



# EDA: Soldiers On

Col. Erich Weissenböck, Project Officer Engagement, European Defence Agency (EDA) Capability Directorate, discusses the organisation's support for Soldier Modernisation efforts in Europe

**Q: The EDA's work on the dismounted soldier touches a number of different programmes and R&T efforts that can be somewhat confusing. Could you paint a thumbnail sketch of the various EDA activities in this area and how they relate to each other?**

**A:** As an intergovernmental agency, we are serving our customers, the Ministries of Defence of our 26 participating Member States, both to improve their military capabilities and to reduce their costs. This work is done in close cooperation and coordination with NATO as well as the European Space Agency and the European Commission, which funds the development of dual use technologies through its Framework Programme 7.

Joint Investment Programmes are the vehicle to link capability requirements to research within the European Defence Agency. The Joint Investment Programme - Force Protection (JIP-FP) is one of them; results of technical demonstrations are beginning to become available: "European Protective Individual Defence ARMour" (EPIDARM) for chemical and ballistic protection, "Advanced Helmet And Devices for individual protection" (AHEAD) with a focus on sensors for situational awareness, for sniper detection: "Multi Sensor Anti Sniper system" (MUSAS) and "SNlper Positioning and Detection" (SNIPOD), both with different approaches as well as communication in urban environments, "Wireless rObust Link for urban force operations" (WOLF). Other JIP-FP projects are in progress, for instance on decision-aiding tools the "CApability study to investigate the essential man-machine Relationship for improved Decision making IN urban military environment" (CARDINAL).

Project Teams provide the platform for Member States to identify common interests in filling capability gaps, and generate research, development or procurement projects depending on Member States' requirements. In this regard, the Project Team 21st Century Soldier System addresses soldier modernisation and infantry unit issues - one recent example is "3D Positioning for Indoor Navigation". A technology demonstrator will be available

which will allow our soldiers to reliably navigate in urban environments without a satellite link, for instance within buildings. The core project, where nine Member States decided to jointly develop the "Combat Equipment for Dismounted Soldier", was formed from the Project Team and will address technology gaps with feasibility studies.

**Q: The definition of capability requirement of SCIS (Soldier Centric Identification System) has been finalised and approved within the EDA Steering Board) and the link to technical solutions established, leading to the testing of a technology demonstrator from Rheinmetall. Can you tell me a little more about the demonstrator and how you are co-ordinating work on the SCIS with similar work with NATO?**

**A:** The Ad Hoc Project Group on the "Soldier Centric Identification System" tracked two different approaches – a fully-functioning and fairly mature demonstrator on laser-basis the "Dismounted Soldier Identification Device" from Rheinmetall, and the "Generator System for Target Identification" from MBDA-France, on a lower technical readiness level. Member States will need to decide whether to pursue active identification or to continue with widespread passive combat identification which has some shortcomings. Either way, multinational interoperability is vital and Member States will need to plan accordingly.

**Q: Can you tell me a little more about the 3 D indoor navigation technology demonstrator that will be developed in order to harmonise developments and provide an option for integration into national programmes?**

**A:** The study on the "3D Positioning System" was created through the Project Team "21st Century Soldier System", where this capability gap had been identified. This technology should allow soldiers in the future to reliably navigate in urban environments without a satellite link, for instance within buildings. Commercial products do not provide the accuracy and reliability required

for its intended military use. Accuracy and reliability are expected to be significantly increased by using an innovative sensor fusion approach. A demonstrator will be available later this year. Research on integration into national programmes is part of the study.

**Q: The first results of Joint Investment Programme Force protection are now available. Can you talk more about this, with particular technology demonstrator for Sniper Detection?**

**A:** Both "Multi Sensor Anti Sniper system" (MUSAS) and "SNlper Positioning and Detection" (SNIPOD) sniper detection studies are aimed at detecting snipers in a complex urban environment both before and after the shot. At the core of both studies has been sensor data fusion. However, the sensor types used were different. Results show that a combination of different types of sensors increases the accuracy and reliability of the data. The detection of snipers before the shot is, however, very ambitious.

Integration of the technology into future soldier systems was one of the key considerations in both projects but more work is still needed to move the technology readiness level from that of a technology demonstrator to an operational system. It is now up to the Member States to decide how to make use of the study results.

The completed project, "Advanced Helmet and Devices for individual protection" (AHEAD) focused on forecasting the evolution of technologies which can improve the protection of the soldier by 2020, with a focus on sensors. The consortium carried out a comprehensive review of the state-of-the-art of existing soldier systems programmes, covering sensors and actuators (Electro-optics, acoustics, CBRNE, health etc.) as well as transversal technologies (Radio/Wireless, Identification Friend or Foe, Data Fusion, Data Presentation). The project also developed roadmaps for a subset of selected technologies. A significant part of AHEAD was devoted to measuring via simulation the capability benefits brought by these new technologies. Finally, a hardware setup

of the AHEAD architecture was assembled and tested at Galileo facilities in May 2010, in the presence of representatives from Member States.

