. We are hopeful that we will be awarded that contract, expected in April.

"With a long history of providing training to Soldiers, Sailors, Airmen, and Marines, GDIT delivers training that our warfighters depend on today," said Al Whitmore, Senior Vice President of GDIT's Global Solutions division.

"We are building on our experience to help DoD advance its training in areas of live, virtual, constructive and gaming. These training capabilities are now moving into the cyber domain, which is an area of demand. We expect technology advancements will continue to enhance the quality, availability and timeliness of training, and we are in the vanguard of these efforts with our DoD partners."

Blended Warriors Seize Control of the Situation

Operational Blended Warrior (OBW) stepped up a gear on Wednesday as the distributed training exercise integrated a live aircraft for the first time.

Dubbed 'Taking Control', Block III of the exercise included 43 companies across 33 booths, live aircraft flying over Iowa, social media monitoring, and cyber-attacks and response.

While the event was at times hampered by communications and other issues, organizers noted that this represented challenges experienced in the field and learning to overcome such glitches only added to the value of the exercise.

With various feeds from across the exercise on display at the OBW Distributed Training Center (DTC) (Booth 349), the technical challenge of integrating some 90 systems into the same virtual world has demonstrably been met.

One of the OBW coordinators, Dr. Jim Frey, from Aero Simulation, Inc (Booth 801), said the key to the simulation was working from a common image generation system.

"We decided to pick San Diego, which is great as almost everybody already had that in their mapping systems. If you go to the different booths you will see the same site picture and the same icons, even though they are all speaking different languages," Frey said.

He said another technical challenge was making sure every component within the virtual world appeared the same to every simulator that was integrated into the network.

"For example, if you have an amphibious assault, making that boat look like the same boat on all the systems is actually quite a feat. That may seem simple at first but the code for this could be the code for a C-130 to another company. So, you would see a C-130 floating on the water.

"The coordination of this was 10 months of work, all these companies in industry getting together to make it all as a single site picture."

One element designed to make the exercise as realistic as possible is the inclusion of a social media feed through the Cubic (Booth 1549) Social Media Replication Toolkit System (SMRTS).

Carl Norman, Program Director–Virtual Systems for Cubic, said the web-based application was an enclave of social media content run over the network helping intel analysts to look for actionable intelligence.

"Social media is the command and control arm of our enemy, so we are able to identify networks and individuals and look for different types of tradecraft that our enemy uses social media for. In addition, it can be used for PAO (public affairs officer) purposes to help shape the message."

Cyber has also become a key component of OBW. During Block II of the exercise, a cyber-attack was employed to shut down the power grid of a city during a rescue operation.

In Block III, a malicious link was sent over the Blue Cell's internal chat room marked as a target folder. When the operator clicked on the link, it actioned an effect that shut down the workstation.

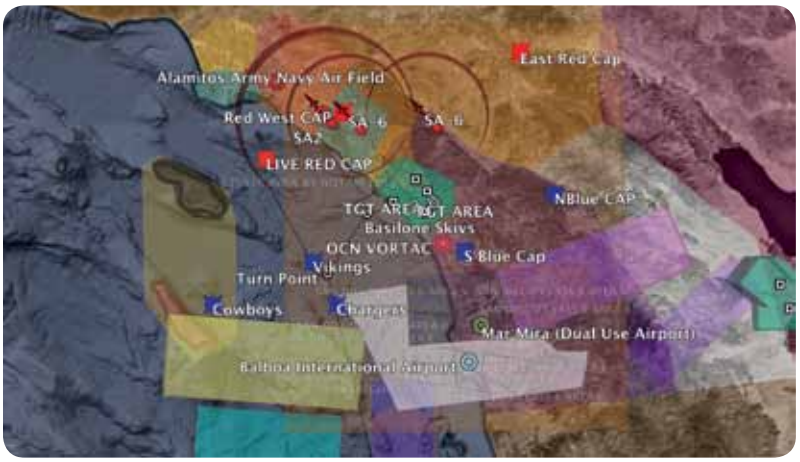
Employing the Network Effects Simulation system, which emulates a phishing attack, the cyber-attack alerted the Blue Cell that there was an insider threat in its chat room.

