



# The UK Approach to the Integrated Soldier System

Major General Carew Wilks, Director, Programmes and Technology Group, Defence Equipment & Support

**In recent months, the UK has completed the transformation of its dismantled operational capability and related training, bringing in the first increment of the Future Integrated Soldier Technology (FIST) capability.**

Major General Carew Wilks, Director Programmes and Technology Group, Defence Equipment & Support explained, "Our frontline soldiers are now better equipped than ever before and have an excellent set of equipment to meet the demands of the current campaign in Afghanistan...The campaign has re-emphasised the central role of dismantled infantry for the future and this is recognized in emerging doctrine such as the future character of conflicts where the concepts of mass and conflict amongst the people have been identified."

## Strategy

The current campaign in Afghanistan which is the UK's highest priority in terms of both new equipment and supporting the deployed assets is shifting to the sustainment of the very large fleets of Dismounted Close Combat (DCC) equipment now deployed. Gen. Wilks commented, "We have to ensure that our soldiers can train on the same equipment, prior to deployment and our DCC Consolidation (DC3) programme has now delivered increased qualities of night vision and support weapons to enable training earlier in the pre-deployment cycle." In addition, the importance of the small tactical unit; the section or the squad has also been embedded in the UK's dismantled soldier system concept of

employment which has been issued over the last year.

The UK is taking a more systematic view of the soldier and his kit in order to address the challenges of integration and mixing the increasingly complex set of DCC kit whilst also reducing the burden. The approach was briefed to industry in June 2010 and from then the means and tools have been put in place.

Gen. Wilks explained, "Our strategy is to define and manage a soldier system open architecture and to continue to exploit the international market to improve this systems incrementally for a programme of individual projects, more effective support strategies will form part of this approach and we plan to retain 'onshore' an assured light weapons support capability. The principle that we will follow in this strategy will place the soldier at the centre of an integrated lightweight systems built around an open architecture and with planned technology insertion. An incremental approach will enable technology to be inserted at the right time to achieve the right balance between improved performance burden training and cost."

"The intent is to deliver a series of individual projects that together meet the capability needs. A first step is to put in place a generic operational analysis of the effectiveness of the soldier system that will enable us to better understand the tradeoffs and benefits to assist in identifying the key projects and to also deliver the measures of effectiveness and consistent testing methodologies. This will be critical in carrying out balance of investment decisions and to ensure that the investment of our limited resources is in the right place

to get the best bang for our buck. The second strand provides a common framework and toolset for generating a requirement set that link directly to the capability catalogue and this ensures a consistent approach when we generate the requirement for each individual project. The third strand provides the system functional architectures, specifically through an emerging defence standard for the generic soldier architecture."

Most of the work necessary for this has been put this in place.

Addressing the role of Urgent Operational Requirements (UOR) in this, Gen. Wilks said, "A key challenge has been the pace of UORs which has meant that we haven't necessarily applied the systems approach over the last few years and that is one of the reasons that we are trying to be more structured and disciplined, I think that as we reach the final few years of our major commitment in Afghanistan the pace of UORs will reduce. We think we have reached pretty good equipment levels for the dismantled soldier and we are going to be more disciplined in bringing in any future systems. We are trying to look ahead, trying to anticipate and trying to make sure that even UORs will be properly integrated in the system."

The focus on burden has been to drive down the physical burden on deployed equipment as a means to reduce the overall burden of the dismantled soldier. We have made good progress and section weight has reduced by 75kg across the eight man section or around 9kg per soldier over the last year with some further reductions still in the pipeline." ►

- “Our current policy runs the risk of equipping soldiers with 60kg of light equipment. What we have to do is to reduce the dependence of soldiers on the kit that they carry by having a more assured resupply process in which the soldier trusts so they can confidently take less equipment with them. It may be some ground platform or air platform providing a reliable and guaranteed source of resupply and we will need to introduce this along with the discipline to only carry a limited amount of kit on the body.”

