

EADS: European Leader in SMPs

EADS-led soldier modernisation programmes are well advanced in several European countries

Q: EADS' SMP systems have been mission proven over the last six years through several deployments. How have your current SMP systems evolved to incorporate operational lessons learned?

A: The base Infanterist der Zukunft (IdZ) system was fielded with comprehensive soldier oriented features that included:

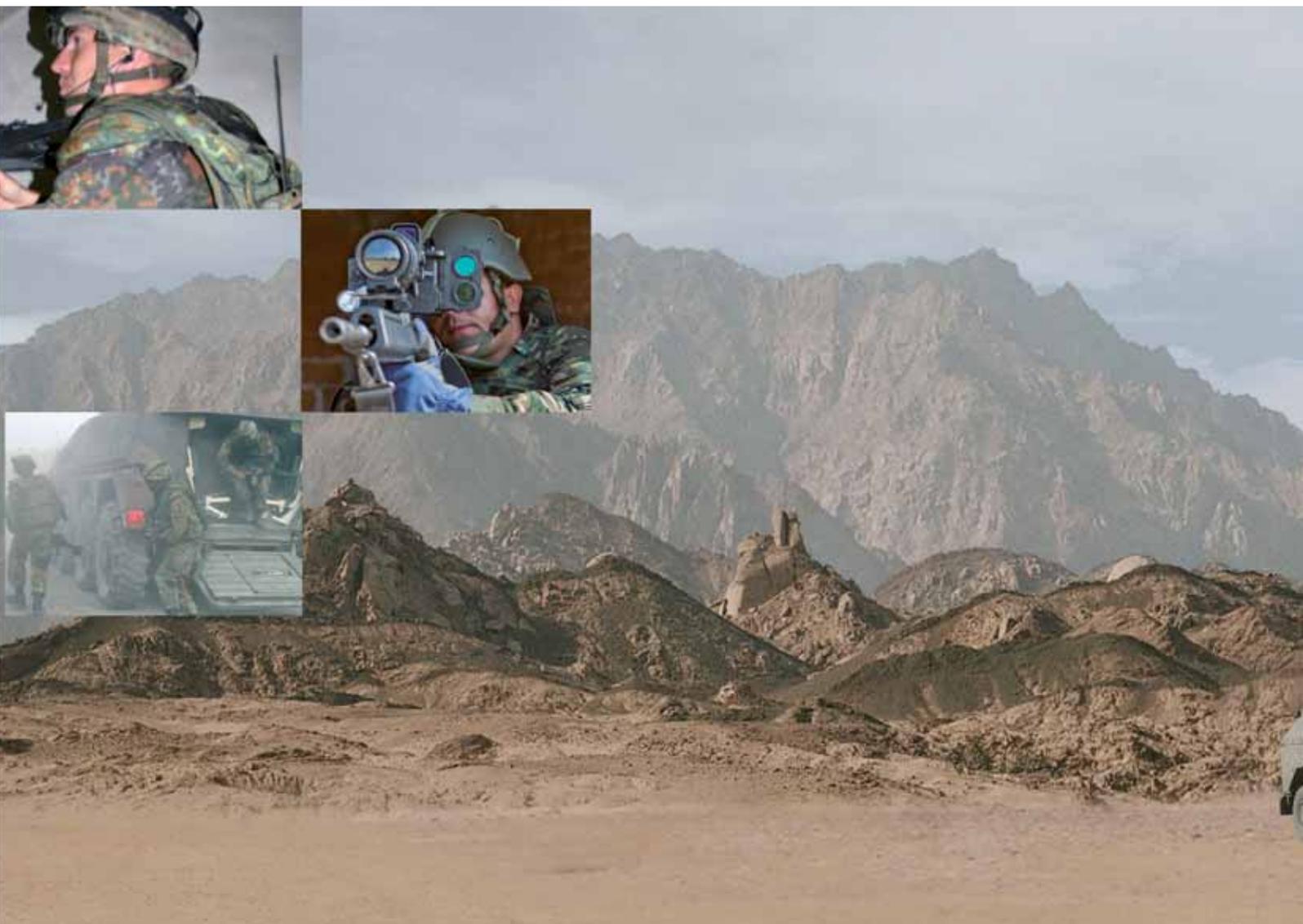
- Digital navigation and communication tools integrated into the load carrying system
- Ballistic and stab protection to in excess of NATO level 4
- Integrated clothing including a nuclear, biological

and chemical (NBC) suit

- Night vision equipment
- Simultaneous speech and data communications at the section level
- A range of weapons enhanced by optronic peripherals integrated into the soldier system

