

Exploiting emerging technologies

Ian Jackson, UK/Europe Aerospace and Defence Account Manager, profiles advances in enterprise engineering and asset management software in the MRO industry...

Software suppliers in the Maintenance, Repair and Overhaul (MRO) industry are leading the way in developing new applications that can bring benefits not only in the commercial world but also in defence logistics too.

The defence community often believes that its needs are unique and that its solutions must necessarily be specific to those needs. However, under Smart Acquisition there is an underlying call to make the best use of what is already commercially available, or so-called Commercial Off-The-Shelf (COTS) products. The advantage of COTS is that because of the usually large customer base, through-life support costs are likely to be much lower than for a bespoke acquisition. Support costs are shared over a wider customer base – the MOD doesn't need to create special facilities for the equipment and there is potential for competition in the support of products.

This is never more true than in IT, and even in the specialised fields of Maintenance, Repair, and Overhaul (MRO) and Engineering & Asset Management (E&AM). After a decade of focus on inventory – ie. 'what have I got?' – with limited success, the MOD has rightly turned its attention towards the more important question of not only 'what have I got?' but 'where is it?' and 'what state is it in?'. The business focus is on capability and military effects, ie. 'what can it do for me?'. Consequently, the logistics function is now being seen as a key part of the battle plan. War simulation is also taking into account the real life factors involved with material management, and knowledge of where specific assets are, what their availability is and what effects they are capable of delivering are now seen as a vital part of the overall picture. This means that IT systems must provide this information in real-time so that engineering judgement can enhance the operational decision-making process.

This kind of decision has been the bread and butter of commercial airlines for many years, and some of the approaches taken in this industry have direct application to defence. The kind of technology now being deployed commercially can deliver similar benefits to defence as in the commercial arena.

Industry solutions first address the through-life support requirements of complex assets. Assets are treated as unique individuals with their own history, individual needs and capabilities. For example, a helicopter rotor blade has a

limited life. Its life is consumed over time depending on how it is used. One that has been used in a benign environment will have used up less life and sustained less physical damage than one used in a hostile one. Helicopters have more than one blade so the individuals in a set of blades will experience similar usage whilst in that set. But they may not remain together for all of their life and so it's important to know the history of the blades – how much life has been consumed, what repairs and modifications have been done to the blade – when deciding how best to use them in future.

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This concept of making best use of assets on the basis of knowledge of its history and planned future use is a common theme in commercial aviation. It is really no different in defence where, in fact, because of the harsher environment and the lack of assets, the right decision is all the more important. From an enterprise perspective, the defence enterprise or supply chain extends from the 'depth' area to the 'forward' area. Depth comprises industry, defence agencies, military depots and repair facilities increasingly right up to the theatre of battle, where the forward area is everything else on the battlefield. This means that solutions taken from industry must be capable of supporting this extended enterprise as well. This also means that they must involve all parts of the extended enterprise and not just operate in one part – in depth or forward. This connectivity is key to the release of benefits because it means that the information available can be as up-to-date as possible and can actually reduce costs of operation and reduce errors in the data by reducing the amount of human manual intervention and data entry.

Linking the OEMs in industry to the defence systems, or rather linking defence systems into the industry systems, is the key, and enabling the defence systems to operate in the forward area and link back to industry is also key. It is better yet for the man in the trench to be able to communicate or for the asset itself to do so.

This is where the technology that is available today comes into its own. First, there are best-of-breed solutions designed specifically for the 'aftermarket' and that are capable of managing the data necessary to assure full physical system integrity. These same systems are capable of managing the



An Apache Maintenance crew performs an 'After Maintenance Operational Check.' An Air Force mechanic on the ground equipped with an Atigo® T High Bright and communications headphones runs through an operational safety check list with a mechanic in the cockpit. MRO software developers such as MIRO Technologies are leading the way in developing new applications to benefit defence logistics

full supporting inventory and the complex supply chain relationships. But now these systems can operate in an autonomous mode in the forward area too. In this area, operators are talking to these systems via various standards of wireless links similar to those in your own home but are capable of meeting the more stringent requirements of military robustness and security. Personal Data Assistants (PDAs) or handheld computers with more computing power than the Space Shuttle make it possible for operators and maintainers to identify the required asset, check on its status, record maintenance operations and update the remote system. Add to this the ability of some assets to communicate themselves to alert the remote system to their presence – the RFID (Radio Frequency Identification Device).

The internet is also playing a part in connecting users at all places in the enterprise with their assets and the data about them. Web portals mean that users can access the data over the internet, or an intranet, without having the host the systems holding the data locally. This kind of technology is now commonplace in the home and all users are well acquainted with it. This means that training is significantly reduced because the use of these systems is both simple and intuitive.

Advances in IT to support the supply chain are joining the discrete elements of the supply chain and the hitherto sepa-

rate IT systems that have enabled it. The ability to provide feedback on what's happening to the equipment in the forward area to the OEMs providing the Contractor Logistic Support (CLS) in the depth area makes for more efficient and effective CLS. Equally, the CLS provider can share his view of the supply chain with the end-users in the forward area. The ability to connect the end-users and the assets directly to the deployed systems reduces data latency, errors and costs of ownership. IT providers like MIRO Technologies are helping to make this reality and the ability to exploit these emergent technologies quickly will determine which suppliers are successful in this competitive market.



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