

Stimulating simulators

Simulators and training devices have a long-standing history of use in the military. **Virtual Reality Media** explains how its investment in innovation and R&D enables the company to stay ahead of the curve in this changing sector.

Virtual Reality Media (VRM) was established in 1992, and started focusing on the simulation business in May 1995, when it delivered its first flight simulator to the Slovak Air Force. The modern simulation industry in Central Europe and Russia came alive just after VRM installed its first MiG-29 flight simulator. VRM's first experience was a good one, and the company maintains a strong advantage over its newer competitors.

VRM develops and manufactures high-quality products with strict respect to internationally recognised technical standards. Its portfolio includes 20 offerings – flight, vehicle and anti-aircraft system simulators – which have been delivered to 18 countries. Its most popular products are the Mi-8/Mi-17/Mi-171 helicopter simulators: VRM produces cockpit-procedure trainers, flight-training devices and full-flight and full-mission simulators.

Market needs and simulation industry trends

One of the first known synthetic training devices was the Link Trainer, developed in 1929. It was an analogue training device, used for civil and military applications. With the birth of the personal computer industry in the 1980s, digital technology was introduced. In the 1990s there was a fast development of 3D computer graphics, visual simulation and display technology. The sector became attractive for small business enterprises because technological progress was pushing the price of used technology down. The flexibility of small suppliers and their R&D costs also lowered the prices of the final products.

It was around this time that VRM had the idea to exchange all older Russian and Eastern European simulators with the latest technology from the West. Computers from US-based Silicon Graphics and display systems from UK-based SEOS, combined with local Slovak R&D, produced an immersive virtual reality. By coincidence there was demand for modern training simulators among a number of Central European military forces due to their entry into Nato.

However, within five years, the Central European market started to weaken, the result of reorganisations, budget cuts and changing military doctrines. VRM therefore shifted its focus to Africa, Asia and the Middle East, where customers were becoming more educated in training methods and wanted to be able to compete on the same level as other countries.

Meanwhile new network-oriented solutions were being developed in the US, extending the boundaries of the simulation industry into tactical training. Now, training only one pilot or operator was not enough; the onus shifted

to crew training, interoperability and intercommunication using computer-generated forces or network simulation.

VRM has stepped ahead of new simulation companies based in Central Europe and Russia and out of the Western mainstream. We see three basic trends in this market:

- in a reaction to permanent budget cuts, military training needs grow – it is less expensive to train on simulators
- customers are more educated in IT and visual simulation, and will require more services and products
- there is no longer a traditional market gap; Western companies have entered the Eastern market and vice versa, with companies of all sizes competing at the same level and in the same territories.

Recently, VRM also participated in a work-share arrangement on flight simulators for Italian military cargo aircraft G-222. This was produced in cooperation with US partners Fidelity Technology Corporation and Aeronautical Systems Engineering for the US Army Program Executive Office for Simulation, Training and Instrumentation.

Teaming with companies in the US market

VRM's cooperation in the US market started with work on a flight simulator for Mi-17 helicopter. At the time the request for proposal for a Mi-17 simulator became public, VRM and Aeronautical Systems Engineering had been searching for a cooperation activity for almost two years.

The project required a strong knowledge of US Department of Defense contract requirements. VRM joined with Fidelity Technology Corporation to make its bid, and Fidelity became the ideal prime contractor for such supply. The first common product, a flight-training device for the Mi-17, was produced for the US Army, delivered to Iraq and installed near Baghdad.

A product for every need

VRM offers a number of commercial off-the-shelf products:

- computer-based training
- cockpit-procedure trainers
- flight-training devices
- full-flight simulators
- full-mission simulators
- fuselage loadmaster trainers
- tactical simulators and simulation networks
- complete training centres.

This product line includes simulators for the MiG-29, Su-25, Su-22, L-39/L-49 Albatros, IL-114, ZL-143/ZL-242, Mi-8/Mi-17/Mi-171, G-222 and C-27 Spartan.

For land forces, VRM's product line includes simulators for the T-72, BMP-1 and BMP-2. It offers:

- desktop trainers/fixed-base simulators
- full-mission simulators.

For anti-aircraft systems, VRM's product line includes simulators for the S-2, Igla and S-10. It offers:

- man-portable air-defence systems
- tower mounts on BMPs.

The next ten years

In the next ten years the market will experience more changes, primarily due to advances in technology and the IT industry. Innovations will motivate military customers to use new and modern forms of training. VRM anticipates that as the cloud becomes secure enough for military applications, many software applications will be migrated to this new platform. What could happen in the simulation industry? The typical provider/client relationship may change. The client will share its role with a provider, and may become a teammate during the production of training applications. Imagine that instead of investing into different terrain databases for

different departments, the military customer will only have to support and develop one located on his own server, in one special department. This department will become a provider for all others – digital terrain via the cloud. Suppliers of the simulation application will get temporary access to the database and become clients until they supply simulators. Different departments will be able to access the same database for multiplatform training, or switch the interactivity off and use the terrain without seeing anyone else.

Training itself will become more holistic. It won't be dedicated just to a specific mission, the operator or the crew, although individual performance and team interoperability parameters will be monitored. It will go beyond that into, for example, the reactions of trainees to the stress of emergency situations. As the capabilities of IT increases, the complexity of training will grow. This will go hand-in-hand with increasing competition and decreasing military budgets. ■

Further information

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