**Q: In CEDS (Combat Equipment Dismounted Soldiers), Capability Requirements defined and the final stage of formal approval is ongoing. When do you hope to receive formal approval?**

**A:** In the next stage, CEDS will address technology gaps with feasibility studies, which is just about to take off. Member States approved the CSR initially prior to entering this next phase, but study results may subsequently require an adaptation of the CSR. Once this is achieved, we expect the CSR to be approved by the nine Member States involved.

**Q: Also in CEDS, there is cooperation to conduct feasibility studies to address feasibility gaps. What's the schedule for this?**

**A:** Depending on the launch of the studies, first results will be available by the end of 2011. This phase is planned to be finalized in the next 24 months.

**Q: Last time we spoke there were 14 capability gaps. Are all equal or are you prioritising certain areas over the three years you have set yourselves to consider feasibility studies?**

**A:** The initial 14 capability gaps have been modulated to nine feasibility studies. There is no priority ranking. Feasibility studies will be conducted in the area of energy: power supply, energy harvesting; survivability: biosensors information, stabilizing body temperature, lightweight ballistic protection, head protection, adaptive camouflage; human factors: human factors interface; and observation: precision targeting, observation under reduced visibility.

**Q: I've noted that a number of soldier systems have rescheduled their national programmes to synchronize themselves with the work of the EDA. Are you finding that is becoming more common?**

**A:** The EDA functions as a catalyst, but also adjusts to the pace of the Member States. While synchronized soldier modernisation programmes would simplify our work, Member States are at different stages of development. At the same time, it is apparent that participating Member States recognise that they can work more effectively by sharing information with each other, using the EDA as a platform and operate more efficiently by sharing the burden. In fact, this may be a reason why more and more EDA Member States are synchronising their work with each other.

**Q: How do you co-ordinate work with CEDS etc. with the R&T activities within the EDA Joint Investment Programme on Force Protection and Joint Investment programme Innovative Concept and Emerging Technologies (JIP-ICET)?**

**A:** We plan our work within the Agency in coordination with all relevant actors. In addition, EDA incorporates an integrated way of working, an approach facilitated by the small size of the Agency, regular communication among the different directorates and a minimum of internal bureaucracy. Points of Contacts within EDA from the Capability and R&T Directorates share information every day. The EDA encourages Member States also to work in this integrated manner in their MODs. So-called "Integrated Development Team" meetings and "Project Team" meetings with Member States ensure that they get what they need.

**Q: Has the number of countries participating in the PT 21st CSS area grown at all?**

**A:** The Project Team 21st Century Soldier System is open to all EDA participating Member States. The number that take part in individual meetings varies, but is relatively constant over the long term. Interestingly, there is a growing interest in the CEDS programme – 9 Member States are contributing – by the Member States that are not participating.

**Q: One of the requirements for PT 21st CSS is "new technologies". Is there anything genuinely new that is being worked on?**

**A:** A new field which in the Project Team's activities is the area of Unmanned Systems for dismounted soldier use. Unmanned Ground Systems have been in use for EOD purposes for decades, but can also be very useful for reconnaissance, logistics, as sensor platforms and possibly many other uses, especially those ones that are dangerous, dull and dirty. The added operational value of assets relieving and assisting our troops rather than placing an additional burden on them will be explored. This will be the starting point for discussions with Member States.

This example shows that new technology should not be an end in itself. We always need to ask ourselves: "What is the benefit for our soldiers? What are the risks coming along with new, often complex, technology?" Essential constraints for dismounted soldiers are also weight, ergonomics, and cognitive burden. These factors make it difficult to simply add sniper detection and combat identification capabilities to the already overloaded soldiers. We are working very closely with Human Factors

experts to better evaluate these factors and incorporate the conclusions in all of our projects where feasible.

There is a lot of technology already available which could be very useful for our soldiers. The EDA is able to assist in those fields too; one proposal is: "Through-wall-vision for urban operations". Often, it only requires a combination of already available technology.

**Q: Can you provide any insight into developments in regard to the EU-NATO Capability Group?**

**A:** Soldier Modernisation activities were not discussed in the EU-NATO Capability Group in the last three years. This proves that activities in the organisations are synchronized and duplication is not considered a matter requiring discussion – improved staff-to-staff contacts between the organisations may be a reason.

Common standards are usually developed within NATO, co-operation of EDA participating Member States harmonising national requirements contribute to operational implementation. Again, combat identification, blue-force-tracking or command & control and weapon deployment systems either only make sense or increase their value if they work in today's multinational tactical environments.

**Q: What is happening in the EDA's Materiel Standardisation Group and what progress has been made with EDSIS in support of soldier modernization?**

**A:** As NATO Standardization Agreements are used, no additional requirements have been identified so far to address standardization within European Defense Standards Information System (EDSIS). But when coming closer to addressing technical specifications, there may be some needs in the future.

**Q: Are there any developments in your work with the Soldier Prime Contractor Team?**

**A:** The Soldier Prime Contractor Team provided prodigious support when EDA programmes in the field of soldier modernisation were launched. Respective companies are conducting Joint Investment Programme - Force Protection projects and results have started to become available. In addition, the CEDS project keeps contact with industry via national focal points of contributing Member States. Companies will soon be asked to contribute to feasibility study activities. ■

*Benjamin Fuchs, EDA Capability Directorate provided the answers jointly with Col. Weissenböck.*