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TUESDAY, NOVEMBER 28, 2017

Navy Works Toward LVC Future

"The Naval Air Warfare Center Training Systems Division (NAWCTSD) team sits at the intersection of all the Navy warfighting communities, the people that operate and execute in the air, sea, undersea, and land regimes. The very top of our priority list is ensuring that our fielded training devices remain relevant, remain reliable and remain consistent with the platforms they are supporting," Captain Erik 'Rock' Etz, NAWCTSD Commanding Officer, told the *Show Daily*.

"Of our approximately 1,400 contract actions this year, with just over a billion dollars of new orders, a lot of that work was upgrading the current trainers to make sure that they are viable assets for the next couple of decades," he added. "That's the model that we've been using. We deploy training devices that are intended to be around for a long time and to provide increased capability as the years go by to match the configurations that are in the Fleet."

NAWCTSD (Booth 1439) is the Navy's principal center for modeling, simulation, and training systems technologies. The command provides training solutions and research for a wide spectrum of projects managed by Program Directors - Aviation, Surface/Undersea, Cross Warfare, and International.

Etz explained that "since the last I/ITSEC, the Navy has taken some big steps in terms of outlining plans for future live, virtual, constructive (LVC) environments and set up some milestones for us as targets with large scale exercises planned for the 2020-25 timeframe that will more cohesively bring LVC assets together. Our

teams can train in a much larger event, utilizing live assets on ranges and using the robust simulator capabilities across our networks, and merging those together to create a much larger exercise than we would normally be able to field.

"We have plans to continue linking some of our platforms together over the next two years and delivering capability to the Fleet to train with those platforms across the network and then in the Large Scale Exercise 2020 (LSE2020). This will be a Fleet level exercise, led by US Fleet Forces Command, essentially taking what we do now with our Fleet Synthetic Training exercises a step further to incorporate a much more robust live element and a significant simulator element across Navy platforms. Over the next 12 months, we will put more definition behind the objectives and goals for the exercise. It is a step along the way to getting us to the LSE2025 which will have much broader goals in terms of Fleet level objectives. The ultimate goal is that this scale of exercise in the future should become simpler to achieve."

He said that NAWCTSD is exploring "ways to provide distributed training such that folks can train in their home station yet still reap the benefits of combining into larger force exercises that bring platforms together that are not geographically co-located. For example, we're continuing a number of events that link our tactical aircraft simulators together. This past May, we were able to join one of the Air Force's large exercises, Northern Edge in Alaska, and we were

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TODAY'S CONFERENCE HIGHLIGHTS TUESDAY, NOVEMBER 28

REGISTRATION HOURS

0700-1800

EXHIBIT HALL HOURS

1200-1830

OPENING CEREMONIES

0830-1000 (Hyatt Regency/Regency Ballroom)

SIGNATURE/FOCUS EVENTS

1030-1200 **General/Flag Officer Panel** (Hyatt Regency/Regency Ballroom)

1400-1530 **Cyber Operations in a Complex World** (Room S330BCD)

1400-1530 **Open Source Software: A Debate** (Room S320GH)

1530-1700 **Operation Blended Warrior: Live Asset Integration and Cyber** (Booth 449)

1600-1730 **Human-in-the-Loop Simulators for Test and Training** (Room S320GH)

1600-1730 **Augmented Reality/Virtual Reality in Navy Training** (Room S330BCD)

PROGRAM BRIEF

1600-1730 **USAF Acquisition Update** (Room S330EF)

COMMUNITY OF INTEREST

1600-1730 **Buying Innovation in Military Technology** (Room S329)

PROFESSIONAL DEVELOPMENT: (SEE PROGRAM GUIDE FOR TITLE/AUTHOR LIST)

1400-1530 **Paper Sessions** (Rooms S320A-F)

1600-1730 **Paper Sessions** (Rooms S320A-F)

INNOVATION SHOWCASE: Booth 2389

Presentations within the Innovation Showcase are led by cutting-edge exhibiting companies and government agencies that are knowledgeable on various subject matters within the M&S industry. Be sure to stop by one of the 30 minute sessions to hear what is new and exciting in M&S!

- 1315 **Training Management System: The Missing Link** – BNH Expert Software Inc.
- 1400 **Virtual Reality Training: Simulation Software for Healthcare Education** – Pocket Nurse
- 1445 **Immersive Cyber Training Environments for the Next Generation Cyber Warrior** – Metova CyberCENTS
- 1530 **Extend Visibility, Detect Threats and Enforce Policy for LVC Environments using Cisco Stealthwatch and Cisco ISE** – Cisco Systems
- 1615 **Tools to Rapidly Create Virtual Reality Training Solutions** – Modest Tree

I/ITSEC Mobile App Challenge!

I/ITSEC 2017 features a new App Challenge! During the conference, use your app to find hidden QR codes. The more you find, the higher you will rank on the I/ITSEC leaderboard! The top three winners will receive a free full conference registration to I/ITSEC 2018. Search your app store for "I/ITSEC 2017."



First Signature Event

Monday's first Signature Event at I/ITSEC 2017 focused on the Congressional Modeling and Simulation Caucus. Event attendees learned about NTSA support to Caucus activities from NTSA President RADM James Robb (Ret) and received a Congressional perspective from Congressman Bobby Scott. The Caucus is focused on promoting the use of modeling and simulation in training systems as well as across the entire span of applications.

SHOWDAILY

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Scraawl, a social media data analytics tool, is collecting tweets all week. Monitor in real time here:

www.Scraawl.Live/IITSEC17



EXHIBITOR NETWORKING EVENT

Tuesday 28 November 1700-1830

Be sure to kick off I/ITSEC 2017 with a stop by one of the participating booths at the I/ITSEC Exhibitor Networking Event. This is a great way to view the latest technology, while networking with exhibitors and your fellow attendees.

Participating Booths

- | | |
|--|---|
| <p>261 JCA Solution: meat, cheese, veggie and cracker tray with chicken salad, cucumber slices, red sangria, cold beer and bottled water</p> <p>329 Soar Technology: Bell's Oberon, wine, cheese and vegetable display</p> <p>369 Cole Engineering Services, Inc.: imported beer and popcorn</p> <p>835 Alion Science and Technology: keg beer and popcorn</p> <p>1000 Kratos: cold beer and freshly popped popcorn</p> | <p>1012 Leidos: beer and wine</p> <p>1070 3D Perception AS: beer, aquavit and light snacks</p> <p>1712 JVC Visual Systems: flavors of Japan – beer, sake and tasty snacks</p> <p>1901 AEGIS Technologies: beer, wine and popcorn</p> <p>2038 Engineering Support Personnel, Inc. (ESP): Angus beef sliders, Cuban spring rolls, chicken empanadas, beer and wine</p> <p>2080 NTSA: full bar</p> <p>2200 Aptima, Inc.: beer, wine, fruit, cheese and crackers</p> <p>2401 Krauss-Maffei Wegmann GmbH & Co. KG: typical Bavarian food and drinks (weisswurst, pretzels and beer)</p> <p>2427 Thales: TBA</p> |
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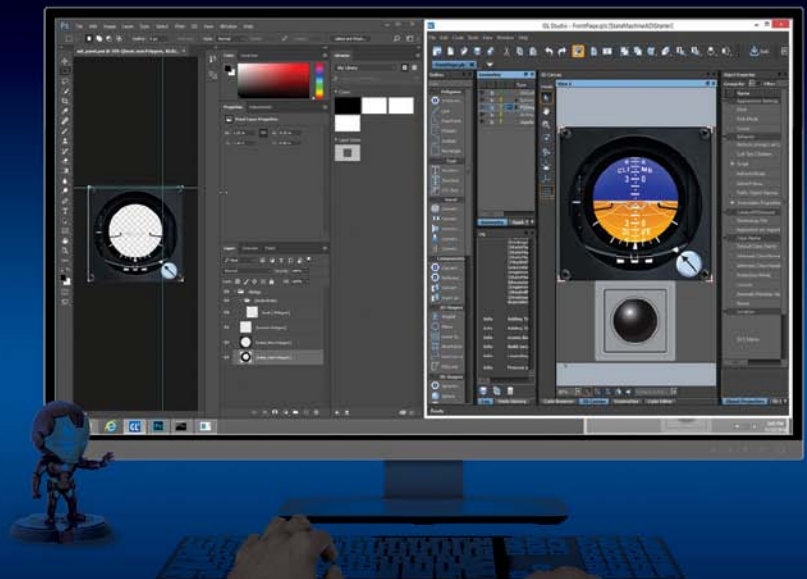
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Photo of the iCASS system courtesy of Close Air Solutions, depicting a simulated FV510 OPV during Exercise Terminal Strike 17-1. Real-time scene in the iCASS display and in the inset screen capture are from MetaVR's visualization system rendering terrain of Kismayo, Somalia. Images are unedited except as required for printing. The real-time rendering of the 3D virtual world is generated by MetaVR Virtual Reality Scene Generator™ (VRSG™) with 3D models from MetaVR's 3D content libraries. © 2017 MetaVR, Inc. All rights reserved. MetaVR, Virtual Reality Scene Generator, VRSG, the phrase "Geospecific simulation with game quality graphics," and the MetaVR logo are trademarks of MetaVR, Inc. (www.metavr.com) Close Air Solutions is a registered trademark of Close Air Solutions. (www.closeairsolutions.com) MACE is a registered trademark of Battlespace Simulations, Inc. (www.bssim.com) IDSI (www.immersivedisplayinc.com)

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able to link in some of our F/A-18 and E-2 devices to join their very robust simulator network to provide an initial look at how we could cross service lines to provide distributed training in a broader sense that matches the way we fight. We fight as a joint and coalition effort, so we need to continue to look for the right and smart ways to bring our networks together to provide that training capability.

