

Integrated Training - Czech Style



***Trevor Nash* has recently returned from V^yškov, the main centre for Czech military training and simulation. Although short on resources, the organisation is undertaking a sterling job which many others could learn from. This report considers the Centre of Simulation and Training Technologies capabilities and future development plans.**

Following the rapprochement between the Warsaw Pact and NATO, the Armed Forces of the Czech Republic (ACR) joined the Partnership for Peace (PfP) structure in 1994, prior to acceding to NATO on the 12 March 1999.

Following this momentous occasion, the ACR underwent a massive restructuring of its organisation, personnel and equipment, especially with its decision to end conscription in 2005 and become an all volunteer professional force. Today, the ACR forms a central part of NATO's integrated military structure and is able to respond to defence operations and civil crisis management missions. Current deployments include supplying troops to KFOR and ISAF. However, like most of the world's armed forces, the ACR is under severe budgetary pressure, with another round of cuts due to be implemented in 2014.

From this date, new administrative commands will be established along with new agencies to control logistics, medical support communications and personnel affairs. There will be a corresponding reduction in manning at the Czech Ministry of Defence and within the General Staff. The reasons for these cuts are clear when considering the cuts in ACR funding over the past five years. Spending has fallen from 55 billion Czech Crowns (USD 2.8 billion) to 42 billion Czech Crowns (USD 2.1 billion). This now represents approximately 1.8% of the country's GDP.

The major structure of the Czech Army divides into what it terms Joint Forces and Support Forces. The former includes mechanised, artillery and air defence units while the latter encompasses medical, logistic and engineer units. At the time of



A Czech Army soldier undertaking joint training with the US Army at Hohenfels in Germany. The country's 22,000 strong army are all professional volunteers.

(Source: ACR)

Czech Army soldiers from a mechanised battalion operating a Type Two reconfigurable simulator replicating the BMP 2. These devices are manufactured by the Czech company, the VR Group.

(Source: T. Nash)

writing, Joint Forces comprised two mechanised brigades, a reconnaissance brigade, an artillery brigade and an air defence brigade.

At present, the Czech Army has approximately 22,000 soldiers which are supported by 8,288 civilian staff. This standing force can be expanded in war through the addition of an active reserve. These troops undergo an eight-week basic training course and must serve a minimum of three-weeks per year.

As far as training is concerned, this is largely achieved through a centralised approach undertaken by the Centre of Simulation and Training Technologies (CSTT), the largest element of which is located at Vyskov near the country's second largest city, Brno.

As well as the technical, tactical and operational training undertaken at Vyskov, CSTT carries out command and staff training in Brno, the organisation's headquarters. In essence, Vyskov handles the virtual and live training whilst Brno focuses on constructive training, notably through the simulation of its Command and Control decision making process support tool, OTS VR PoxS.

As well as constructive training for the Czech Army at Brno, the headquarters also provides training for national emergency service rescue teams and for students from the University of Defence. Both centres at Vyskov and Brno are networked using DIS protocols to provide for brigade level training and above and CSTT is also looking to network its training facilities to other training centres within NATO. Concurrently, work into transitioning DIS to HLA protocols is now underway.



The badges of the Joint Forces (top) and Support Forces.

(Source: ACR)





The driver's compartment of the Saab Czech Pandur AIFV simulator. Such devices are referred to as Type One simulators.

(Source: T. Nash)

In terms of the training workload undertaken by CSST, the organisation trains around 8,000 troops a year. In addition, a number of foreign nationals have been trained, including soldiers from Austria, Slovakia and the US Texas National Guard.

The development of the CSST reflects the transition of the Czech Army from its Warsaw Pact roots to a modern NATO force and has clearly recognised the importance of simulation to aid that transition. Work on the concept of CSST began in 1998 through a study known as the 'Simulation and Training Implementation Concept' although the organisation was not officially established until 2003.

With money having to be carefully managed, CSST has grown iteratively over the years through the so-called 'CSST Upgrade and Development Plan' although this is perhaps no bad thing. Careful husbandry of resources has meant that the organisation has had to define a clear and workable pathway of development whilst at the same time, maintaining the operational readiness of its forces through the use of effective training. Quite simply, money has to be spent wisely.

As far as the latest phase of the upgrade and development plan is concerned, a request was submitted in April with the following

Lieutenant Colonel Ladislav Havelka, Commander of CSST describes the AAR procedures in front of a T-72 IOS.

(Source: T. Nash)



priorities: full implementation of OneSAF; additional virtual simulators for new vehicles and weapons and finally, laser-based live training equipment for use within battalions. There is also an aspiration to have an instrumented combat training centre in 2015.

The commander of CSST Lieutenant Colonel Ladislav Havelka, has a motto which many would benefit to heed when he says, "simulation must always adapt to the reality, never reality to simulation."

Vyskov Today

The virtual simulators at Vyskov are categorised by CSST as either Type One or Type Two devices. The former are described as full mission simulators which replicate a specific vehicle or weapon type whilst Type Two simulators are reconfigurable training systems that can simulate platforms varying from armoured vehicles to helicopters.

The Type Two simulators have been manufactured by the Czech company, the VR Group and have been in service since 2000. Each simulator comprises three stations for commander, gunner and driver and all 17 devices at Vyskov can be networked. Typically during a battalion's training rotation, one company would act as OPFOR for set phases of the exercise.