However, the highlight of the vignette was undoubtedly the appearance of the L-29 jet trainer from the University of Iowa's Operator Performance Laboratory (OPL) with footage from the cockpit displayed live within the DTC.

Frey said the pilot was provided with an overlay of the action from the simulation and he was able to switch between that and the real world as needed.

"The pilot is switching back and forth between virtual and reality in real time on the system in a way that's designed not to be confusing. Anything real supersedes our projections into his system. Because you still have to see the eagle coming at you in the real world even if you are looking for the fake ground troops," he explained.

Jaclyn Hoke, Principal Engineer at Rockwell Collins (Booth 2300), said the company had done studies on the best way to present information that distinguishes between live and virtual elements, and avoids confusion.



Summarizing the exercise, Frey noted one of the key technical challenges was the proprietary nature of the software and the way the systems order and receive information from each other.

"Who owns the software, how much is it going to cost to get it there, transferability, how to get it across the network. Then the bottom part is solving those problems," he explained.

"There are 47 folks who really know what they are doing who have been pulled together to do this. Getting them to push their technologies through a single DIS [distributed interactive simulation], funneling all that into a single operation, that's quality training. That's task saturation, the more stuff you have to think about to make these decisions, the better you will get at making decisions."

DoD Looks to Develop the New Cyber-Jedi

The Department of Defense is revamping its training pipeline to better develop a new generation of cyber experts.

A panel of experts told I/ITSEC that while the demand for skilled cyber operators is at an all-time high and growing, significant challenges remain in how the military meets that need and builds up the talent pipeline.

Today, while malicious hackers can learn all the skills they need in six months, those tasked with defending the nation's networks are required to be at degree level and must then pass through a training regime of several years.

The audience heard how the services are studying what traits need to be identified in candidates to recruit the best possible cyber experts and what kind of environment can best amplify and promote those traits.

Diana Banks, Deputy Assistant Secretary of Defense for Force Education and Training, said the government had realized that the Pentagon's recruiting model "had been built for a different time" and was not tailored for finding the best cyber warriors.

"From a training perspective, the department has approached the cyber issue a little differently than it approaches a lot of other areas," Banks argued.

"Because it is technical, there is a lot of hand wringing about being able to compete with the private sector or not being able to secure good talent. We have seen some good success in training people for certain types of skills… but there are definitely some challenges in terms of recruiting people with the existing skills that we need."

Banks said the key element in terms of cyber was creating a steady pipeline of talent through established training programs that would meet the DoD's entire cyber needs.

"That's very important for us because that is what we do – we train people to do jobs and then we unleash them to do those jobs," she argued.

"If we can get to the point where we are a generating force for cyber and cyber talent then that will be good for us. That is good for the nation as we will increase the throughput to bring in the people we need at the back end. And if that creates extra folks that everyone can use, then that's great as well."

Major General Stephen Fogarty, Chief of Staff of US Cyber Command, said the command was looking at a balanced cyber force, combining those in uniform, reservists, government civilians and contractors.

"That balance is very important. We also need to find new ways to assess the aptitudes we need. It is not just based on your SATs, there are a lot of other measures to determine if you have the aptitude to be effective. We need to look at some non-traditional ways of measuring that," Fogarty said.

While each of the services has taken a different approach to recruiting and retaining their cyber workforce, Fogarty argued that approach was appropriate as long as there was an exchange of best processes between the services.

"The other thing is when I talk to cyber operators, what keeps them in uniform is the ability to operate – whether that's operating a training platform or conducting real operations. That's why they want to stay on," he explained.

