



● ● Meggitt Training Systems' FATS M100 virtual system

## Live fire training in a modern world ● ●

Using the latest technology for training purposes has become commonplace the world over; in the military, games and virtual reality have frequently been used to train soldiers in a wide range of skills, including parachuting. This technology-based approach has saved countless lives, and, moreover, helped attract new recruits who can relate more to the technology they're accustomed to using in everyday life. Live fire training is vital throughout militaries around the globe, and here, too, technology allows soldiers to be able to train in newer and better ways than ever before.

**Live fire exercises are an essential part of** military training. During live fire training, soldiers have the opportunity to use real ammunition in an artificial combat situation. Live fire ranges are usually government-owned, and completely void of other people in an attempt to avoid casualties. During live fire exercises, soldiers are placed in combat with derelict equipment such as tanks or ships, drones, or, in some extreme cases, against other soldiers.

These live fire exercises allow soldiers to become accustomed to using real weapons, and to learn how to operate them to their best ability. The weight, the kickback, re-loading – all this experience is going to be vital should the soldier ever enter a real battle. By partaking in live fire training, soldiers become more accustomed to the effect of real ammunition, how it travels, and the noise involved, in a safe environment; this can be a great aid in reducing stress and imbuing soldiers with confidence.

Today, as is the case for many aspects of modern life, live fire training is being increasingly backed up by virtual capabilities, systems which allow soldiers to hone their targeting and operational techniques. The benefits of live fire training in a simulated environment are obvious; high ammunition costs are done away with, and the number of injuries are vastly reduced. Of course, training in a simulated environment will never be able to replace genuine real-world live fire exercises, however, it is an excellent tool to augment existing training capabilities.

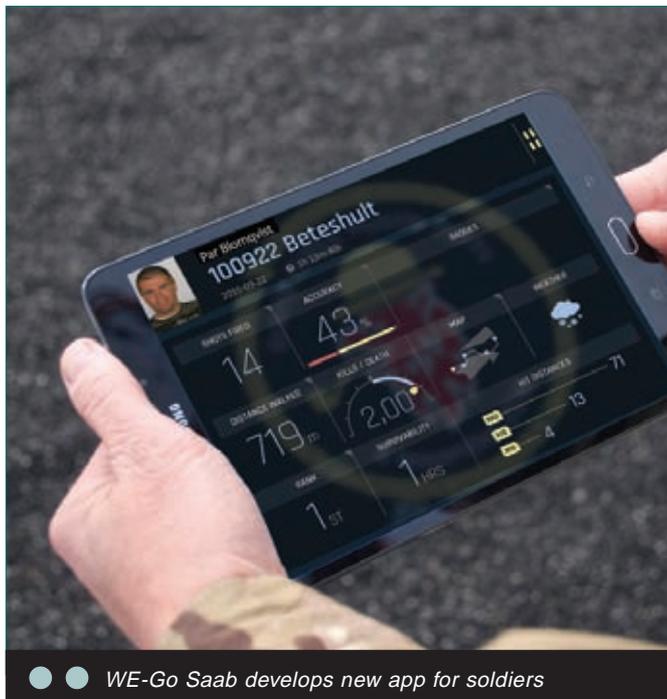
All of the armed forces units, whether they be army, marines, air force or naval, need to use live fire training to ready themselves for battle, making live fire training systems a key part of every military unit.

### Meggitt Training Systems makes great strides in live fire systems

Meggitt Training Systems is a leading supplier of integrated live fire and simulation weapons training systems supporting military, defence and security forces, federal and international law enforcement agencies, large metropolitan training academies, police departments, ammunition and firearms manufacturers and commercial shooting range owners.