The VR Group simulators are basically desk-top training devices that are contained within canvas shelters. During a recent exercise observed by MT&SN, a mechanised company commander was deploying his mechanised platoons. This DIS-enabled networked simulation exercise featured ASTi simulated radios and OTB (OneSAF Testbed Baseline) components.



The artillery forward observer trainer features MetaVR's VRSG image generation system.

(Source: MetaVR)

CSST's Type One simulators have been provided by E-COM (now Saab Czech s.r.o. following its takeover of E-COM in 2011) and VR Group. The simulators for the T-72 main battle tank have been in-serve for seven years and comprise three components: a turret for the commander and gunner; a driver's module; and an After Action Review (AAR) console.

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A Czech Army instructor demonstrates the instructor operating station for the BMP 2 simulators.

(Source: T. Nash)

Saab Czech also provided the Type One simulators for the Pandur armoured fighting vehicle. Like the T-72 devices, the Pandur comprises three main components and also features electric motion platforms and with Pandur, a visual system that have both been developed by Saab Czech at its Slavkov factory where it employs 120 staff.

"We believe that by manufacturing key simulator components such as motion platforms, image generation and databases along with key hardware aspects we are better able to control quality and provide improved integration," explains Saab Czech's Head of Division, Marian Petko.

As far as the four Type One trainers for the BMP2 armoured infantry fighting vehicles are concerned, these have been manufactured by the Prague-based VR Group and have been in-service for four years.

The other major virtual training system at Vyskov is an artillery forward observer trainer. Known as the Artillery Trainer Simulator System (ATSSCz), it has been provided by the US Government under the terms of a USD 2.4 million Foreign Military Sales (FMS) programme that was agreed in 2001.

The system was designed and manufactured by the US company Fidelity Technologies, in conjunction

One of four BMP 2 simulators, this element representing the commander and gunner module. The Type One devices were built by the VR Group.

(Source: T. Nash)



with E-COM. ATSSCz also features MetaVR's VRSG visual system.

The system is designed to be a cost-effective method for operational training of the Forward Observation Officer and Fire Direction Centre staff whereby ground forces direct artillery onto targets using optics, including the Czech Army's Light Observation System, and laser range finder devices.

Based on Fidelity's GUARDFIST II product that is widely used by the US Army, the ATSSCz is used for training all levels of army artillery personnel the integrated system simulates field equipment complete with virtual environments and simulated battlefield scenarios. The trainer features 13 workstations, including the instructor's operating station.

Completing the virtual training equipment is the Computer Based Training (CBT) courseware for the Pandur armoured infantry fighting vehicle. This CBT has been provided by Saab Czech and workstations are contained in three classrooms at Vyskov.

Looking at Live

One of the Soviet-led Warsaw Pact techniques that was to be employed in any westward armoured thrust included using its armoured vehicles to cross rivers.

Compared to the west, which looked towards bridges and flotation, the Warsaw Pact favoured sealing its vehicles and using snorkels to draw air in and emit exhaust fumes as the vehicles simply drove under the water on the river bed! This technique was used to a maximum depth of six metres.

The Czech Army still trains for this eventuality and although perhaps slightly anachronistic, the number of coalition deaths in Afghanistan that have been caused by vehicles falling into ditches and canals does highlight the need to maintain some sort of water evacuation training system. In 2012 for example, the UK's Royal Marines bought such a trainer for its Viking armoured vehicle.

The system in-service at Vyskov has two main elements: an underwater escape trainer and a pressure chamber. The former features a generic crew compartment designed around the T-72 MBT which is lowered to the bottom of a six metre deep tank and from which the crew must extricate themselves. The device is also used for diver rescue training.

Prior to the experience of the evacuation trainer, students are put into the pressure chamber to experience the physiological stresses and strains of being under six metres of water.

Back on dry land, the Czech Army operates three disparate types of live, laser-based tactical engagement systems. The first system, manufactured by the now defunct Wilis MIC company, comprises three sets of TES equipment for the T-72 MBT.

The Czech Army also operates a very old version of MILES (third generation) which is used by dismounted troops and is not instrumented. This prevents the conduct of any meaningful AAR.

The latest addition to the Army's live TES holdings comes from Saab Czech and features Saab's BT-46 based system that is used by the Pandur armoured infantry fighting vehicle for both



The underwater emergency evacuation trainer showing the vehicle cab and the operator's position. The major safety feature is the ability of the instructor to rapidly raise the cab in the event of a problem.

(Source: T. Nash)

precision gunnery and tactical training. This system is instrumented and by using two masts, can provide an exercise area of between 40 and 50 square kilometres. CSTT holds 10 sets of TES for the Pandur, and like the other TES equipment, is used mainly at Vyskov but can, if required, be taken to the battalions by a team from CSTT.

To sum up, the Czech Army's CSTT organisation is a credit to the ACR. With limited resources, the organisation has developed a robust strategy for the implementation of modern training technologies and methodologies from which many, more modern and better equipped armies could learn from.

The reason for this success is largely down to undertaking a thorough and robust intellectual study of the task and having a real understanding of the training outcomes that need to be achieved.

There are clearly shortfalls in the Czech Army's training, specifically laser-based live training however these have been recognised and solutions identified. The thoughts of Lieutenant Colonel Havelka should be ringing in many ears; "simulation must always adapt to the reality, never reality to simulation."