"So, as I look ahead to the future, and what our requirements are, I am very confident that we are going to be able to attract the right people into the workforce but we can't become complacent. We bring them in, we put them through this lengthy training pipeline but if they are not able to actually conduct operations, if they are just the stand-by guys, they will lose interest and they will go other places where they can use their skills."

Captain Matthew Weiner, a cyber warrior instructor with the US Air Force Weapons School Training Unit at Nellis Air Force Base, NV has been looking into operational readiness and certification.

"We have started to identify ways to recruit and retain our operators. We started looking at what is the mindset… what is making someone successful through our operator training," Weiner said.

"What does it take to be a cyber operator? We talk about networks, Windows, Unix, security and from there it isn't just wanting to go and look at these systems and understanding the TCP/IP (Transmission Control Protocol/Internet Protocol), it isn't just understanding network protocols, it is wanting to go in there and break the system and understand the security.

"It isn't just about having knowledge, it's about having the hacker mindset, it is about wanting to be able to break things. What we are looking for today is that hacker mindset, wanting to know how are we going to secure the system and how exactly are we able to break the system so we can actually do our mission."

ARL-Orlando Demonstrates New Medical Trainer

The Army Research Laboratory – Orlando (Booth 315) is demonstrating the results of a recent medical research effort at I/ITSEC 2016. The organization recently launched a research and development effort to explore enhanced training capabilities for lower extremity fasciotomy. The R&D effort received subject matter expert support from the Joint Special Operations Medical Training Center (JSOMTC) at Fort Bragg, NC.

The Fasciotomy Part Task Trainer is a prototype training capability to train military medics to treat compartment syndrome, an extremely dangerous condition caused by swelling in the extremities. If untreated, compartment syndrome can build enough internal pressure to cause loss of limb and possibly death. Currently, there is no commercially available simulator that meets the military training requirements for this complex procedure, where the tough membranes or fascia that encase the muscle groups are cut to expose the compartments where the pressure is building. Exposing the compartments relieves the pressure. When this procedure is performed correctly, circulation is restored, and the chance of saving the limb greatly increases.

ARL-Orlando's Human Research and Engineering Directorate, Advanced Training and Simulation Division, combined user needs from JSOMTC instructors with the latest advances in materials science to build an anatomically accurate, yet easy to use and maintain part-task trainer.

The Fasciotomy trainer prototype consists of an anatomically correct lower leg designed to train the two incision, four compartment procedure taught to special operations medics. The prototype features realistic tissues and structures that are relevant to the procedure. The muscle groups are constrained by realistic fascia forming compartments that are pressurized with blood and other fluids. Trainees use external and internal landmarks to decide where to make the initial incisions. Once exposed, the fascia is cut, making sure to avoid nerves and vessels that are accurately simulated. Each compartment must be exposed through additional incisions on internal muscle bundles. The trainer allows medics to rehearse this complicated life-saving procedure on a life-sized manikin leg without risk of injury during training.

Dr. Deborah Burgess, Col, USAF (Ret), President and CEO of the SALUS Group, in collaboration with ARL-Orlando, has been demonstrating the training device this week at I/ITSEC and will perform another demonstration at 1230 today in the ARL booth.

2016 NTSA Modeling & Simulation Awards and Governor's Award

NTSA presented its annual Modeling & Simulation Awards, as well as the 2016 Governor's Award for Lifetime Achievement in Modeling & Simulation, at the NTSA M&S Awards Dinner at the Hyatt Regency Orlando on Tuesday, November 29. NTSA President RADM James Robb, USN (Ret), presented awards to a diverse group of teams and individuals from the US Air Force, US Navy, US Army and industry.