At the end of 2016, Meggitt won two contracts from the UK Ministry of Defence (MoD) worth around US\$20 million. The contracts include the delivery of 866 BlueFire convertible wireless versions of the UK's SA80 main infantry service rifle and its associated support equipment, which will be used throughout the UK and selected overseas locations. The contract also included 70 Sharpshooter rifles and associated system upgrades for the UK's existing small-arms trainer, the Dismounted Close Combat Trainer (DCCT), which will be fielded on 59 upgraded systems. Meggitt's FATS DCCT has been the UK MoD's primary small-arms training system since 2003, and the company delivered the first of 154 DCCTs to the British Army in 2003. The new convertible weapons retain the same form and feel of fully functional rifles, replacing tether-only models supplied by Meggitt to the UK in the 1990s. The models will be enhanced by Meggitt's wireless technology and rechargeable batteries for extended marksmanship training.

"The SA80 and Sharpshooter contracts continue to strengthen Meggitt Training Systems' long-standing relationship with UK Ministry of Defence. Precise marksmanship training using realistic weapon simulators is essential for mission success and a vital part of the UK's Future Integrated Soldier Technology modernisation initiative," said Jeff Murphy, President,



● ● WE-Go Saab develops new app for soldiers

Meggitt Training Systems.

February 2017 saw Meggitt complete the joint final inspection and final physical configuration audit for the US Marine Corps' next-generation, small-arms trainer. Completion of the tests confirms that Meggitt has met all program-of-record requirements set forth by the Program Manager for Training Systems to deliver the Indoor Simulated Marksmanship Trainer (ISMT) to US Marine Corps units worldwide.

"The completion of the ISMT testing marks a significant milestone in a long-standing relationship between the US Marine Corps and Meggitt," said Jeff Murphy, President at Meggitt Training Systems. Meggitt has commenced installation of the first systems and new weapons, which are fully compatible with the Marines' existing arsenal of simulated weapons and Marine Corps Operating Concept."

Meggitt was originally awarded the US\$39 million, five-year Indefinite Delivery/Indefinite Quantity contract in 2014. System deliveries will occur at global locations through the next 18 months. As a certified program of record, ISMT will train new and experienced Marines in marksmanship, collective scenarios and judgmental video scenarios. Each mode provides critical training based on the skill level of the individual or unit. The scalable and robust open-architecture system allows integration of Meggitt and third-party training modules, and will accommodate evolutions in fidelity and graphic complexity for greater realism. Current Meggitt architecture facilitates enhanced

3D marksmanship, with an intelligent automatic coaching application on a wireless tablet, enabling trainers to provide more effective guidance for their training budget.

Meanwhile, in April 2017, Meggitt commenced a three-month demonstration of its FATS 100ML solution at NATO Rapid Deployable Corps-Italy (NDRC-Italy), a multinational headquarters with personnel from 13 NATO member nations.

The FATS 100ML delivers a significant expansion in virtual small-arms training capability, leveraging key features from the US Army Engagement Skills Trainer II and the US Marine Corps' ISMT programs of record. Ideally positioned for direct and foreign military sales, the FATS 100MIL features industry-leading capabilities for customers in Europe and beyond. Enhanced 3D marksmanship provides highly detailed terrains and targets, including weather, birds in flight and realistic ballistic effects.

Automatic coaching tracks the weapon sensor information with shot analysis that recalls customer doctrine and reinforces the fundamentals of shooting to the trainee. Tablet functionality maximizes session time by allowing the trainer to run the system wirelessly and move as needed. VBS3-based collective training supports Meggitt's BlueFire wireless weapon simulators, its full line of mortar simulators, close air support and Joint Terminal Attack Controller training.

"The FATS 100MIL incorporates Meggitt's experience providing the newest small-arms training systems for the US Army and Marine Corps," said Andrea Czop, Vice President of Strategy, Sales and Marketing at Meggitt Training Systems. "As such, our system is uniquely qualified to meet the most rigorous NATO training requirements, especially for high-readiness forces facing evolving threats to alliance members."

#### Saab delivers individual training feedback

Meggitt Training Systems is far from the only company working in the simulated live fire training sphere. At the end of 2016, Saab released a new app called WE:Go for soldiers using Saab's GAMER training system. Most training after-action reviews today deliver the exercise results to the entire group, platoon, or company, but now, all that is changing.