Each soldier became a digital unit that could integrate into a group or section enhancing the individual group or section C4I and weapon performance. IdZ System deliveries occurred during the period 2002 to 2007. The base IdZ system continued

to evolve with improvements to the navigation tools and communication capabilities, newer soldier peripherals including PDA's, workstations, laser range finders and integration into the earlier battle management system (BMS) FAUST at the IFV vehicle level were added. BMS integration has continued with further integration of the new FulInfoSys H in 2008. This further enhanced information exchange between the C3 and the soldier C4I systems, without degrading the C3 system performance but enhancing overall soldier performance, especially in a mobile vehicle based environment even when the soldier dismounted. ▶



► **Q: How is EADS' IdZ expertise being used to inform and support the development of requirements in other countries?**

A: In early 2005, building on the success of the IdZ base system, EADS made a decision to further enhance its SMP capabilities by commencing design of a second generation SMP system that would extend the Open Architecture principles that had been used in the original IdZ design in 2000. This would allow the new system to take advantage of a landscape change in technology available to SMP systems but make it easier and faster to incorporate lessons learnt in the field and through ongoing trials. It also allows integration of an army's legacy systems and avoids the restrictions imposed by monolithic architectures used by other SMP system configurations. The objective was to provide a system that could then not only be configured to support a country's specific social political mission objectives, but be configurable at the soldier level with variable and enhanced weapon capability integrated into the soldier C4I capability to achieve mission specific objectives. This system flexibility would also allow it to

respond to the needs of a conscript, a citizen army, and regular and Special Forces requirements. The soldier could be fully integrated with the C3 tactical systems at the vehicle level, allowing information exchange between the soldiers and his weapons and sensors, and between the soldier groups and section members and with the BMS without detriment to individual soldier performance in the dismounted role.

Q: How does Warrior 21 provide a means for soldiers to add and subtract modules to make the system appropriate to a peacekeeping mission?

A: Since the series production of 220 IdZ systems for 2200 soldiers between 2004 and 2007, technology has made further strides. For example, the system now has the capability to connect to simulation systems to eliminate existing training deficits, and also enables seamless links to both the FAUST command and control system and the FulInfoSys H system. Going forward, enhancement of combat performance in the form of a rapid, risk-free weight reduction at low cost

while increasing the capabilities of the deployed infantrymen is conceivable through less spectacular means, such as the replacement of individual components and protective materials.

Q: What have been the successes of Warrior 21 thus far?

A: This second generation system, "Warrior 21" has been adopted by the Spanish and Swiss Armies and delivered to both entities in 2008. Key capabilities and characteristics of "Warrior 21" are:

- Enhanced modular multiprocessing computing capabilities to improve survivability
- Open source operating systems and applications to provide soldier responsive applications
- Integration of legacy systems to provide enhanced life cycle and information capability
- Reduced weight and improved ergonomics to improve soldier field performance
- Reduced power consumption and enhanced power management to reduce battery needs

Warrior21® – A New Era of Soldier Systems

EADS has supplied the first soldier system (IdZ) in operation worldwide. On the basis of our experience gained in further international projects, we have developed the evolutionary Warrior21 system. This fully integrated infantry system is mainly featured by:

- Flexible connection to C3I systems and to vehicles, sensors and effectors
- High modularity and scalability
- Full compatibility with NATO standards

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- Passive self contained power sources to support long endurance missions
- Seamless vehicle integration for mounted, mobile and dismounted operations for information exchange at the command and soldier level to provide enhanced battlefield responsiveness and soldier initiative
- Enhanced head gear with multi media display, active noise elimination and enhanced sensor and vision capability to improve soldier battlefield and command awareness. This will be further enhanced by future integrated augmented reality features
- Seamless voice and data communications at the section and platoon level with up to 10 KM range providing enhanced situation awareness with a common device
- A family of information pads for information management that can range from a simple soldier device to a fully configured commanders workstation
- Interoperability with NATO and coalition Forces using NATO information exchange standards
- Enhanced navigation capabilities with GPS-less navigation devices
- "Customizable" to individual customer needs from "light and simple" to "feature rich" with an incremental growth capability

The design characteristics of Warrior 21 are drawn for the trials, operations and lessons learnt that have been conducted continuously from 2000 with the EADS SMP system clients. Besides the operational input from the soldier system deployments, over 20 trials have been conducted to date with various groups including NATO standards groups.