2016 Governor's Award for Lifetime Achievement in Modeling & Simulation

Mr. Rob Matthews
Naval Air Warfare Center Training Systems Division

Mr. Rob Matthews, Deputy Technical Director for the Naval Air Warfare Center Training Systems Division (NAWCTSD), was recognized for a lifetime of achievement in M&S excellence. From his days as an enlisted sailor to his current role as a senior civilian leader, the imprint he has had on the M&S and Training (MS&T) landscape is as extensive as it is varied. His lasting contributions span not only a variety of disparate Navy training projects across all Navy warfare branches (Aviation, Surface, Sub-surface, and Personnel), but also a variety of Navy and DoD MS&T infrastructure initiatives. Mr. Matthews was recognized for his unending commitment to advancing M&S during his 35 plus year career, and for the enduring legacy and impact his wide ranging and visionary contributions will have on the Navy and on the M&S and Training communities.

2016 NTSA Modeling & Simulation Awards – Acquisition

Rear Admiral James Robb, NTSA (l) and Dr. Michael Oliver, Air Force Materiel Command (r)

Armament Sustainment Engineering Team
Air Force Materiel Command

The Air Force Material Command Armament Sustainment Engineering Team aggressively and rapidly transitioned all Technical Data Packages from two dimensional products to a three dimensional model-based environment with extraordinary results. The incorporation of 3D printing tools and in-house modeling, simulation and Finite Element Analysis capabilities resulted in reduced manufacturing lead time requirements; the identification of multiple and previously unknown root failure causes; and reduction in First Article failures, part costs, and the number of physical tests required. Their work saved millions of dollars and impacted thousands of air platforms across five major Air Force Commands.

2016 NTSA Modeling & Simulation Awards – Training

Billy Pate (l) and Darius Salemizadeh (r) of L-3 Link

Mr. Darius Salemizadeh
L-3 Link Simulation & Training

Mr. Darius Salemizadeh, working on the Gray Eagle Composite Maintenance System Trainer program, implemented a creative modeling and simulation solution unlike any of the traditional approaches – a solution which has proven to reduce development and sustainment costs. The need to simulate thousands of electrical and mechanical connections representing the position or state of connectors and plugs located throughout the aircraft posed a major technical challenge. Mr. Salemizadeh viewed the challenge fundamentally as a graph problem, and created two graph structures with node-edge connections, one representing physical connections, and the other representing power connections. His innovative modeling approach allows for easier updates – to the data file instead of to the source code. This combination of data-file based modeling and the absence of application code modification resulted in a tangible reduction of development hours relative to typical design alternatives.

2016 NTSA Modeling & Simulation Awards – Training

Paul Butler and Mike Evans of Mitre

Training Squad Overmatch Tactical Combat Casualty Care
US Army PEO STRI & Other Organizations

The Squad Overmatch team, led by the US Army's Program Executive Office for Simulation Training and Instrumentation and comprised of multiple organizations with expertise in training and experimentation techniques, conducted Tactical Combat Casualty Care training experiments at Fort Benning, GA. They developed an integrated training approach consisting of both virtual and live training designed to improve situational awareness, resilience and stress management. Each squad went through a three-step training process (Concept – Virtual – Live) that utilized augmented reality, role players, advanced effects kits and sensory cues to enhance the training. The realistic training shortened the time required to develop trained and cohesive squads. Ninety-seven percent of the Soldiers and Marines felt that Squad Overmatch better prepared them for the operational environment. US Army Central Command has requested deployment to Camp Buehring, Kuwait, and the Army Surgeon General's Office will continue funding development through FY18.

Saab Presents New Combat Training App for Individual Soldier

A new app to allow individual soldiers to monitor their performance during instrumented tactical training exercises has been unveiled at I/ITSEC by Saab Training & Simulation (Booth 2449).

A new radio system will extend the range that the soldier's Personnel Detection Device can send and receive data.

The WE:Go app, developed for smart phones and tablets, will allow every participatant in an instrumented exercise with Saab simulators to follow their progess. Information from Saab's GAMER system will be automatically downloaded and presented in WE:Go. In addition, videos from – for example – head cam's can be replayed in the app. Soldiers will be able to review their movements, weapon engagements including the number of hits and misses, and any wounds they received.