Saab's WE:Go advances this review step by automatically delivering each individual soldier's results directly to a Smart phone or tablet. It provides the participant's positions, movements, weapon engagements, rounds fired, number of hits and misses, and wounds sustained throughout the exercise. Other data, such as video from helmet cameras, can be replayed in the app.

"High-fidelity training is essential to build a soldier's confidence. With WE:Go's ability to deliver individual results to each soldier, he or she can reach that level of confidence sooner than ever," said Åsa Thegström, head of Training & Simulation at Saab. "Saab believes that this app will increase soldier motivation and make exercise follow-up more effective and rewarding."

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Saab's GAMER Manpack is used during smaller military exercises when the instructor needs control of the exercise and at the same time be able to be near the action. The GAMER Manpack consists of a miniaturised radio base station and a laptop with an exercise-command-and-control system. The instructor decides through the system what will take place during the exercise, and this is communicated through the radio. Information about what is happening during the exercise is sent back to the system through specific vests, Personnel Detection Devices (PDDs) worn by the soldiers, which makes it possible to control simulated minefields, indirect fires and simulated bombs. The instructor then follows how each soldier acts as an individual and a member of the group. This movement is also saved and the information is then saved to be used in the evaluation of the exercise.

The GAMER Manpack is used by the South African National Defence Force, and is also used for civil training. In 2009 the UK Ministry of Defence Police purchased three GAMER Manpacks and related products to be used in their training.

### Rockwell Collins and Leonardo DS upgrade US Navy training systems

Government forces in the USA have long enjoyed access to the best of the best when it comes to training, capabilities, and facilities. Often at the head of new innovations, live fire training systems have always been a high priority for US military groups.