### Epochs Three

The forward programme for DCC is divided into three Epochs. Gen. Wilks said, “In the first Epoch, we will continue to deliver our UORs and the associated enhancement in training capability through the DC3 programme. Also in this early stage, alongside the UORs and to meet a UOR requirement we have a uplift in CBM (CBM) capability in terms of both the Commanders Lightweight Radio and the Casualty Locating Beacon system. In parallel with this in the first Epoch, FIST increment 1; the Surveillance Target Acquisition (STA) projects will continue to roll out across the user community after having successfully achieved ISD earlier this year. In the second Epoch, we will see the evolutionary change delivered by project Virtus, the new protection and load carriage system and improved dismounted Situational Awareness (SA) and in the third Epoch we are likely to see more revolutionary change with a new assault rifle long with associated changes in STA and Command and CBM capability at section level and a greater degree of digitization of the soldier architecture.”

The UK is continuing to upgrade and improve equipment for Afghanistan to meet the changing nature of the campaign and to address emerging tactical challenges with night vision capability now spread throughout the force, a number of lethality enhancements and a pelvic protection system with the rest of the protection set having been improved through better fit and more flexible integration. Other systems recent have been the Casualty Locating Beacon capability to improve SA at the section and platoon level.

Major enhancements for lethality include the new Sharpshooter 7.62mm rifle at the section level for current operations and these are likely to stay well beyond 2015

and will sit side by side with new programmes such as the Future Assault Rifle from 2020.

In the sustainability domain, significant progress has been noted in terms of power food and water. Looking to the future, the main challenge as defined by Gen. Wilks is to define the power architecture on the soldier while obtaining reliable, higher power and a means to distribute that power around the soldier.

In mobility terms, another major core project, Virtus will deliver an improved load carriage system to increase soldier mobility with other efforts an assisted load carriage systems. Gen. Wilks commented, “We need to work on a more structured and more disciplined approach to configuration control on the soldier. The days of complete flexibility and modularity we need to put behind us if we are to manage the burden effectively.” Addressing protection he added, “We have made huge strides in improving the level of protection of our soldier with the Osprey Mk4 body armour system, the Helmet Mk7 and most recently and importantly the new pelvic protection system. Of course much of this is at the expense of burden and therefore agility. The new camouflage has also provided to be highly effective on operations. In Virtus we are looking for a breakthrough in body armour materials technology in order to reduce weight and the protection system will be better integrated with the load carriage.”

Gen. Wilks describes the CBM domain as, “really our biggest challenge.” He continues, “While the EZPRR has been hugely successful... we have not yet been able to field an effective situational awareness package. Our ELSA systems proved to be too bulky, complex and power hungry. We are planning to deploy later this year the CLB which is a more compact system that delivers a degree of situational awareness but is constrained by the existing bandwidth of our current soldier radio. Our future project in this area has the potential to offer the step change in capability sought by the infantry in terms of situational awareness, precision and information warfare but major challenges remain, especially around spectrum congestion, bandwidth, range, size, weight, power and security levels. There is however a growing consensus that such a system is now vital to retain operational overmatch against our future adversaries while also reducing casualties.”

Addressing the well established challenge of

spectrum management, experienced by a number of UK programmes in recent years, Gen. Wilks said, “This is a difficult area, with lots of people fishing in the same pond. The demands of the ISTAR systems are tremendous for bandwidth and as you know they are proving to be highly successful on current operations and making a real impact. So everyone is after spectrum and meanwhile in this country and in others, spectrum is being sold off into the commercial market so the resource available is being reduced. Within the MoD there is a drive now to focus effort across the C4I community to better manage and look to the future in terms of how spectrum is allocated. But we also have to think of ways to mitigate the challenge by moving to higher frequencies and seeing how we can develop the range within that constraint of having a higher frequency. One [option] is to squeeze more space out of the most useful bit of the band for dismounted ops in the low UHF or, to come up with a networked approach with rebro type systems at higher frequencies where bandwidth is more available.”

The STA future strategy for the section will see the capability develop incrementally. Gen. Wilks said, “This will require a continuous series of projects to reduce size and weight probably by moving to a more inline system over time and fusing the image intensification and thermal imaging to provide a better detect, recognise and identify capability in a single package.”

The soldier system is one of three subsystems within the UK's Land Open Systems architecture and this framework is being developed over this year with the generic soldier architecture sitting alongside the generic vehicle architecture and the generic base architecture to form the land open systems architecture. Gen. Wilks commented, “It is absolutely critical that we have the three sub architectures talking to one another, integrated with one another and there is a series of experimentation activities going on over the next year to take soldiers from a patrol through a base and out into a vehicle in a seamless fashion.” ■

*Maj. General Wilks was speaking at Soldier Technology 2011.*