"Foundational activity to shore up our ability to execute distributed training is going to be a priority focus for the next couple of years. We have significant infrastructure that needs to be able to link together in a persistent and a repeatable fashion. Those training devices have been procured via the operational platform programs that provide those capabilities. They were not necessarily initially envisioned to be linked together on a repeatable basis, so we've got some work to do with each of the platforms to ensure that they are up to the same standard and able to execute missions reliably across the network with Sailors operating in separate locations. That will in turn build a foundational structure for us to start bringing in the live element in a more repeatable fashion to get us toward a live, virtual, constructive end state.

"Foundational activity to shore up our ability to execute distributed training is going to be a priority focus for the next couple of years."

"We are now pursuing upgrades to the ways that our simulators act in an interoperable fashion, programs that tie the platforms together across the networks and improve the capability of those simulators to operate across various mission sets at the right tactical level. We have a couple of things over the course of the next year that will allow our F/A-18 and E-2 simulators to more routinely link together. Then as we get towards the end of the year and into 2019, we are going to look for expanded opportunities to also connect with the US Air Force across their network.

"As we start to field the next generation of simulators, in the documents that we provide to industry, they all include requirements to be able to connect across the networks.

"As we continue to update our operational warfighting equipment we're providing new capability, such as new mission sets and weapons for our tactical aircraft, and we need to ensure that training devices match the configuration of these platforms. That's harder than it sounds because the platforms are never in specifically one configuration. So we need our trainers to be able to match, or at least very closely match, the configurations of the systems that our Sailors and aircrew will be operating. Products like our own Multi-Purpose Reconconfigurable Training Systems (MRTS) are paramount, because they allow the capability to match configurations on one hardware baseline with software differentiation. We expect the need for that type of thing to continue in the future so that we can use a single training device to train multiple configurations of operational platforms.

"We recognize that there is a great opportunity to provide training at the point of need, to bring training to the deployed teams. Rather than have an aircraft carrier training classroom populated by students refreshing on PowerPoint based-training, why not have wall

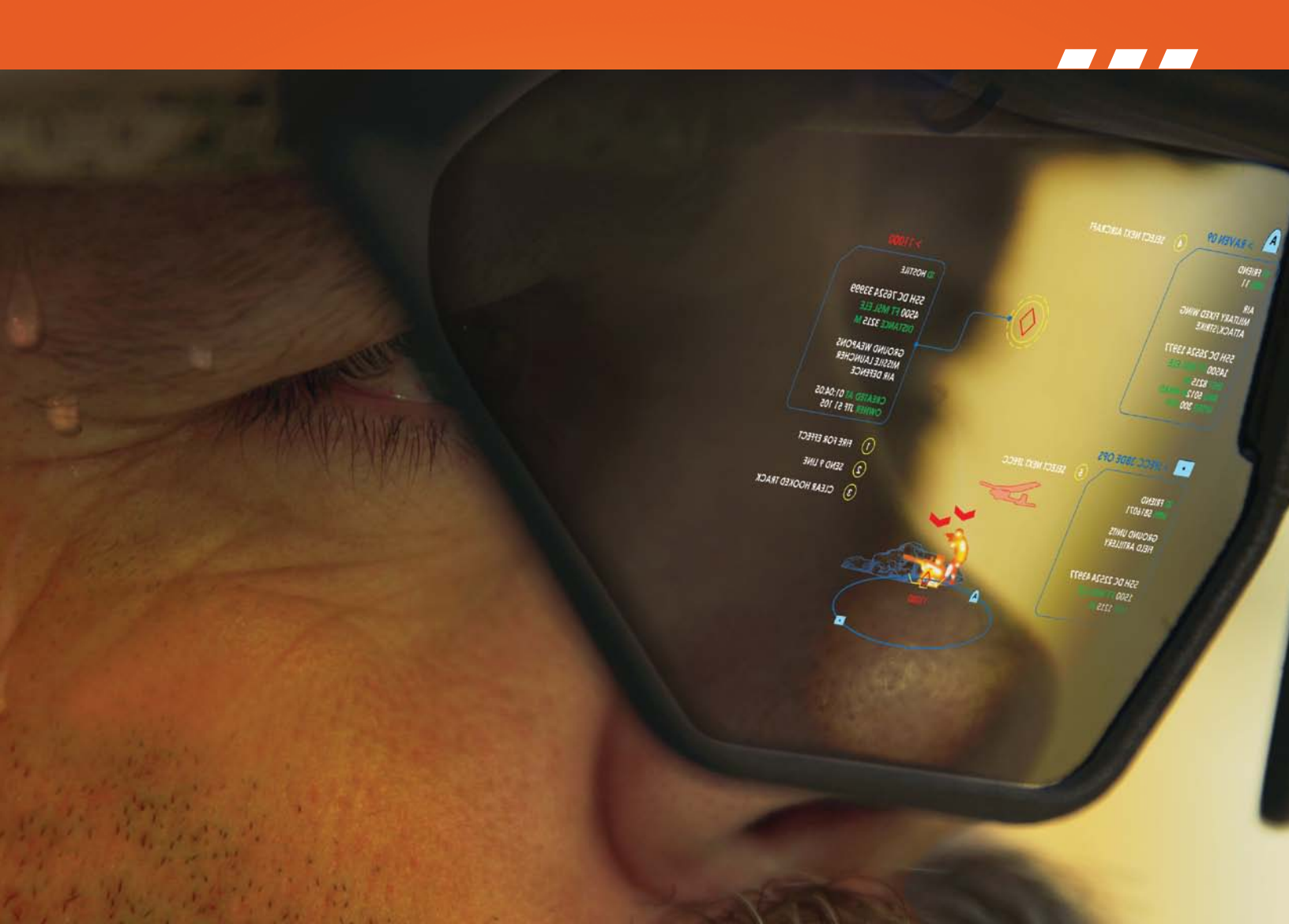
sized computers where they can do maintenance mission rehearsal across a number of skill sets? In a classroom populated with MRTS devices, you could have an F/A-18 squadron maintenance team refreshing their skills on engines, followed the next hour by the supporting element from the ship practicing diesel electric generator maintenance, and then the next hour the deck crew practicing maintenance on the electromagnetic aircraft launching system. Why not have them practice it in a virtual world first, so when they go out to the catapult and start taking things apart, it is not the first time they've seen it in recent memory? That ties right into the tenants of the Sailor 2025 Ready, Relevant Learning pillar as we modernize the ways that training is delivered to the Sailors in the Fleet.

"Deployed training has been a gap for the aviation forces for a long time," Etz observed. "That's primarily been due to a number of different constraints such as the size associated with those simula-



tors, the requirements to get the devices onboard the ship, and how you sustain those when deployed. That world is changing very rapidly. Our team is involved with a number of industry partners to look at future deployable capabilities which are frankly available right now utilizing augmented reality and virtual reality (VR) technologies that are of a footprint that is fully supportable on board vessels. F/A-18 crews could be using VR goggles to train tactics and procedures in the ready rooms on board aircraft carriers. We are pursuing systems that will allow us to take that capability out to the carriers such that our deployed crews can train in mission areas, such as air-to-air combat and other complex mission sets, that they may not see in the real world. We can create those environments utilizing low cost gaming technology and then deploy it to the aircraft carriers. That's a great way to ensure that those crews are proficient in those areas should the need arise while they are on deployment."

Etz noted that the cost of certain COTS technologies, such as the large touch screens used with the MRTS product line, has dropped significantly, from tens of thousands to low single digit thousands of dollars. "That makes those systems very affordable. Our industry partners are doing very innovative things to capture those technologies and offer them as solutions to military training needs. And we want to leverage all those great ideas of industry and bring those into the Navy/Marine Corps team where it makes sense."



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Meggitt Debuts FATS 300

I/ITSEC 2017 marks the debut of Meggitt Training Systems' (Booth 1223) FATS 300 immersive, multi-screen training system. The immersive training environment includes five free-standing flat screens, each measuring 150" x 84" with 16:9 aspect ratio and featuring a borderless projection surface.

The screens are arranged in hexagonal format with the remaining side used as an entrance. Five digital cameras feed information into the hit detection system with short-throw projectors allowing users freedom of movement within the training space.

The system can be operated in a variety of lighting conditions, featuring a combination of scenario sounds, plus those added by the instructor for increased realism.

The new system debut follows the introduction of the FATS 100P Portable Training System and Live-Fire Screen earlier this fall.

Outlining all three recent product introductions for the *Show Daily*, Michael Paulk, Director of Virtual Systems at Meggitt Training Systems, noted that the FATS 100P portable training system reflected the company's focus on "listening to the customer."

He explained, "Our customer base told us that they really needed something that they could move around to different places. That's really why we came out with the FATS100P. There is a need for it."

He offered examples of how the FATS 100P could support both civil law enforcement and military police training across a spectrum of critical capabilities.

