

Czech Air Defense Technical Institute develops a new Mi-171 helicopter mission rehearsal system for the Czech Army

The Czech Air Force and Air Defense Technical Institute, known as VTÚLaPVO Praha, works to integrate communication and information systems to aid decision-making in support of air and army forces command and security crisis management.

As part of their work, they were tasked to develop a new Mi-171 helicopter mission rehearsal system for the Army of the Czech Republic. The system required two versions, one to be implemented nationwide at military bases and another version deployed to units stationed in areas of conflict. For these new trainers - the Squadron Operation Centre (SQOC), the Deployable Squadron Operation Centre (DSQOC), and the Wing Operation Centre (WOC) - the project team at VTÚLaPVO needed 2D and 3D visualization for mission rehearsal of upcoming flights and interactions with enemy defense forces.

“We chose to use VR-Vantage for our visualization tool and VR-Forces to develop our simulations and act as a threat generator,” explains Stanislav Novak, Project Team Leader of the SQOC project. “The Army of the Czech Republic has used MÄK tools before and knew they could sustain compatibility on a simulation level. Beyond that,



Squadron Operation Centre (SQOC)

we were excited about the Terrain Agility of MÄK tools, the possibility of using a lot of different map formats, as well as different relief data formats. That versatility together with the distributed networking capabilities of DIS and the well-documented API made these tools an excellent choice for our projects.”

Pilots input the mission plan into their logistics system and export it into VR-Forces. Using this mission plan, published using DIS, the pilot pre-flies the mission, visualizing it with VR-Vantage Stealth’s visualization capabilities. The pilot can then change the plan in VR-Forces to better suit the mission, perhaps avoiding a town or choosing a route with better cover. The revised plan is exported to XML and fed into the logistics system.

“We faced several key technical challenges in building these systems,” explains Novak. “Among these was the implementation of control procedures for tactical helicopters, fixed wing aircraft, and Ground Based Air Defense (GBAD) units into the control and final mission preparation system of the Air Force and the fire control system for GBAD.”



Deployable Squadron Operation Centre (DSQOC)

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“Thanks to the out-of-the-box functionality of VT MÄK tools, VTUL was able to set up a prototype solution in a short amount of time and immediately begin working on details and customizations with the VR-Forces API. Using the flexibility of the programming interface, VTUL was able to prepare the XML bi-directional communication and use it to its advantage in connecting VR-Forces to their logistics system,” said Michal Cilek from the Millennium Gate Company, MÄK’s reseller in Czech republic, Slovakia and Poland.

“MÄK tools provide users with a comprehensive simulation solutions and extensive set of simulation conditions. They are flexible enough to allow data to be imported from other systems, they can be easily networked with DIS, and they can be extended with software plug-ins,” said Novak. “And when we faced difficulties with implementations details, MÄK’s technical support was there with solutions.”

The systems for the SQOC, DSQOC, and WOC have been deployed to three Czech Army sites, including the Czech Army Helicopter Expeditionary Unit that supported NATO in Afghanistan. The system was used to fly over 700 missions in Afghanistan last year alone.

“The development of the SQOC, DSQOC, and WOC addressed a new level of complexities in mission rehearsal,” explains Stanislav Novak, Project Team Leader of the SQOC project. “Now, as part of the deployable version, DSQOC, MÄK tools are helping to fulfill everyday procedural training for the HELI units on mission in Afghanistan today.”

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