

Power of simulation

The military simulation market is increasing exponentially as computer power continues to grow. Eirik Malterud, **Kongsberg Defence Systems**, explains how the company offers a low-cost solution and allows students to review their actions and maintain skills.

Training is the key element to any skill-based job. As educational research has demonstrated, people learn better by experience than through reading or lectures, so it is important to be hands on. This applies above all to the battlefield. While simulated training can never replace real experience from combat operators, simulators are a cost-effective way to increase soldiers' skills, allowing them to be mission-ready faster.

Training also has an important role to play in maintaining their skill set. Many battle scenarios depend heavily on a soldier's automatic reaction. One major benefit of training is that it allows them to prepare for such eventualities. Through customised scenarios for specific missions, they can run through situations similar to the ones they'll actually face in combat.

Kongsberg Defence Systems has supplied simulators and trainers in the international market for many years. The company has accrued experience across the complete spectrum of training systems, from small simulators to complex military team trainers.

Kongsberg training programmes are based on an in-depth understanding of the learning process. Sophisticated pedagogic methods are used to support the instructors, thus ensuring maximum focus on achieving the training objectives.

The company is well-equipped to provide expertise in this area. As Norway's premier supplier of defence and aerospace-related systems, it has a comprehensive defence portfolio, with a product range comprising weapons guidance, surveillance, communications solutions and missiles.

In terms of training systems, KONGSBERG offers:

- **BaSE (battlespace synthetic environment)** – provides the building blocks for rapid development of customised simulation applications supporting aerial, naval and ground battlefield scenarios.
- **CBT (computer-based training)** – reducing the need for traditional classroom training and shortening the training period.
- **Connect communication system** – a voice communication system specially developed for communication trainers and for integration into simulators such as radio.
- **Mobile combat trainer** – a flexible, low-cost, mobile training solution developed for armoured vehicle and tank personnel.
- **PROTECTOR combat vehicle training system** – a complete combat vehicle training system for the PROTECTOR remote weapon station.

- **PROTECTOR training system** – the PROTECTOR family consists of the M151, XM153, Lite and Sea PROTECTOR mounted on several platforms. This system covers all different weapon stations, weapons, ammunition and platforms.
- **PROTEUS naval training system** – a high-fidelity naval tactical training.
- **RBS-70 training system** – a high-fidelity, low-cost training solution designed to facilitate highly effective gunner training.

What is driving the growth of the military simulation market?

Eirik Malterud: There are several factors that are driving the simulator market today. As computing power grows, simulation products are able to provide more realism to the user.

“The biggest challenge has been to recruit engineers, as we have high standards about the people we hire. We would rather wait to find the right candidate than just fill a spot.”

Another factor is that you get more training for the money spent than with real equipment; not that simulation tools are able to replace training on real equipment but rather that you can do basic training in a simulator and then, when you train on real equipment, you start at a different level and are able to get more value out of the training.

Another driving force is the reduction of defence budgets, with governments recognising that using simulators will provide better and more cost-effective training.

Kongsberg has been a supplier of simulators and trainers in the international market for the last three decades; can you tell us more about the company's history and what business is like currently?

Kongsberg as a company dates back almost 200 years. Kongsberg Gruppen is now an international, knowledge-based group that supplies high-technology systems and solutions to customers in the oil and gas, the merchant marine, and defence and aerospace industries. >>

The company started out as a munitions producer, developing the Krag-Jørgensen rifle the weapon of choice for the US Army at the time. From that start, the company has evolved and moved into high-technology systems. Now, Kongsberg Defence Systems is Norway's premier supplier of defence and aerospace-related systems.

Our portfolio comprises products and systems for command and control, weapons guidance and surveillance, simulation and training, communications solutions and missiles. Kongsberg Defence Systems also makes advanced composites and engineering products for the aircraft and helicopter market.

The company has, over the last three decades, delivered simulation systems to customers and strived to deliver state-of-the-art systems providing them with the best possible aids to support their training efforts.

“ We provide computer-based training aids and an interactive maintenance library that enables a skilled mechanic to perform maintenance on equipment that he or she is not trained on. ”

Currently, the business is booming. We have increased our engineering staff significantly in recent years. The biggest challenge has been to recruit engineers, as we have high standards about the people we hire. We would rather wait to find the right candidate than just fill a spot.

You offer systems from small simulators to complex military team trainers; can you tell us about your product range?

Our systems range from small skill trainers to high-fidelity team trainers within army, naval and air defence domains. In addition, we provide computer-based training aids and an interactive maintenance library that enables a skilled mechanic to perform maintenance on equipment that he or she is not trained on.

What are the advantages of using simulators?

There are many advantages of using simulators. First, you can put trainees in any desired situation, train them on the course of action and get instant feedback. The scenario can be played over and over to see what outcome you get from different approaches, learning how best to deal with a given situation.

The simulation also allows students to loop back in time, review what they have done and get a better understanding of their actions. A simulation system gives the trainer a tool to monitor the trainees and instantly provide them with advice if necessary. It also gives the

trainer a tool to debrief the trainees, going through the exercise commenting on actions, good or bad, and providing useful feedback.

Simulators are also a low-cost solution to repetitive training tasks that build muscle memory in the trainee, and ensure the right course of action when confronted with a stressful situation.

How does the military arena benefit from Kongsberg's systems and what gives you a competitive edge?

Our competitive edge is being agile and having talented, highly skilled, highly motivated engineers in our organisation that will continue to provide our customers with cutting-edge products that fulfil their needs.

How has the technology evolved over time and are there any new developments Kongsberg is taking advantage of that you can discuss?

Technology is constantly evolving and computing power is increasing, giving the simulators the power to perform ever-more complex tasks.

There are continually requirements from customers as they are exposed to a host of new scenarios and need to train in order to meet these new challenges.

The gaming industry also influences requirements from the customer. As gaming technology becomes more realistic, customers expect their simulators to have the same level of fidelity.

Kongsberg is actively looking at all relevant new technology and how this best can be used in simulators that surpass our customers' expectations.

How do you see the market changing in the next ten years and what are your plans to keep pace?

The market will continue to grow as the benefits of simulators are increasingly acknowledged and it is recognised that simulators provide a cost-effective means of training; but there could be a shift more towards services delivered rather than systems delivered.

There also seems to be a trend towards trying to network more simulators together to develop more complete environments. To achieve this effectively, a further standardisation of simulation protocols and formats will be required.

Kongsberg is determined to keep pace in the simulator market by delivering state-of-the-art systems that provide the customers with unrivalled quality that represents the best value for money. ■

Further information

Kongsberg
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