"It's lethal. It's non-lethal. It's judgmental. It's escalation and non-escalation-type scenarios. The FATS 100P gives you that portability to literally pack it up, put it in the back of a squad car. Take it to point A, B or C - wherever you want to go. Set it up in a 20-minute time span and you can conduct training. You can go into a multipurpose room as long as it's got a white wall you can project on. So it's really exciting, because it gives the customer that flexibility to meet the needs that they have in today's environment," he said.

Paulk noted that the other recent Meggitt product introduction, the Live Fire Screen, "basically brings both of the live fire and virtual product pieces that Meggitt Training Systems offers into one environment."

He crafted a scenario where law enforcement personnel wanted to do some "judgmental shooting" on an indoor live fire training range.

"Our new screen is wide enough to fit two standard shooting lanes and an indoor range. And now you can take our FATS virtual training system and project a video on that screen to allow the police officer to use his real weapon and shoot on judgmental training courses."

He added that the Live Fire Screen's self-healing rubber membrane "can take up to 50,000 rounds," a number that he acknowledges "makes people's jaws drop."

"And we are very excited about our newest introduction, the FATS 300," he continued.

"We've been working really hard on it and the entire team can't wait to debut it. It answers the need for an immersive training environment with all the advantages that we offer on our FATS 100,

whether it be military or law enforcement."

He added that the I/ITSEC 2017 debut is designed for new potential clients as well as for existing clients who might be interested in upgrading their current Meggitt trainers to create an immersive environment.

"We listen to our customer feedback and work on that," he said. "And to be quite honest and forthright, we have been behind in responding in the immersive training environment. So, the FATS 300 is our answer to putting a product out there that meets customer needs for an immersive training environment."

He continued, "Existing FATS 100 system customers can easily upgrade to a FATS 300 system. We have purposely designed and offered that upgrade path because we want customers to do that."



Noting that the FATS 100 design underpins programs of record for both the US Army and US Marine Corps, Paulk emphasized that the accuracy tables built into the system design allowed the introduction of realistic effects from environmental factors like wind, snow, heat or humidity.

"All of those things are going to impact the flight of your ballistics if done correctly in the simulation," he said. "And that's what this environment and our system does for you."

"We were the original company to invent law enforcement virtual products," he stated.

"And we're continuing with that legacy and heritage today with all these new and wonderful product introductions. We're really excited about it. And that's why I think it's going to be so great to introduce the FATS 300 at I/ITSEC, because we're going to be able to expose all of our military customers to this new product that we are sure can help Soldiers and warfighters train in the future."

Referring to the company's "strategic vision" and "roadmap toward the future," he concluded, "Nobody else out there is going to give you a virtual training product and live fire targetry product. Everyone else has got to go partner with somebody else. So my virtual competitors have got to go find a live fire targetry equipment provider. Live fire targetry equipment providers have got to go find a virtual trainer equipment supplier and partner with them. But Meggitt Training Systems provide both of those under one roof."



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MASA Expands Brazilian Footprint

After opening an office in Brazil earlier in 2017, MASA Group [Booth 2227] is already finding new applications in-country for its constructive simulation products.

After more than five years of operations with the Brazilian Army, the company created a subsidiary named MASA do Brasil, based in Rio de Janeiro, to increase its customer outreach to civil defense agencies and military customers across South America.

The new manager of MASA do Brasil, Marco Blasich, told the *Show Daily* the company had already been able to demonstrate the company's MASA Synergy product to Brazil's Defesa Civil agency during crisis scenario training in Blumenau, Santa Catarina, in April.

"In the last 20 years, Brazil has spent on a regular basis each month around \$200-250 million to respond to disasters. It's a huge country, they have all types of weather, and the population is exposed to a lot of risk. Of course, they are working to get their cities more resilient. In the meantime, they are spending a lot of money to respond to disasters," Blasich explained.

"The United Nations says that if you invest one dollar today in disaster risk management, you will save seven to ten dollars in the future when the disaster comes. So, we promote our MASA Synergy system as a way to save money in the disaster response phase.

"The tool can be used for preparing the decision makers in the public safety or civil protection sector. It could be used to prepare these crisis cells, it can be used to support the drafting of a plan to respond to the disaster. It can be used to support the decision-making process and so on."

In April's demonstration, which was dedicated to public safety and security training, the constructive simulation was used to perform a six-day crisis scenario in just nine hours involving more than 15 city agencies.

The scenario was based on the flooding of the Itajaí-Açú river and its tributaries, as per the Blumenau contingency plan. With the water level rising, the crisis cell had to organize the evacuation of people affected by the disaster.

"Blumenau is one of the most advanced Brazilian cities in terms of

disaster response, and disaster preparedness because in the last 150 years they suffered something like 150 floods. So, they have built a good procedure to respond to disaster. When we met this community, they were very happy to test our simulation and check if it would be helpful for them to prepare the crisis cell," Blasich said.

To play the six-day scenario in nine hours without compromising realism, the simulation ran in real time only during the decision-making phases; after orders and instructions were issued to the simulated units, time was accelerated to speed-up execution.

In advance of the exercise, MASA gathered map and topographical information, disaster data, and the contingency plan and information related to the actors and agencies participating in the disaster response. This data was imported into MASA Synergy, with maps and disaster data appearing in the same format as Blumenau's Defesa Civil's original format.

Indeed, to keep the training as realistic as possible, none of those training had access to Synergy, and instead the city's crisis cell used the equipment they would have in a real emergency – cell phones, instant messaging and radios – to communicate with the team inputting into the simulation.

"It was very successful. Everybody had a very good impression of the capability of the simulation. And so, this is now opening a market for us in terms of public safety on one side and civil protection on the other," Blasich said.

"All this is made possible because we opened the local office in Brazil back in Janu-

ary. The company, MASA Group, is investing a lot of money in Brazil because the company believes Brazil will be a very good market for us."

While acknowledging that the Brazilian government procurement procedures were "complex", Blasich was nevertheless confident of a first sale in 2018.

Budgets allowing, the Brazilian Army also has ambitions to expand its use of MASA Sword and recently signed a software maintenance contract for the company to support the platform for the next five years.

Blasich noted that with MASA Sword receiving regular updates, the company is able to present new features of the product at each I/ITSEC.

"This year we will present a demo on Sword's new capabilities of creating a joint forces scenario. We have improved some of the joint forces capabilities of Sword – modeling air and naval units and being able to build a scenario employing land forces, air forces and other forces working together.

"We are working on a new software client that is able to get the most out of Sword in order to make an analysis to create a battle plan, to scrutinize the plan and to choose the best course of action among a selection of other possibilities.

"We can also configure Sword with a new database that is focused on modeling battalion units and lower to train battalion commanders. The level of detail of the modeling is lower, and we can represent platoon operations and section operations in a more detailed way than what we do with the standard database that Sword comes with."



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Raytheon Keeps its 'Focus' on Mission Readiness

In an era when some consumer companies boast about the number of clients they have served, Raytheon Global Training Systems can lay claim to some pretty impressive bragging rights.

According to Wayne Cline, Business Development Manager at Raytheon Global Training Solutions (Booth 1036), for the last decade the "training arm of Raytheon" has supported and executed "over three million Soldier training events" on an annual basis through the company's Field Operations Customer Support (FOCUS) program.

"We have trained probably just about every Soldier in the US Army since 2008," Cline said, highlighting the company's related "core capabilities" of "systems engineering and integration of all of the Army's training aids devices simulations and simulators.

"That's just one of the core functions that we have on the Warfighter FOCUS program," he added.

"And it's not just maintaining and sustaining training aids and devices for the Army. We also execute mission support requirements at the Army's Combat Training Centers: the National Training Center (NTC) at Fort Irwin, CA; the Joint Readiness Training Center (JRTC) at Fort Polk, LA; and the Joint Multinational Readiness Center (JMRC) at Hohenfels, Germany. We do training analysis and training technology insertion. And we also support our coalition and international partners under Warfighter FOCUS."

As an example of international partner support, Cline pointed to Raytheon's training of pilots in the Afghan Air Force, an effort that just reached the milestone of 100 Afghani pilots trained and certified.

"We also do UAS [unmanned aerial system] pilot training," he continued. "We train every US Army UAS pilot, with a total of somewhere in the neighborhood of 22,000 UAS pilots trained since 2008.

As with the Afghan Air Force example, Cline was quick to emphasize that the training provided by Raytheon Global Training Solutions was conducted on a global basis at over 600 site locations.

Citing the example of the company's work at JMRC in Germany, he described some of Raytheon's efforts that have translated to interconnected training between US forces and multinational / coalition partners.

"You've got different disparate combat platforms out there from Belgium or Germany or Lithuania or elsewhere. The challenge is getting their weapons systems and vehicles integrated and interconnected into [the combat training center] instrumentation systems so that they can execute force on force training. That's something that we do on a daily basis that nobody else has done in decades," he said.

"If you listen to senior Army and DoD leaders speak, you will hear that priority number one is mission readiness," he asserted. "They have emphasized that on more than one occasion. So one of our key messages during I/ITSEC this year is mission readiness in preparing the warfighter for the future."

Cline highlighted service initiatives like the Army's Soldier modernization efforts, noting the strong tie between those efforts, the support provided by Raytheon Global Training Solutions, and the company's capabilities in areas like synthetic training environments.