Saab believes the app will increase the motivation of exercise participants. We:Go will be included in future upgrades of the GAMER training system.

The company has recently received two orders from the Swedish Defence Materiel Administration (FMV) intended to improve the Swedish Army's combat training capabilities. One is a 95 million Swedish krona (about $10.3 million) order for new laser simulators to be delivered during 2017. The upgrade enables the Army to utilize the international standard which is used by other Nordic countries as well as several European NATO countries and the US Army in Europe. "This order is proof that our method for realistically simulating ballistics is still world leading. We are constantly developing the technology to improve system performance and satisfy new requirements," said Åsa Thegström, head of the Training & Simulation business unit within Saab Dynamics.

The WE:Go app will enable soldiers to view their performance.

The second order, worth 103 million Swedish krona (about $1.1 million), includes a new radio system for delivery in 2017. The system provides the ability to conduct larger maneuvers and will be interoperable with the armies of the other Nordic countries and most NATO nations in Europe, as well as with the US Army in Europe. The radio system transfers data to and from each individual soldier and vehicle to a training command center where things such as positions and status for each simulator system are summarized for evaluation. The delivery includes mobile base stations and radio systems for vehicles and soldiers. "The radio system is an important element in conducting larger maneuvers and getting maximum training value," said Thegström.

Saab has received three orders from the US Army Program Executive Office of Simulation, Training and Instrumentation (PEO STRI). Saab will now provide OSAG 2.0 interoperability upgrades for the 7th Army Training Command's Deployable Instrumentation System – Europe (DISE) and the Combat Vehicle Tactical Engagement Simulation System (CVTESS) to meet US Army and European forward deployment interoperability requirements.

These new orders, implemented as Mid-Life Service Upgrades, deliver a first of its kind fully interoperable solution to the Army. They will enable soldiers to quickly configure training system lasers to operate using either MILES (Multiple Integrated Laser Engagement System) Communication Code (MCC), primarily used in US training environments or the OSAG 2.0 standard, used by most nations in Europe, for training engagements in any theater and together with multinational units. OSAG 2.0 is a software code originally developed by Saab that enables true ballistic simulation of ammunition used in anti-tank and vehicle weapons when firing with laser transmitters.

The DISE, originally delivered in 2001 to support training up to battalion level, provides deployable instrumented live training capability consisting of TESS lasers and detectors, exercise control, battle tracking, data collection and rapid after action review (AAR) capability.

In addition to the OSAG 2.0 upgrade of the DISE infantry systems, Saab will also deliver OSAG 2.0 enabled CVTESS capability for the M1 Abrams main battle tank, the M2 Bradley infantry fighting vehicle and mounting brackets for opposition force vehicles.

Saab has delivered similar instrumentation training and CVTESS systems around the world to US Army CONUS and OCONUS locations for Homestation and Combat Training Center training from company to brigade level.

"This upgrade presents a unique opportunity for NATO forces and US training partners within Europe to train together by combining interoperable national systems to create a fully instrumented training environment with any configuration, scale and at any given location," said Thegström.

Based in Grafenwoehr, Germany, the upgraded DISE capability will be deployed throughout Europe supporting Training Support Activity Europe (TSAE) for joint and multinational forces.

QuantaDyn Demonstrates JTAC and RPA Trainers

QuantaDyn (Booth 2435) is debuting its Remotely Piloted Aircraft (RPA) Simulators and showcasing the Joint Terminal Control Training and Rehearsal System (JTC TRS).

QuantaDyn is demonstrating how the RPA and the JTC TRS work together to train joint terminal attack controllers (JTAC), RPA pilots, and RPA sensor operators. Using a counterinsurgency scenario the RPA simulator is used to find and facilitate the positive identification of a high value target operating in Kismayo, Somalia. RPA crew work with the JTAC in the JTC TRS and other aircraft on station to facilitate the mission.