Q: Each country will have different legacy equipment they wish to retain and specific items of new equipment that will be required from local suppliers to integrate into any new system. How does Warrior 21 cope with this requirement and

can you point to examples in COMFUT and IMESS?

A: The most important advantage of Warrior 21 is the modularity of the system. An open Bus-architecture together with standardized interfaces allow the integration of all legacy or other components and subsystems and also those from other subcontractors that customers wish to have integrated into the system.

All further EADS SMP projects will be based on this Warrior 21 system architecture.

The first COMFUT (COMbatiente FUTuro) squad, the future Spanish Army soldier modernisation programme, was delivered to the Ministry of Defence's Procurement Office (Dirección General de Armamento y Material, DGAM) in December 2007. The squad comprises twelve individual comprehensive kits and will be followed by the optimisation of the design and the production of equipment for two further squads by the end of 2008.

The COMFUT programme is aimed at enhancing efficiency and protection of the Spanish soldiers and has required the development of special systems. The COMFUT solution is based on a Warrior 21 architecture. The most important innovations have been reached with advanced solutions for:

- Optronic
- Command and control
- Energy sources
- Ballistic equipment and protection
- Field training duel and other support systems

The new equipment will enable the soldier to be part of integrated, network centric operations. Thanks to new sensors and a data link providing information received from other team members of the squad, the COMFUT-equipped soldier will gain full situational awareness. Exacting real-time information about his own position on the battlefield as well as the location of other squad members and of his enemies will outstandingly increase his efficiency. At the same time, thanks to the ballistic protection and the appositely designed equipment, the "soldier of the future" will enhance his

security and comfort, being able to operate day and night, and under any meteorological conditions.

IMESS is the programme for the modernisation of the Swiss infantry's fighting capabilities from a single soldier up to platoon level. The IMESS solution is based on the Warrior 21 system architecture. Highlights in the IMESS project are the large range of the radio communication system, the vehicle integration and the planned interoperability with C4I systems. The first 25 prototypes were handed over to the customer at the end of July as a base for ongoing field testing.

A framework contract, signed in November 2007, includes a first development phase plus options for series productions worth more than €120 million. The prototype phase will be finalised in September 2008 followed by an optional industrialisation phase in 2009 and optional series production phases in 2010 and 2014, according to current master planning (procurement bills RP 09 and RP 13). The procurement of the series is subject to approval by the Swiss Parliament.

Q: How do you address differing Concepts of Operations adopted by different countries, within the Warrior 21 concept?

A: The EADS SMP systems have been mission proven over the last six years in many deployments. They are highly configurable and now with the second generation system Warrior 21 entering service, are proving configurable not only at the soldier level but are also able to meet diverse national objectives utilising conscript, citizen army, regular and special forces formations. The EADS SMP configurations support the classic three block warfare scenario in peace keeping, peace making and combat missions equally well.

The EADS Warrior 21 is equally at home in the mounted and dismounted role, enhances both and is field configurable as the roles shift. It can provide long endurance mission capability and enhanced C3 and C4I capability to the commander and his soldiers, improving mission success prognosis.

Q: Training seems to be one of the biggest factors in ensuring that the system selected is a success. How do you support the customer in this area and through life support?

A: The training aspects for the soldiers are very important regarding the system acceptance. For that reason, we offer an extensive training for military instructors (cadre training). Logistic support is mandatory.

Q: To what extent can future upgrades be undertaken independently by the customer?

A: SMPs are developed by industry, which have highly qualified experts available with special know-how. These capabilities are totally different from the expertise of the users. Thus, future upgrades have to be done by industry. ■



Warrior 21 provides interoperability with NATO and coalition Forces using NATO information exchange standards