"That's really the next generation of training for the Army and DoD to develop that 'one world global terrain,' integrating that into virtual collective trainers from individual training all the way up through theater Army operations. And that's another thing that we're highlighting this year at I/ITSEC," he added.

Another aspect of the Raytheon Global Training Solutions exhibit at I/ITSEC 2017 demonstrates the integration of the company's cyber capabilities with the new Persistent Cyber Training Environment (PCTE).

"We welcome folks to come to our booth to see our PCTE demonstration," Cline said. "It's an example of an immersive virtual classroom where we're able to train cyber warriors anywhere and anytime."

He noted that Raytheon is also demonstrating and showcasing company capabilities and activities "with regard to the management of large Army programs," through the Raytheon-developed InSITE [Information Solutions for the Integrated Training Environment] management information system and related items like the PAX predictive analytics tool.

Cline said that the net result was the company's demonstrated ability to provide customers with real time contract and financial management information and lifecycle management of programs.

"The bottom line is there's a lot going on at I/ITSEC this year as there is every year. But the emphasis from the DoD, and the Army specifically, is on mission readiness. And that's really what we're showcasing; our ability to support the warfighter in training and our integration capabilities in systems engineering across the spectrum of live, virtual, constructive and gaming environments," he said.

In a takeaway message for I/ITSEC attendees, he summarized, "Raytheon is here to support the warfighter and get them mission ready; again harnessing those new technologies in simulations and training for the next generation of warfighter. We're there at a moment's notice to execute our customers' needs in training and get them prepared for the future battlespace."

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Presagis Unveils Three New Products at I/ITSEC

Presagis (Booth 1762) is using I/ITSEC 2017 to introduce three new products to the training and simulation market.

The company is bolstering its line of sensor simulators with the introduction of Ondulus NVG (night vision goggles), the Panorama image generation platform, and Velocity, a next-generation solution for the production of large synthetic training environments.

Jean-Michel Brière, Presagis' President, said the three new products "not only pro-

vide our customers with more accuracy, realism, and cost-savings, but mark significant technological achievements in the evolution of our company."

Ondulus NVG gives users the ability to add realistic, physics-based night-vision sensor simulation to their research, training or mission planning environments. Building on the success of the Ondulus family of sensor products, Ondulus NVG supports both passive and active illumination.

The Panorama image generation system



gives organizations the ability to add high-fidelity, scalable imaging to their simulation solutions and leverages Vega Prime, Ondulus and other Presagis software solutions.

The system is capable of providing out-of-the-window, electro-optical, NVG and infrared views for ground, air, and marine domains.

Velocity, meanwhile, automates the production of large synthetic training environments using various tools from 3D visual effects, gaming, geographic information systems (GIS) and architectural design fields.

By analyzing and transforming large amounts of geospatial data, Velocity produces large, realistic and immersive 3D virtual environments for a wide array of simulation and gaming platforms.

Brière said the design and development of Velocity was in direct response to the challenges facing government agencies and non-governmental organizations as they attempt to manage overwhelming amounts of geospatial data.

"The sheer volume of available data is exploding," he explained. "In trying to navigate this data-rich environment, clients face a stark choice; either ignore precious data updates, or rethink and streamline processes."

Stéphane Blondin, Presagis' Vice President of Product Management and Marketing, said Presagis was very aware of the market's direction and the need for cutting-edge, game-like graphics.

"Velocity synthetic environments can be exported to many other traditional and non-traditional formats - including game engines, such as Unreal UE4 and Unity software."

Presagis is also launching the newest version of its M&S Suite - version 17. Comprising industry-standard software such as STAGE, Creator, Terra Vista, and Vega Prime, M&S Suite 17 is set to release in early 2018 with an arsenal of new features.



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Textron Offers TRU to Life Simulation

As it eyes various requirements around the globe, TRU Simulation + Training (Booth 1700) is leveraging the aircraft manufacturing expertise under the umbrella of parent company Textron Inc to offer a full training solution.

This unique position has been visibly demonstrated at I/ITSEC in recent years through the company's V-280 Valor tiltrotor simulator, which reflects the work sister company Bell Helicopter is undertaking as part of the US Army's Future Vertical Lift (FVL) initiative.

As TRU Simulation + Training executives explained to the *Show Daily*, this position is more than just a happy coincidence and is resulting in various opportunities as Bell and Textron Aviation promote their products around the world.



"We talk to people about the TRU total training solution. When Textron bought TRU Simulation + Training, that's exactly what you get. We can sell you the aircraft but the total training solution comes with that," said Gregg Sturdevant, Director of Sales & Business Development at TRU Simulation + Training.

Eric Buer, Director of Business Development at the company, said TRU had transitioned from being simply a producer of simulation products and training devices to offering a "total services solution."

"We have the curriculum, we run all the courseware, all FAA or EASA certified, whichever the case may be, and we put in our fully certified devices that we maintain along with our instructor pilots. So, they leave fully trained before they step into the actual aircraft," Buer said.

"We have certainly seen that in the domestic market and that, in our case, has certainly been reflected in the international market as well. Customers don't want to have to go out and put together three, four or five separate contracts, and the contracting vehicles and service providers.

"Now, they can bundle all those services under one trusted prime contractor, TRU in our example, and execute it. We see that

certainly domestically and more of that internationally."

One of the most high-profile opportunities the company is currently pursuing is the requirement for new TH-57 simulators for the US Navy, which will precede the ultimate replacement of the aging airframes themselves under the Advanced Helicopter Training System (AHTS) program.

For the former requirement, the bids have been submitted and a decision is expected in early 2018.

"They have released that [simulator] RFP, we've responded to it. They are going to remove all the legacy devices for the TH-57 Bravos and Charlies. And our intent is to provide them 14 Level 6/Level 7 flight training devices as they've requested, along with all the maintenance support and all the curricula revisions and all the instructor pilots," Buer said.

"The Navy wants to put the 'advanced' back into advanced helicopter training, so, they can fly night vision goggles, they can fly formation flight. A lot of things they can't do as effectively in the aircraft itself. The intent is to take about 9%, about 7,000 hours a year, out of the aging aircraft into the simulators.

"On all these devices you can even learn to hover, you can learn to fly the aircraft, you can fly pattern work, you can fly real instrument training, you could fly night vision goggles, day/night, shipborne operations. Even if the aircraft wasn't going to be replaced, it's a generational leap in how the Navy trains. So just these devices and our approach is really a generational leap. And that does pave the way for AHTS."

With the RFP for AHTS yet to be released, the future direction of that program is less certain and Bell Helicopter is keeping an open mind whether the requirement will be met by its Model 407 or require a larger aircraft such as the 429 twin engine helicopter.

With TRU Simulation + Training also supporting international Foreign Military Sales of the Bell Helicopter AH-/UH-1 attack/utility helicopter family, future sales of the aircraft could also represent a significant future opportunity.

"We responded to a sources sought from the government asking about capabilities to build a domestic full flight training academy for the H-1. We would be positioned to provide ground school courseware, simulators and training for pilots, aircrew and maintainers at a central location for the new H-1s. That's something we've looked at and responded to the Government a couple of weeks ago," Buer explained.

"It's that total training solution," Sturdevant reinforced. "It's very attractive when you're teamed with the original equipment manufacturer and you've got that supply chain management, and everything's falling into place. That makes it a whole lot easier to support the training piece. We're working hard to educate some of the folks on the efficiencies of using simulation as a means of really achieving some advanced training that you can't always do in the aircraft itself.

"It's cost effective. You listen to what's going on in the Department of Defense – every service chief, every air boss, every ops chief all say the same thing: we've got readiness issues across the board, so how do we get healthy? And I tell them you get healthy by using simulation."



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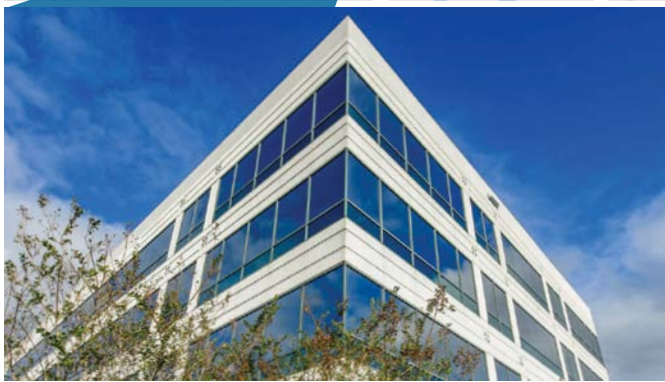
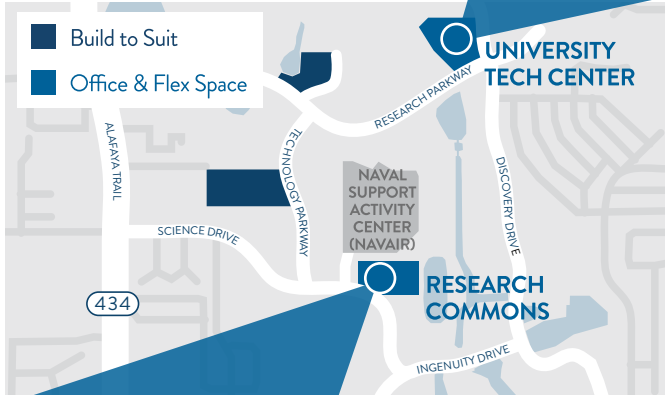


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Signature Event Will Examine Cyber Operations in a Complex World

Cyber epitomizes this year's I/ITSEC theme – Harnessing New Technologies to Win in a Complex World.