The US Air Force Material Command awarded QuantaDyn a contract in January 2016 to provide two JTC TRS devices, with the option for another 30 units. The JTC TRS builds on QuantaDyn's Advanced JTAC Training System.

The JTC TRS solution includes commercial-off-the-shelf (COTS) components such as DIScover, an immersive dome display system from Immersive Display Solutions (Booth 1281), Battlespace Simulations' (Booth 1026) Modern Air Combat Environment (MACE), and Virtual Reality Scene Generator (VRSG) from MetaVR (Booth 1026) which provides the out-the-window and sensor visuals for the dome display, a Remotely Operated Video Enhanced Receiver (ROVER), and emulated military equipment. The JTC TRS can connect to the USAF's A-10 full mission trainers.

QuantaDyn announced in September that it had installed the first JTC TRS device at Fort Benning, GA. The system is used by the USAF's 17th Special Tactics Squadron and the 15th Air Support Operations Squadron that support both special operations and conventional forces.

Soon after delivery, the JTC TRS was put through a week and a half of USAF Operational Utility Evaluation (OUE), which consisted of running multiple groups of trainees and operators/instructors through the complete set of training activities, from mission generation, to mission execution on the device, and after action review/debrief. During the final two days of OUE, the simulator was evaluated by the Joint Fire Support Executive Steering Committee accreditation team. The team's recommendation was to accredit the JTC TRS to replace the following in accordance with the JTAC MOA: Type 1, 2, and 3 controls, day and night controls, controls using ground laser target designator for target designation/marking, controls using IR pointer for night target marking, controls using video downlink, and surface to surface and air to surface fires integration.

The Air Force is expected to approve full-rate production in January 2017.

M&S Community Helps NATO Prepare

Bridadier General Athanasios Tsouganatos

"This is the third year NATO has had the opportunity to be on the General/Flag Officer panel, and it reflects the value this conference places on international partnerships and in the fact we train and fight together every day," said Brigadier General Athanasios Tsouganatos, Assistant Chief of Staff of Joint Education, Training, and Exercises in Allied Command Transformation (ACT). "As an operation with coalition partners, or a NATO led operation, we work together and the more we can prepare together the better."

Speaking to the *Show Daily*, Tsouganatos explained that his "responsibility is to deliver and to monitor, joint education and training for NATO forces. In ACT, we are the main point for training. We try to collect the training requirements that NATO needs, and to provide the solutions. We have a big group of people there, but we established a network with all the nations and with other institutions, and they assist us in collecting these requirements, and then, they assist us in developing or identifying solutions."

Tsouganatos said during the General/Flag Officer Panel: As we have discovered talking to our customers, the NATO training centers and headquarters, there are a number of education and training areas where M&S can make a difference. In particular, our customers are demanding more complex scenarios including non-kinetic and non-military aspects. They want to play with more realistic data including social networks and information from real sources as well as to be able to extend the time dimensions of the training."

"There are two main areas where we need your help," Tsouganatos said. "The first area is in the development of future NATO M&S services and toolsets. These services will support NATO exercises, training, experimentation, and decision making for the next decade. We are committed to provide our customers with a flexible, modern, and expandable toolset that will allow our command structure to train as they will fight. We think this can only be achieved by pulling and sharing from the nations and seeking the expertise and capacity of innovation of industry."

"The second area that I would like to mention is what we call, 'Multinational Shared Training'. In this concept, we provide recommendations to allies and partners to develop innovative ways to enhance the way they train and collaborate with each other. An essential tool to achieve this objective is through M&S. More specifically, what we are talking about is the federation of command and control systems and weapon platforms with live, virtual, constructive simulations to build synthetic environments for multinational tactical level training. We are perfectly aware that nations, such as the US, have matured this technology and can now regularly support training with these new federated capacities."

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