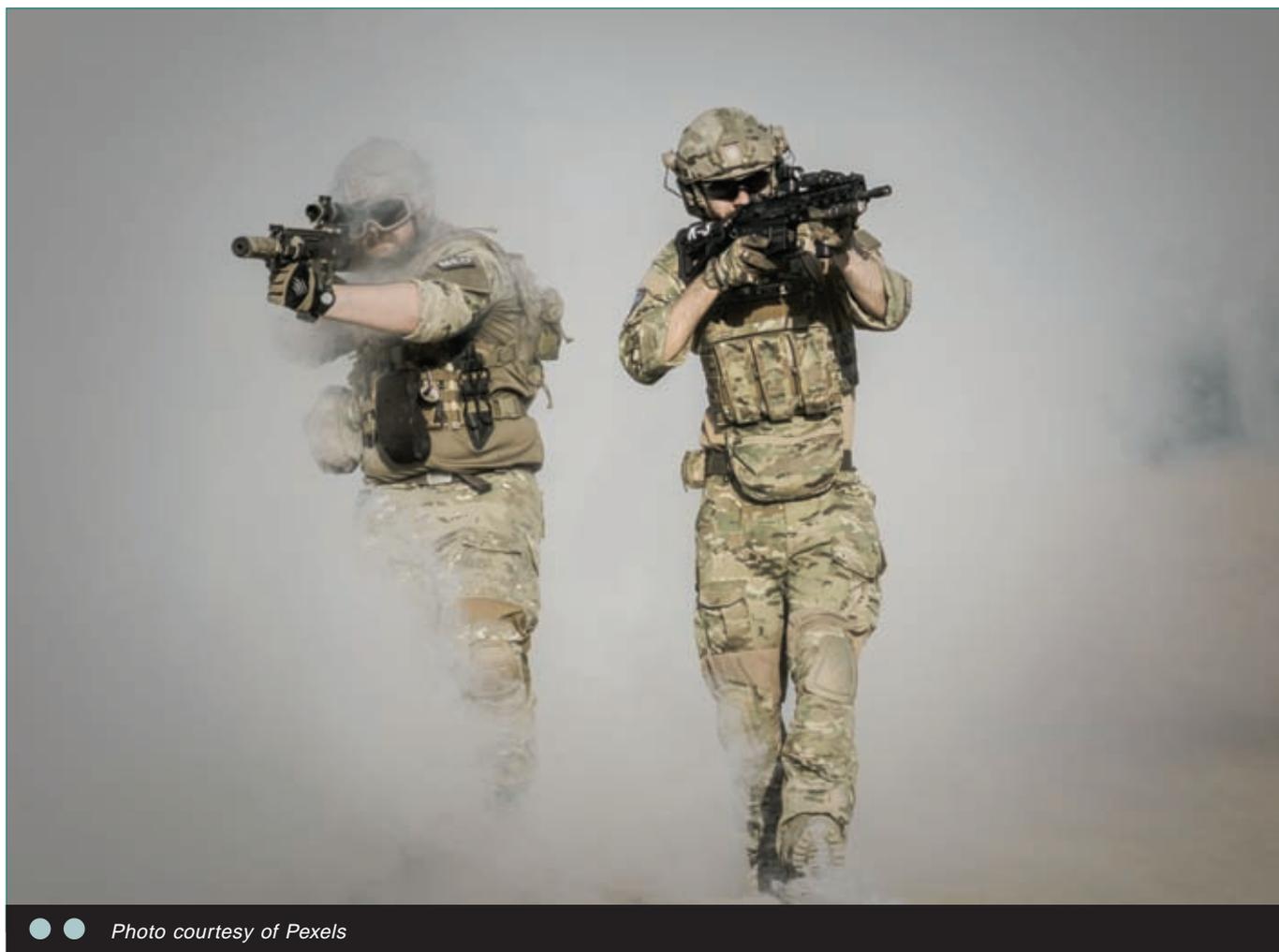
In March 2017, the US Navy selected Rockwell Collins and Leonardo DRS to supply its next-generation, encrypted tactical training system, the Tactical Combat Training System Increment II (TCTS Inc-II). The initial US\$142 million contract is for the development of an airborne, ground and ship-based encrypted training capability, which will include integration with other fielded equipment and combat systems. The TCTS Inc-II will support the training of US Navy and Marine Corps aviation forces,

including aircrew for F-35, F/A-18 and other front-line combat aircraft. Coupled with this initial development program are options for low-rate and full-rate production.

The aim of the TCTS Inc. II program is to provide a Department of Defense (DoD) and National Security Agency-approved encrypted tactical training system. The system provides the first certified, Multi-Level Security (MLS) training equipment packaged in both airborne and ground equipment, allowing for tethered and autonomous operations. MLS will provide secure interoperability between combinations of 5th-generation and 4th-generation aircraft, bringing significant training benefits to participants in a simulated, high-threat combat environment. It has five times more network capacity than current air combat training systems, and uses the existing training range frequency spectrum for enhanced live player training fidelity and to increase the number of players participating in live, virtual and constructive (LVC) training.