From Russia's synchronization of cyber operations with kinetic warfare in Georgia and the Ukraine, to North Korea's hacks of the Sony corporation and private emails to disrupt American economic activities, to alleged Russian influence in the 2016 Presidential election, cyber plays a major role across the various domains – air, land, maritime, space and industrial.

Cyber is complimentary to the elements of national power – diplomacy, information, military, and economic – and its influence is magnified as the population becomes increasingly more connected.

Norton by Symantec, in its June 2017 Wi-Fi Risk Report, estimates that 55% of consumers globally would not think twice about exchanging, sharing or even doing something risky to get a strong Wi-Fi signal.

The Cyber Operations in a Complex World executive panel brings together key leaders from industry, Congress, academia, and the Department of Defense to discuss the tough issues associated with cyber, including policy, training, talent management, and education.

Colonel Richard Haggerty, Project Manager for Instrumentation, Targets, Threat Simulators, and Special Operations Forces Training Systems (PM ITTS) within the US Army's Program Executive Office for Simulation, Training and Instrumentation (PEO STRI), will moderate this Signature Event at 1400-1530 in Room S330BCD.

The panelists for this event are: James McStravic, SES, Performing the Duties of Under Secretary for Defense Acquisition, Technology and Logistics; Major General Patricia Frost, Director of Cyber, Office of the Deputy Chief of Staff, G-3/5/7, US Army Cyber Command; Ronald Pontius, SES, Deputy Commanding General, US Army Cyber Command; Rear Admiral Dave Dermanelian, Director of Training and Exercises (J7), US Cyber Command; Derrick Hinton, Acting Director, Test Resources Management Center; and, Mike Macedonia, Ph.D., Assistant Vice President for Research and Innovation, University of Central Florida.





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Congressional Caucus Gets Things Rolling

As the first official event of I/ITSEC 2017, attendees had a unique opportunity to meet the new leadership of the Congressional Caucus for Modeling and Simulation and hear their perspectives of the current situation in Washington, DC as well as their views on the future role of modeling and simulation.

Welcoming the standing room only audience to the Monday morning event, RADM James Robb, USN (Ret), President, National Training and Simulation Association (NTSA), highlighted the "continuation of the Congressional series we do every year."

"NTSA's outreach to Congress has been very strong for the last 10 years," he explained. "And the Congressional Caucus for Modeling and Simulation was born out of the friendship between my predecessor [RADM Fred Lewis] and Congressmen Bobby Scott and Randy Forbes. This is important to the community. Through the caucus, we communicate our desires and help educate them on our capabilities as well as have a dialogue about issues."

Congressman Bobby Scott (VA 3rd District) is Caucus Chair and has participated in several previous I/ITSEC panels. "I've already enjoyed the conference so far," he began. "We have visited several booths, and one of the things I notice is a focus on trying to get technology off the shelf, so you don't have to reinvent the wheel every time you design something."

Pointing to the significant cost savings that stem from that approach, he expressed his appreciation "on behalf of the federal

Congressman Scott, Congresswoman Murphy and Congressman Peters



government," adding, "The M&S Caucus provides a forum to educate members of Congress and their staff on the importance of this industry to every sector of the nation's economy and also to provide industry with an opportunity to come to Capitol Hill every year to showcase what the technology is doing."

"In using modeling and simulation, we are able to save money and to make sure we are making the right decisions long before they are actually implemented," he said.

"In the last session, for example, I successfully offered an amendment to the Surface Transportation Authorization Bill, calling on the Department of Transportation to utilize modeling and simulation technology to analyze federally funded highway and public transit projects to ensure that these projects will increase transportation capacity



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and safety, alleviate congestion, reduce travel time and environmental impact, and be as cost effective as possible,” he added.

Congresswoman Stephanie Murphy (FL 7th District) described I/ITSEC 2017 as “truly an impressive event.”

“We had a brief moment to spin through a few of the exhibits downstairs,” she said. “And I really think what’s great about this is that it’s a place to showcase some of the exciting work that is being done in modeling and simulation and training. And it’s a fantastic opportunity for folks, whether you are a professional or a student or educator or lawmaker, to come and see the incredible contributions this community is making to our national security and to our country.”

Murphy focused her briefing in three areas: a Washington DC update; some specifics on contents of the National Defense Authorization Act now on President Trump’s desk for signature; and, some future opportunities that she sees in the modeling and simulation space and how her office might be helpful in responding to those opportunities.

“Thank you for what are you doing,” offered Congressman Scott Peters (CA 52nd District). “I was on the Armed Services Committee my first two terms and one of the biggest struggles is, how much can you get simulators to do? Always the F/A-18 pilots would tell you that it’s not the same. We understand that. But I’ve already seen technologies that would really let us save a ton of money on training and on preparation. So I think it’s very important, what you are doing, and it’s going to be increasingly important as the battlefield gets more complex and there is more and more pressure on the budget.”

All three Congressional speakers expressed concern over what

they claimed to be a lack of bipartisanship on some committees in Washington, DC, with specific comments directed toward upcoming sequestration budgetary milestones as well as the emerging tax bill. In the latter case, they cited specific budget projections on the potential impact of the pending tax cuts, noting that the resulting deficit impacts would call for “hard choices” that should be made sooner rather than later.

“I think it is really a concern,” Peters asserted. “And it ought to be a concern for the defense community as well, because those pressures—and I think the DoD leadership has started to notice this—will inevitably hit the Defense Department.”

That said, all of the panel participants expressed a strong desire to work in a bipartisan manner to address some of the identified tax and spending issues.

Following their opening comments, audience members had a chance to submit questions to the Congressional representatives.



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Doron Receives Largest Military Contract To Train USAR Drivers

Doron Precision Systems (Booth 2701) will soon be applying its extensive experience in commercial truck driving simulators to help train US Army Reserve (USAR) soldiers following the award of the company's largest military contract to date.

Doron will provide multiple simulators based on its 660Truckplus model. The interactive simulator provides a dynamic and immersive training experience for a wide variety of commercial and military truck-driving applications.

The Army Reserve will use it to train drivers for its most commonly used vehicles, including the M915 tractor trailer, M970-7.5k and M9784A-5k POL (petroleum, oils and lubricants) units, an 80-passenger bus and the new Joint Light Tactical Vehicle. The 660Truckplus will provide basic and tactical driver training for all models of vehicles requested by the USAR.

Delivery of the simulators is scheduled to begin in late 2017, beginning with the 941st Transportation Company in North Charleston, SC, with the installation of all systems expected to run through the end of 2018.

The contract requires Doron to provide installation, training, and maintenance support through 2023. This will be done using the company's staff of technicians located throughout the US.

"In the absence of live training, the Doron simulator provides opportunities for leaders and soldiers to improve and maintain driver proficiency," said Michael Stricek, Doron's Senior Vice President.

"The 660Truckplus bridges the gap between the need for unit readiness and the goals of cost avoidance, low collision rates, fuel efficiency and improved safety. The 660Truckplus adds an entirely new dimension to the USAR truck driver training

program and provides a powerful training tool, ultimately leading to more proficient and safer soldiers."

Stricek told the *Show Daily* that "the majority of basic and tactical training tasks can be accomplished using Doron's 660Truckplus driving simulation system and the curriculum provides opportunities for both leaders and soldiers to practice tactical and decision-making skills for a variety of training scenarios.

Percentages of how much training will be accomplished in the simulator vs the real vehicle has yet to be determined.

"Doron is confident that its state-of-the-art simulator technology, proven curriculum, and unmatched customer service support will lead to continued interest from various DoD agencies for the driver training needs of today's Soldier."

Since 1973, the company, located in Binghamton, NY, has installed more than 25,000 driving simulators and 400 motion-based entertainment simulators to customers in more than 60 countries. Doron has provided simulation systems to the Army, Navy, Marines, and Air Force throughout the USA and overseas locations.



