



VOSS RFIs begin

Luc De Beer, Project Manager VOSS, Netherlands Ministry of Defence Directorate of Projects and Procurement Projects Branch, outlines progress so far

The Netherlands' VOSS (Improved Operational Soldier System) is a combination of a process and programme according to Luc De Beer, Project Manager VOSS, Directorate of Projects and Procurement Projects Branch, Defence Material Organisation, Netherlands MoD. "It's a process because we want to establish the basis for future projects but it's also a programme too because we also want to evaluate benefits by pursuing tests and verifications and implement individual projects like the Smart Vest and Integrated Head Protection."

De Beer continued, "I'm in charge of the project itself. My colleague, Lt. Col. Jan Kerkhof is in charge of the process. In Holland, we are in the position of separating the process of looking at the market and gathering information from the overall soldier system design and realisation itself."

VOSS received the go ahead from the Army in February 2008. Progress has also been made on budgetary support from the government. De Beer said, "We got the green light from Parliament on October 1st 2008, but we don't have the final agreement yet from the Secretary of State for Defence." This is expected over the Winter.

The programme is now moving toward a number of Requests For Information (RFI) upon which procurement decisions will be based, De Beer explained, "The topic we are looking at for the first RFI is what we have called the 'Smart Vest'. This is designed for every soldier to wear on his torso and consists of a number of subsystems."

The first subsystem to be acquired is the C4I module. The Netherlands has previously acquired a number of prototypes of the Communication Information Module (CIM) hardware as part of pre-VOSS development, sourced from Thales and using a data

capable version of the PRR. De Beer notes however, "This is not our final solution. The CIM is a possible solution for the C4I module and the C4I module is just one module of the complete Smart Vest. For us the market is still entirely open."

The Smart Vest RFI is planned for early 2009, with a procurement decision planned for 2010.

The Smart Vest consists of four elements; the first is the C4I module; the second is power and energy supply; the third comprises the load carriage backpack system and the fourth is the ballistic protection package.

Current plans for VOSS call for up to 5500 complete infantry ensembles to be acquired and fielded from 2011-14. These numbers may be revised upward to provide additional ensembles for support troops such as Engineer units.

Further ensembles could be acquired in partnership with other countries. De Beer cited interest in co-operation with VOSS from Belgium, Denmark and other smaller countries in NATO.

C4I

The requirement for squad radios for the future C4I module require them to be used both by the squad itself and enabling links at a higher level, including exchanging information with the Army-wide Battlefield Management System. Discussing the development of the requirement De Beer said, "We have more questions than answers at the moment. We have plans to do further operational trials in early 2009. After that we will have some more ideas about the specifications."

"In our earlier trials we had some problems about the existing range of radios – range and bandwidth for instance. But it's also a matter of money. There are some very nice radios with very nice price tags. The question is whether can we afford them?"

The software package on the CIM, De Beer believes is not, "light enough" citing a heavy draw on power, which has been found to be unacceptable by soldiers in trials. The power requirement for VOSS



The Smart Vest is integral to the VOSS architecture © AJB

- ▶ should be at least 24 hours, ideally 48 hours. De Beer cautions against looking at just one piece of equipment in considering excessive power needs. "It is not just a question of the C4I module. It is a combination of several systems' performance. You can't say it's down to one item."

Trials have been scheduled for early 2009 to look again at power needs for VOSS. De Beer explained, "At this point we don't have a complete picture of the power that we need for performance over 48 hours, also the types of scenario needed. It's not simply a trial about power supply but also about body cooling as well. Could we improve cooling by having some equipment inside the vest? We previously did a number of trials with the CIM and the Soldier E-Lighter power source. The E-Lighter isn't in the same state of development for example, as the CIM, so we'll have to do some more tests." The E-Lighter, developed in partnership with Stork Fokker is a diesel powered fuel source, carried by an individual soldier. Weighing 1.8Kg and situated on the small of the back. It provides power for up to a 72 hour mission.

INTEGRATION

Accountability for integration of VOSS will fall in part to the Ministry of Defence itself. There are two levels of integration according to De Beer. "The first is the integration of the Smart Vest itself with all four modules integrated within one platform," De Beer said. "The question of system integration is the first question that should be answered by any potential supplier. Then there is also a lower level of integration, what we call the C2 systems integration. The idea so far is to have the C2 integration done by ourselves at the Command and Control Support Centre (C2SC) based at Ede. However, if that takes too much time and is too complex I have the option of stopping that work and working directly with the systems integrator of the Smart Vest. It not just a question of money but also time. Even hybrid solutions by means of a partnership between the C2SC and the main supplier are still an option."

INTEGRATED HEAD PROTECTION

Research on Integrated Head Protection (IHP), funded by the Netherlands MoD has been undertaken by the TNO. The system will be a future module of VOSS but, De Beer explained, "IHP is also part of the VOSS programme but it is also a separate activity. We need to talk to industry to see if what we want is possible and whether it could be affordably built in our timeframe. There are still some questions to be asked before I can go to the market and announce an RFI."

Jan Brouwer, responsible for the IHP project at the TNO explained the human factor input into the design. "We went to 500 military personnel and asked questions about current helmets in combination with other parts of

worn around the head for example communications, glasses and CBRN equipment."

In terms of the outputs, Brouwer explained, one message came through very clearly, "The weight. It is always the question of weight. If you asked the military, 'If you have the same protection as you now have, but a lighter helmet or better protection for the same weight? they will always want the lighter one.'" The goal for the helmet is to be lighter than today's 1.5Kg.

"If you combine different equipments on the helmet, weight distribution just keeps getting worse and worse; the combination of the helmet and collar and fragmentation vest and the NVG and counter weight for example. In combination with CBRN equipment, for example it is a disaster. The main goal of the research is better integration of all the things around your head because, every equipment was originally made for itself and not for integration with others."

Temperature and climate in theatres today are much different from when the legacy equipment was designed in the 1980s and the IHP is dealing with this. Brouwer said, "Temperatures under the helmet today on operations are over 60 degrees Centigrade. I thought we could do something about that as well." He explained that the TNO's experience with passive ventilation has not been successful. Forced helmet airflow however, will have to be reconciled with CBRN protection.

Brouwer explains that their research found that while designs for the protection element of helmets were invariably very good they were often let down by a poor lining systems.

"I think that for industry, the main focus is making helmets as shields. Instead, we put our efforts into better lining systems to improve weight distribution on the head."

The TNO are in the final part of the demonstration phase of the concept design and writing the specification document. The follow on for that will be to undertake benchmark research and begin discussions with potential industry partners regarding the production of the helmet and material suppliers. The TNO's plan is to start a mini-consortium to go to the prototyping and then in Q3 or Q4 2009, begin testing.

CONNECTED PROGRAMMES

VOSS will use equipment being sourced from related programmes outside its direct responsibilities and is providing input into their procurement. De Beer commented, "We want a systems approach to have the right system." VOSS for example clearly has a clothing component but is has not yet been determined whether it will be part of VOSS or a separate arrangement. A key one is lethality and the acquisition of new weapon systems. De Beer explained, "The weapon isn't part of the VOSS programme. There is a Small Arms Replacement programme for fielding a more compact weapon but it is being procured from 2015." Inside VOSS, the team are currently undertaking a study to establish requirements for new night vision equipment but the results of the study won't be realised within VOSS and will be part of the new small arms programme. ■



The TNO have emphasised better lining systems to improve weight distribution on the head as part of the IHP project © AJB