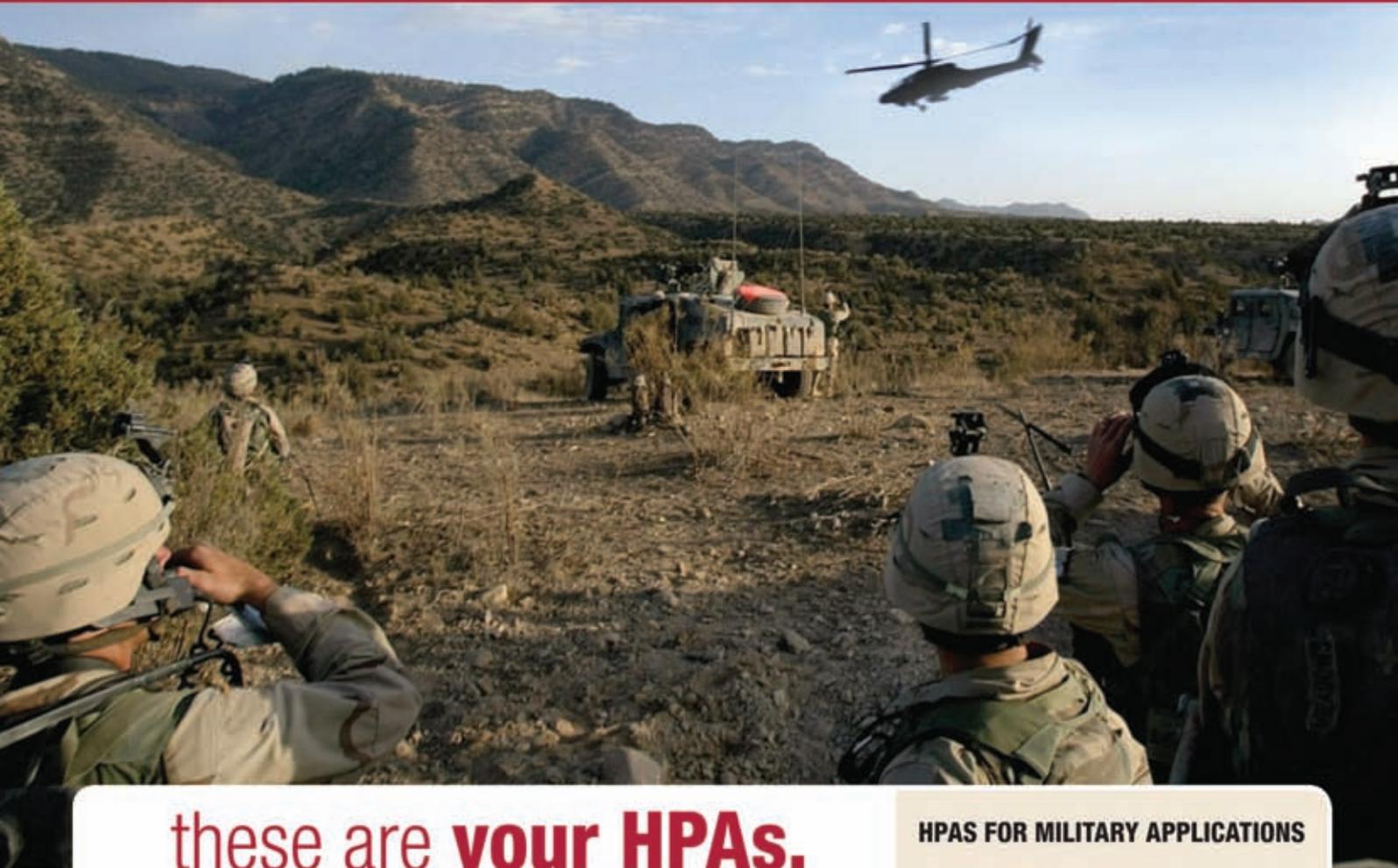
"TCTS Inc-II fills gaps from the currently fielded air combat training equipment by enabling the world's air forces to securely migrate to LVC training to increase warfighter readiness at a reduced cost," said Troy Brunk, Vice President and General Manager, Communication, Navigation & Electronic Warfare Systems for Rockwell Collins. "As we develop the advanced training capabilities, we will be flight testing on our Eastern Iowa Range to reduce technical risk and time-to-field for the Navy."

Technical achievements already made in the DoD's Common Range Integrated Instrumentation System (CRIIS) program are directly applicable to the TCTS Inc-II, such as simultaneous MLS certification, site installation accreditation, data link frequency authorization and flight worthiness certification of airborne subsystem packages. These achievements support an improved schedule and reduce risk for the TCTS Inc-II capability, which can be leveraged by other nations, services and platforms to provide highly-relevant operational training at low risk. **GMC**



● ● Photo courtesy of Pexels

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