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```
def operation == "MIRROR_Y":
    mirror_mod.use_x = False
    mirror_mod.use_y = True
    mirror_mod.use_z = False
elif operation == "MIRROR_Z":
    mirror_mod.use_x = False
    mirror_mod.use_y = False
    mirror_mod.use_z = True

#selection at the end -add back the deselected mirror modifier object
mirror_ob.select= 1
modifier_ob.select=1
bpy.context.scene.objects.active = modifier_ob
print("Selected" + str(modifier_ob)) # modifier ob is the active ob
mirror_ob.select = 0
name = bpy.context.selected_objects[0]
obj_data = obj.data
obj_data.select = 1
```

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ITEC 2018 to Brief on European Conference Agenda

I/ITEC 2017 provides an excellent opportunity for the ITEC 2018 team to brief colleagues on Europe's annual simulation, training and education event, which brings together representatives from a broad international community.

The 28th edition of ITEC will take place in Stuttgart, Germany from May 15-17, 2018. The theme for the conference is 'Readiness 2025: Innovating Education and Training for the Next Decade and Beyond'. The organizers expect to see over 2,500 visitors and more than 80 VIPs from over 60 countries.

RADM Simon Williams, RN (Ret.), Clarion Defence & Security Chairman, will lead an ITEC 2018 briefing today at 1400 on **Booth 2726**.

Other speakers include: Debbie L. Berry, Lockheed Martin Training and Logistics Solutions, ITEC Committee Member; James Condley, Event Manager, ITEC; and, Elodie Gerard, Senior Marketing Manager, ITEC.

"ITEC returns to Germany this year at a time of growing international uncertainty and continuing change in the delivery of military capability," Williams told the *Show Daily*.

"The conference committee has guided this year's agenda toward

a focus on readiness, and how both the military and industry will deliver this in 2025 and beyond. 2025 is within the budgetary planning horizon of most nations, so we have some sense of what resources will be available; and it is just far enough ahead to stretch our understanding of the development of technology in the fast-paced M&S

sector, so the outline of the ways we will be delivering training can be discerned.

"Blending these ways and means will be crucial to the creation of ready forces in 2025 and beyond; ITEC 2018 will explore military users' needs, expectations and aspirations, and the forward trajectory of education offered by industry to meet these needs, expectations and aspirations."

Visitors to I/ITSEC can pick up a copy of the ITEC 2018 conference preview, including the agenda, at **Booth 2726** and receive an exclusive I/ITSEC discount code to book their

ITEC 2018 conference pass.

Visitors to the booth will also be able to obtain information about MilSim Asia 2018 which takes place at Marina Bay Sands, Singapore on January 30-31. The theme will be 'Military training for an evolving technological and geopolitical landscape.'

ITEC is jointly owned by Clarion Events and NTSA.



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OBW Goes Live From Sim City

Among the technical challenges being met head on during this year's Operation Blended Warrior (OBW) is the increased integration of live assets and greater use of dense urban terrain environments.

As an extension of its I/ITSEC lead service role, the US Army Program Executive Office, Simulation, Training and Instrumentation (PEO STRI) has provided additional focused objectives for OBW 2017 over previous years.

Lieutenant Colonel Robert Kammerzell from PEO STRI told the *Show Daily* the service had started work in April to define its technical objectives for OBW 2017.

"The Army focus is really on making sure that we identify those LVC challenges. We identified six key objectives we wanted to achieve. Among these were insight into human performance; work to create authoritative data sources; and facilitating operations in dense urban environments," Kammerzell said.

"We know that the future fight is anticipated to occur in dense urban terrain, but when you look at those built-up and heavily populated areas, how do you replicate that terrain for modeling and simulation?"

PEO STRI recognizes that this sort of terrain creates a myriad of warfighting challenges that are better confronted in synthetic training environments before being met in the real world.

In an attempt to create the urban canyons that can play havoc with C4I and electronic warfare systems, a model of downtown Seattle forms part of the exercise arena, featuring 58,349 building locations and 19,479 unique building models, which are based on real-world building shape/sizes.

US Navy Commander Gilbert Gay, the Navy lead for OBW, said that as the team created the OBW architecture, the challenge of including that dense urban terrain led them to leverage commercial gaming technology.

"Having the Army as the lead caused us to bring in the dense urban terrain elements, as that was a critical requirement for PEO STRI given the importance of ground operations for the Army and the US Marine Corps. Just modeling that into the simulation is a challenge, which is why we have turned to commercial gaming solutions to give a more accurate representation of that environment."

In September, PEO STRI released a request for information to move forward with an Army Games for Training (GFT): Next Generation Game (NGG) program.

GFT is a suite of training software applications installed on a PC-based, networked, multi-player training environment using COTS/GOTS gaming technology: Virtual Battlespace 2 (VBS2), BiLAT, Tactical Iraq, Tactical Pashto and Tactical Dari.

The Army has a need for a game-based solution to enable units and leaders to conduct realistic multi-echelon/multi-domain combined arms maneuver and mission command training increasing proficiency through repetition.

The integration of live assets into the OBW activities has also been stepped up this year, with the involvement of a Marine infantry unit at Camp Lejeune in Jacksonville, NC.

As part of the OBW vignette today, the infantry unit will participate in the exercise, employing a commercial internet line and a simulation system located in their barracks.



A live L-29 aircraft from Rockwell Collins flying over the skies in Iowa will again be participating in the exercise environment, representing a simulated F/A-18.

With a safety pilot in the front of the L-29's twin seat cockpit, the rear pilot will wear a modified F-35 helmet displaying a Rockwell Collins EP-80 image generated environment. The avionics in the back also match the simulated environment so the pilot in the back is virtually flying in this vignette

Information flows from the aircraft to a ground station via a pod on the wingtip.

During the scenario, friendly forces have established air superiority and are now searching for targets of opportunity on the ground and to respond to close air support requests from Joint Tactical Air Controllers.

Alongside the live aircraft will be simulated F-15s from Flight Safety International, and F-16s from Lockheed Martin and the 772nd Test Squadron. Overwatch will be provided by a RQ-1 from Bohemia, providing ISR support and potential battle damage assessment.

Gay said one further critical aspect was the ability to track, analyze, store, and visualize trainee performance during OBW and post-exercise. To facilitate this, Aptima is providing analytical tools such as PETS, PM Engine, SPOTLITE, and Performance Dashboard, while Tenosar Corporation is providing the Parallel Network Data Analyzer (PaNDA) system.

Discussing the technical aspects of OBW with the *Show Daily*, Kammerzell said the exercise provided valuable insight into many of the LVC solutions now being developed by industry.

"It is a good opportunity to task industry to come in and show us what they can offer that can help meet some of these emerging requirements. The Army is providing the vision and industry shows us the realm of the doable. That's really what Operation Blended Warrior is a good testbed for. Feedback from OBW will help meet our future goals."

SoarTech Cruizin' Through IITSEC 2017

Soar Technology, Inc. (SoarTech) is using I/ITSEC 2017 to debut its Cruizin' hang-gliding simulator at **Booth 329**. The 180° field of view (FOV) simulator, which suspends players in a parachute harness, will be demonstrated at the company's booth throughout I/ITSEC.

Cruizin' is an internally-funded variant of a parachute-descent trainer system currently under development and funded by the US Navy. In the Cruizin' simulator, players are suspended in air using a real parachute harness. Using pull cords and hand buttons for steering and propulsion, players collect points by navigating checkpoints, collecting coins, and avoiding dangerous objects. Leaderboard stats are collected and displayed for performance analysis and comparisons.

For the Cruizin' development, SoarTech chose Unreal Engine 4 (UE4), Epic Games' newest game engine technology for creating high-fidelity, real-time experiences for PC, console, mobile, VR and AR platforms.

SoarTech is also Epic Games' official partner for providing licensing, maintenance, support, training, and development services for UE4 to the US Government and their contractors.

SoarTech offers training classes on UE4 and makes UE4 experts available as consultants or to supplement project staff. SoarTech's UE4 services also include support for classified projects.

Chosen by more than 4 million developers, UE4 was released by Epic Games in March 2014. It is one of the most widely used engines for commercial game development and includes full source code access. UE4 supports Windows, Linux, MacOS, iOS, Android, HTML 5, Xbox, Playstation, Steam, HTC Vive, and Oculus Rift.

SoarTech's expert UE4 development team can provide 3D models, animations, and programmatic functionality using the latest gaming standards to complement any training and simulation project. Customers may request a license per project or long-term services.

Reflective of the ongoing partnership, which kicked off at I/ITSEC 2015, SoarTech and Epic Games this week announced savings on UE4 support via discounted Unreal Government Network (UGN) subscriptions. The discounted pricing on UGN subscriptions will be offered only at I/ITSEC 2017 at the SoarTech booth.

An annual UGN subscription allows full access to UGN, permitting users to submit questions and requests to SoarTech, and enables collaboration with other Government-based organizations.



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Marathon's Robot Targets Increase the Pace

The technology offered by Australia's Marathon Targets (Booth 501) has steadily evolved since the company exhibited its first COTS autonomous robot at I/ITSEC 2009. This year Marathon will demonstrate three different targets moving, 'talking', and getting 'killed'.

"I believe the biggest news at Marathon is that autonomous robotic targets appear to have reached the tipping point. Autonomous targets have rapidly transitioned from an exotic solution to a mainstream solution," Ralph Petroff, Marathon's North America President, told the *Show Daily*.

"For example, Marathon's US customer base has grown to include the Marine Corps, Army, Navy, Air Force, and Special Operations Command. Each of the services are now developing robust long-term plans for autonomous robot targets."

International customers include the Australian Army, Canadian Army, UAE special forces, various NATO members, and also international law enforcement agencies.

Petroff noted that "in the last year, we had thousands of warfighters and 100 general officers in the US alone shoot at the robots. The favorable responses from 'trigger-pullers' and generals alike has been universally positive."

The standard T40 target is based on a four-wheeled autonomous mobility platform developed by Marathon which is able to navigate moderately rough terrain. The actual target is a human-sized all-aspect 3D mannequin made from durable plastic that will withstand thousands of shots before easy replacement, while the mobility platform is protected by armor plate.

The T30, which was launched at I/ITSEC 2016, is an up-armored variant for heavy volumes of fire.

"The T40 can handle high volumes of 7.62mm machine gun fire," Brad Brown, Vice President, Operations told the *Show Daily*, "but the T30 is even more robust."

The T30 and T40 use GPS and a scanning laser rangefinder for navigation, positioning, and obstacle detection and avoidance. The targets replicate humans by moving at various speeds, turning abruptly and leaning forward when running.

When the mannequin is shot, it tips over at the waist to indicate a hit; the target can differentiate between lethal and non-lethal hits.

When targets are operating as a group they can be programmed to respond by scattering, as civilians are likely to do, or react as an enemy might do, either by moving behind cover or advancing toward the firer. Stationary or rugged laptop computers can be used to program the targets and they can be loaded with audio files enabling them to scream in pain or shout commands.

The first batch of T30s were delivered to the USMC in February. "The ability to laterally move left and right, and the ability to peek from behind cover fits in with what the Marine Corps is building in its marksmanship tables. It simulates street crossings, where guys

often peek before they dash across the street and the T40 can simulate that. It provides excellent training for any Marine who's getting ready for operations."

The third target on display is the T4, a realistic 3D pop-up target that operates on the same software as its mobile brothers.

Not at I/ITSEC is the new T10 indoor robot, which was unveiled

in September, as the existing inventory has been delivered to the Australian Army, the launch customer for Marathon's first targets in 2008.

The T10 is developed for use in shoot houses and military operations in urban terrain (MOUT) facilities and Marathon predicts that it will be popular with special forces and law enforcement users.

The T10's collapsible dummy features a small footprint when the dummy is down, allowing operation close to walls, furniture, and other targets. The T10 can also be programmed to 'talk'.

"The global training community is recognizing that autonomous robotic targets solve a fundamental capability gap common to all militaries: currently, the only time warfighters perform live fire training on realistic moving targets is in combat. This violates the time-honored training maxim to never practice a new skill during

a firefight," said Petroff.

"At the same time, trainers and range managers are also concluding that autonomous targets may be the future of range modernization, because robots can enable same day range modernization. Robots can turn any range into a state-of-the-art robot range in less than a day.

"Huge decade-long, multi-billion infrastructure projects with underground utilities and scores of field technicians can be greatly pared back. High quality live fire training can start immediately, and not delayed a decade."

The Training-as-a-Service (TaaS) model has emerged as the most popular option for end-users and Marathon has rental fleets on three continents and is steadily increasing the number of robots available for rental.

In September, Marathon was awarded a three-year contract by the Naval Special Warfare Command to provide rental targets.

To meet the increased demand from Department of Defense customers, Marathon will soon be opening another three US offices and more than doubling the size of its robot fleet in the US. Each of these offices will have a fleet of rental robots and trained robot engineers and technicians who can provide robots for a few days, weeks or years.



T30, T4, T40 targets.



T10 indoor target.



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SIMETRI to Develop Better Wound Simulation for US Army

SIMETRI (Booth 864) is developing a more life-like system to better simulate wounds and injuries to provide more realistic training for US Army medical personnel.

The US Army Research Lab (ARL) awarded the company a 12-month contract to develop morphing moulage (wound simulation) with work expected to be completed by September 2018.

Current moulage applications reflect a single point in an injury's lifecycle, which can accurately portray aspects such as bruising from blunt trauma, entry/exit wounds or erythema but are incapable of improving or worsening with time, treatment and environmental factors. This limits a trainee's understanding of injury pathology, and requires multiple manual changes in moulage applications to study progression through the course of treatment.

The new moulage being developed by SIMETRI will morph to reflect injury progression as time passes or treatments are introduced. Self-actualizing and healing moulage are especially relevant to rapidly progressing injuries suffered by warfighters, including gunshot wounds, blast and burn injuries, infections and blood loss. This enables medi-



cal trainees to witness injuries change while wounds are being treated, enabling more realistic training and a better training result.

Previous research performed by the ARL Human Research and Engineering Directorate, Advanced Training and Simulation Directorate, demonstrated the substantial differences in characteristics and properties of simulated wounds that were static in appearance and behavior, and real wounds that were dynamic over the course of treatment and time.

For this contract, SIMETRI is assembling an R&D team that brings together an array of talents, ranging from shape memory polymer and medical experts at major universities to SIMETRI staff.

At its booth, SIMETRI will demonstrate its new Humeral Head Intraosseous Infusion (HHIO) training system, which will soon be released for broad military and commercial use. Under a 24-month contract from the ARL and Defense Health Agency, SIMETRI is expected to complete the final phase of HHIO development by August 2019.

Intraosseous (IO) fluid insertion was widely used to treat battle casualties during the Second World War, but faded with the introduction of the plastic intravenous (IV) catheter. The treatment re-emerged as a viable field alternative to IV fluids during operations in Afghanistan and Iraq, and since 2010 has been recommended in the US Committee on the Tactical Combat Casualty Care (TCCC) guidelines when IV access is not feasible.

SIMETRI designed the HHIO fluid insertion system in collaboration with the ARL and Defense Health Agency. It is expected to be used widely to train combat medics, paramedics and physicians. It enables them to practice administering life-saving fluids and drugs directly into bone marrow when vascular access is difficult or impossible, such as with injuries resulting from IED explosions.

The HHIO application provides low-cost, hands-on training with sufficient fidelity to teach field Soldiers to use IO devices for humeral head insertions. The final stage

of improvements will add capabilities, enhance user-friendliness, and offer better reliability.

Before release, SIMETRI will create a design for commercialization and enhance the mobile instructional system.

The HHIO Training System is part of a family of products offering a wide range of capabilities from individual instruction to hands-on procedural training and includes performance assessment, automation/maintenance, articulating arms, refillable fluids, durable synthetic, and hard and soft tissue.

SIMETRI is a woman- and minority-owned small business founded in 2009 in Orlando to develop realistic technologies to fill or improve critical medical training gaps with cost-effective solutions.



ETSA Delivers European MS&T Event Today

A now-established feature of I/ITSEC is the European Training and Simulation Association [ETSA] special event, which brings the European perspective on key MS&T subjects to the Conference.

ETSA will host 'Buying Innovation in Military Training: How Do We Foster, Exploit and Deliver Innovation in Military Simulation and Training?' today at 1600-1730 in **Room S329**.

This Community of Interest Event will be introduced by ETSA Chairman Graham McIntyre and moderated by Tess Butler, CEO Ruddy Nice and ETSA Communications Director.

There will be three presentations from: Lieutenant Colonel Jason Jones, Deputy Director NATO M&S Centre of Excellence, Italy; Emmanuel Chiva, Chief Strategy Officer at AGUERIS and Reserve Commander (Deputy for the French Navy Chief Digital Officer), France; and, Adam Easton, Ph.D., CEO SimCentric, UK.

The event will address the desire of NATO and partner armed forces to foster and deliver training innovation internally, and how to share the output and best practices. The panelists will discuss how industry innovates against current and future training requirements in concert with the military and government.

Issues that will be addressed include:

How to get industry to invest their R&D budgets against customer need?

How to reward innovation – both within the military community and industry – in training?

What examples are there of innovation that can be reproduced in other areas to good effect?

How to engage smaller, more agile and often naturally innovative companies – especially those outside of the current defense delivery network?

Finally, the panel will explore the bigger picture of how the military community and industry can exploit technology from other industries for military training and the exploitation of excellent training/education practice from providers outside of defense.

"There is an abundance of innovative technologies and processes within small and non-defense companies," McIntyre told the *Show Daily*.

"Our community needs to find ways to leverage these innovations to best serve our customers. Acting as a catalyst to speed up this technology transfer, ETSA has undertaken new R&D Initiatives to bring these parties, large and small, together within consortia, to address known R&D opportunities. Additionally, ETSA is lobbying governments and funding bodies within Europe to ensure that the technology areas most appropriate to the customers' true requirements are receiving the most appropriate focus and investment."

NTSA and ETSA signed a Memorandum of Understanding at I/ITSEC 2011 and in 2017 this MoU was updated to better reflect the status and modus operandi of ETSA and the relationship with NTSA.

All serving military and government employees can join ETSA for free at the ETSA European Pavilion at **Booth 2082**.

The organization will be joined on the pavilion by: Exsel Training & Simulation, part of the leading independent engineering solutions, technology systems and support services company, Exsel Dytecna Ltd; and, also by one of the largest retailers of computer products in the UK, Novatech.



Meet the I/ITSEC 2017 Video Team

The I/ITSEC video crew will be an even more prominent sight around the exhibit hall this year with a six-strong team producing videos throughout the event.

John Williams, NTSA Director of Media Relations, said the video crew would be recording material for the 'NTSAToday' YouTube channel, enhancing awareness of the key events, products and personalities from I/ITSEC 2017.

"Throughout the week they are providing feeds to that channel, in near real-time, helping to generate an audience throughout the I/ITSEC event beyond those that were able to attend. Establishing an international audience for I/ITSEC cements the event as the most important and dynamic event of its kind in the world."



From left: Jason Coates, Allyson Metzger, Andra Dohrn, Kari White, Jeremy Pape and Gabriel Dohrn of Denver Film Company, a part of Tradeshow Media Partners. See their video production at [YouTube.com/NTSAToday](https://www.youtube.com/NTSAToday)

CM Labs and MARIN Demonstrate Small Watercraft Simulation

CM Labs Simulations (Booth 1620) is demonstrating its fast small watercraft simulation at I/ITSEC that it has developed in partnership with the Maritime Research Institute Netherlands (MARIN).

An extension of an original project to develop a fast small ship simulator for training Dutch Navy crews working on high-speed boats, the simulation is built on CM Labs' Vortex Studio simulation and visualization platform.

Visitors will be tasked with navigating the Milford Haven waterway, the UK's largest energy port.

Among other features, Vortex Studio provides multi-channel image generation capabilities, as well as ocean wave modeling and visualization.

Arnold Free, CM Labs' Chief Commercial Officer, explained that simulating fast small watercraft poses particular challenges as it requires accurate wave models, unique visualization of water surface including wake, wash and propeller effects and advanced dynamics for complex phenomena such as slamming, surf-riding and broaching.



"The extensibility of the Vortex Studio platform means that it can integrate with MARIN's existing application framework, hardware control systems, and proprietary vessel dynamics simulation engine," said Free. "It vastly reduces any need for custom development."

A world leader in hydrodynamic and nauti-

cal R&D, MARIN contributed its high-fidelity vessel models and eXtensible Modeling Framework (XMF) solver.

The simulation also employs Vortex Studio features for wash, wake, and spray visualization, as well as "Exact Wave" modeling to enhance training immersion.

The application can also combine "multi-channel visuals and maritime visualization capabilities with character animation for deck crew, and simulation of mechanical equipment, cranes, cables, hoisting, towing, anchor handling, and hydrodynamics," according to the company, which expands the range of potential training applications.

These range from full-mission bridge simulators, to offshore anchor-handling and combined vessel/heavy-lift operations.

Also at I/ITSEC 2017, CM Labs announced it had partnered with Bohemia Interactive Simulations (BISim) to demonstrate Vortex Studio integration with VBS3.

I/ITSEC attendees will have the opportunity to drive an LAV III vehicle powered by Vortex Studio, embedded in a distributed VBS3 solution

Free said that by demonstrating "how easy it is to integrate Vortex Studio's SDK into VBS3 for the creation of own ship simulators, we're really demonstrating the accessibility of high fidelity, cost-effective software solutions for tactical military training.

"Effective driver training programs can now be up and running in a fraction of the time, with none of the headaches typically associated with disparate technology integrations."

Other time-saving capabilities built into Vortex Studio include intuitive tools for vehicle modeling, building, testing, and validation. VBS3 provides a multiplayer, virtual training environment for land, air and sea training and mission rehearsal applications.

The simulation will run on CM Labs' Vortex Advantage simulator hardware, networked with other simulation stations on the BISim booth as part of a larger joint operations demonstration of role-based training.

Visitors to CM Labs will also be able to get behind the wheel of a simulated Joint Light Tactical Vehicle (JLTV) on an off-road patrol scenario to experience Vortex Studio's ground vehicle simulation capabilities.

DoD Panel Highlights International Efforts

Reflective of ongoing involvement with the international defense community, Wednesday morning will feature a unique panel moderated by Dr. Sae Schatz, Director of the Advanced Distributed Learning (ADL) Initiative within the office of the Deputy Assistant Secretary of Defense for Force Education and Training.

"We like to say that if we're going to defend together, we have to train together," observed Dr. Jennifer Vogel-Walcutt, ADL's Director of Innovation "And if we're going to train together, then we have to be able to share our data, our education training program, as well as our apparatus. By having all of that force work together, we really can capitalize on the benefits of this connectivity."

Vogel-Walcutt observed that, while the US might have the largest physical force and largest defense budget, many other countries now participating across

the international arena "have an agility that is very beneficial in many ways."

"What is really neat is that I/ITSEC provides backdrop for all of these individuals to come and be able to make those connections," she said. "This will be relationship building but also information sharing, and ADL is right at the connection point for all of this, which is super exciting."

The Global General Officer/Flag Officer Perspectives in Learning panel, 'Many Perspectives, One Message: Learning Quality for Training and Education Technologies', will take place Wednesday at 0830-1000 in Room S330BCD.

International connections will be further enhanced later on Wednesday afternoon at the International Collaboration 2017 panel at 1400-1530 in Room S330BCD.



Visit booth #807 for more information!

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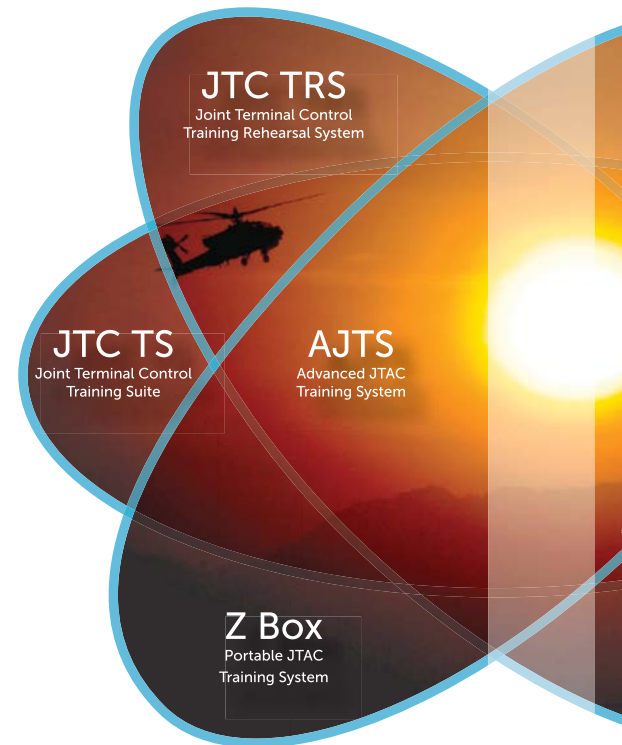
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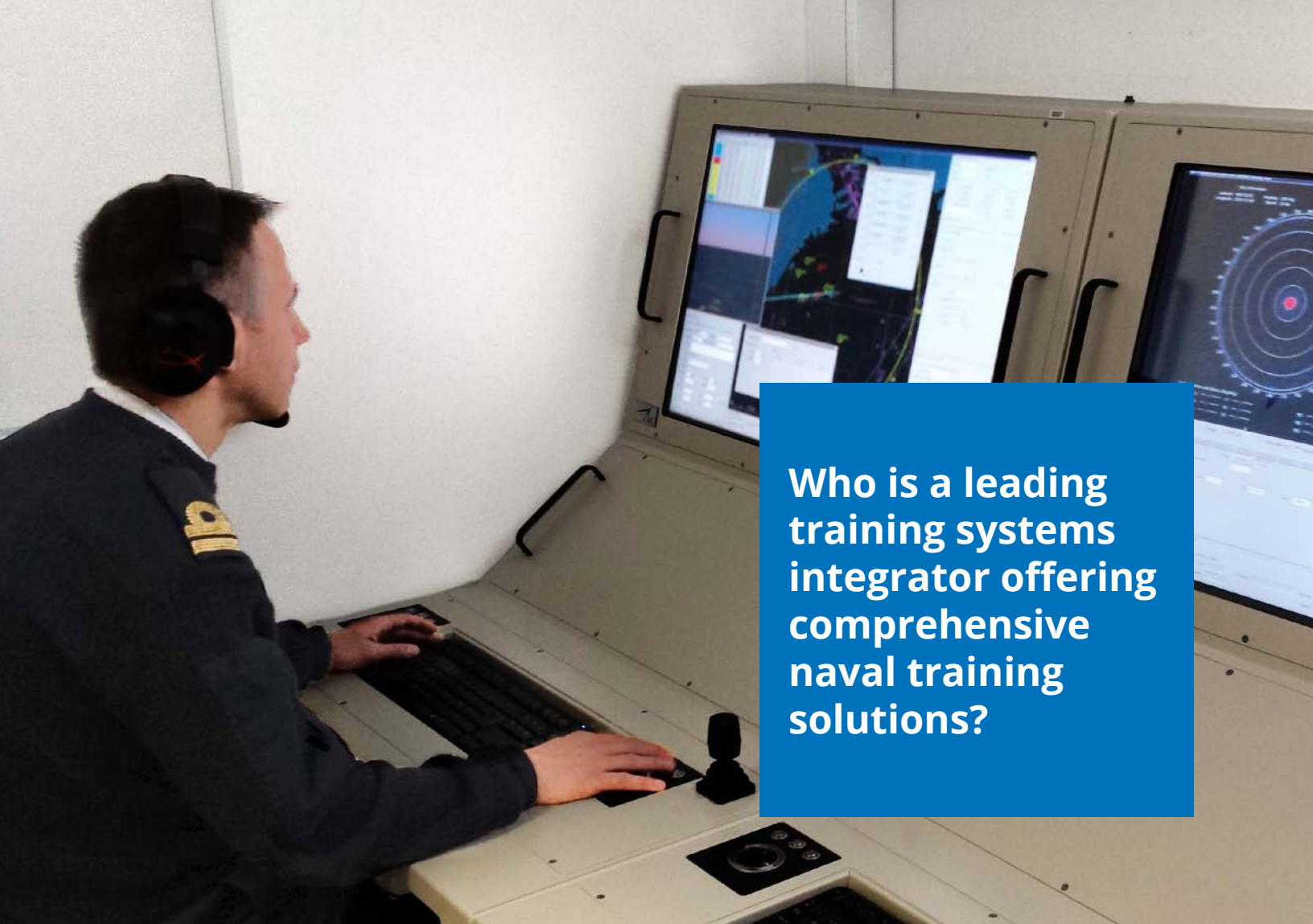
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