Mod’s defence storage

Business

Company: EXE TechnologiesCustomer: MODSubmitted by: The Marketing Management OfficeImagine this. It’s 1996 and you work for a business where many warehouse management practices date back to the First World War. Your stock comes in a variety of sizes and hazards and is spread over 72 warehouses with an in-house computer system that is simply not delivering.

Just one product line takes over 500 separate locations across a number of sites. In addition, many of your warehouse staff have never used a computer before, let alone a hand held RF device. At your busiest times, any picking errors they make could mean the difference between life and death for your 94, 000 customers. This was the situation facing what became the MOD’s Defence Storage and Distribution Agency (DSDA) when they decided to implement one of the largest Warehouse Management Systems (WMS) in Europe just over four years ago. This article explains the challenges they faced their decision to reinvent themselves on the back of a world-class WMS system, and the difference it has made to their business.

The end of the cold war delivered a rapid change in Military logistics. The increased pace of conflict has meant that forces must seize tactical and operational opportunities immediately. Integration, visibility and velocity of the supply chain increases the speed of logistical response and so reduces operational decision cycle times. In response to this, DSDA was formed in April 1999 as part of the Defence Logistics Organisation (DLO). The simple idea being that instead of the services running their own logistics operations, a single headquarters would be responsible for logistics and the business of running and optimising the supply chain. DSDA operates as a stockholder of military equipment on behalf of the MOD and is responsible for the storage,

maintenance and distribution of most of its clothing, rations, raw materials, weapons, spares and general stores – everything in fact from uniform insignia to complete Radar installations.

Prior to the formation of DSDA, each service was fully responsible for controlling logistics operations individually. The RAF had bitten the bullet first by implementing an advanced warehouse management system – EXE’s EXceedTM WMS – and customising the software to manage their own unique requirements. The result was the RAF Warehouse and Transport Management System (WTMS). The Army Base Storage and Distribution Agency (ABSDA) followed suit in late 1995 and this is where we pick up the story.” Our processes and procedures go back to the 1st World War where many logistics activities were paper and manpower intensive” says Lt.

Colonel Jim Ritchie, who heads the project implementation team. “ We could see that in a changing world climate we would come under increasing pressure to be able to react quickly to changing events and deliver the best value for money to our customers. We had seen what the RAF had achieved in working with EXE Technologies to develop the WTMS project and wanted to build on that knowledge.” And so the Base Ordnance Depot Management System project (BODMS) was born and EXE were awarded the contract to develop and install the system in mid 1996. The requirements of military logistics, and the need to interface with a number of other in-house military systems, meant that ABSDA could not simply buy a commercial EXE package, or indeed make a straight copy of the RAF system, as the two Services at that time had differing logistics practices.

Instead, BODMS would build on the experience gained by the RAF with a development programme to meet specific Army requirements. This included real-time Telxon RF systems to provide speed and accuracy of operations. Working closely together, the EXE and ABSDA teams set about defining the specification for the system, a phase that would take over one year, involve 100 users, and create a Catalogue of over 400 requirements. At this stage, various operations had already been reviewed via EXE’s Business Methods Opportunities process, which had already made a number of recommendations for improvement based on commercial best practice.” Compared to our commercial installation times, such a lengthy time to create a single document might seem extreme” comments John Mace, Head of Defence Projects for EXE; “ but the effort involved was to be expected.

With over 1, 500 potential users of the system and differing methodologies at each of 70+ warehouses, we had to be sure to accommodate everyone’s needs but at the same time ensure system integrity and best practice was maintained.” The two review processes highlighted a variety of potential improvements including the elimination of military double handling processes. For instance, DSDA SKU’s exceed two million items so products are dispersed over a large number of sites. The military were picking an item in one warehouse, taking it to the next warehouse where the same item was picked again and so on before the completed pick was sent to the transit area. The DSDA were convinced of the merits of picking all items at once and merging at the transit area – all under system control.

Following acceptance of the Requirements Catalogue, the EXE Defence Division set about the application implementation stage of the project. An ‘

Operational Demonstrator’ of the software was built which would allow the team to workshop the BODMS software in front of nominated users and by Spring 1998 the application design was agreed. Following the accountability principles of the public sector, a period of investigation followed as ABSDA re-visited the business case for the new system and ensured the cost / benefit justifications for BODMS were still acceptable. The formation of DSDA was also on the horizon and the team had to ensure the system would be suitable for future tri-Service activities. Go ahead for the next stage of implementation was given to EXE in January 1999 – ending almost three years of detailed planning.

As with any large organisation with complicated processes, suggestions for changes to the software and new requirements continued to come into the project team between project go-ahead and rollout of the software. EXE had agreed at the outset that the military were buying a finished product, not a team of programmers. This turned out to be a vital element of the success of BODMS as each new process or change request underwent detailed cost benefit analysis before being passed to DSDA for consideration. This method ensured that no unnecessary development work took place and application integrity was easily maintained. The next major challenge for the team was the software roll out to the immediate user population of approximately 300, many of whom had been with the organisation for a number of years (DSDA only uses uniformed staff for night shift priority issue teams, the majority of warehouse staff are civilians) and had not previously used computers or RF equipment. DSDA had provided basic computer skills training for staff but EXE were tasked with introducing BODMS to the users.

Mace takes up the story; “ The solution to this scale of training needs was to adopt the ‘ super-user’ principle that had made our earlier project with the RAF such a success. We trained a limited number of people from each warehouse to a very high level. Those super-users were then responsible for passing on that knowledge to their individual teams, through hands on training and simple ‘ how-to’ guides.” EXE also set up a telephone query response centre and permanent classroom areas where subsequent to training, users could go and practice on the system. Roll out of BODMS started in October 1999, with the first warehouse. The team chose an isolated warehouse, not connected to the main order management host, used for storing repairable items to test the rollout strategy.

From there the rollout assumed exponential growth – the team started with a single warehouse over one weekend in the middle of October. The next weekend they went live with a site and on the last weekend of the month the rest of the depot went live. Such was the success of the ‘ go-lives’ in Bicester the team took the decision to roll out the whole of the Donnington DSDC just before Christmas 1999 – 20 warehouses in a single weekend. Overall the team implemented BODMS successfully at over 70 warehouses in just 4 weekends. BODMS has resulted in a large number of improvements for DSDA.

“ We had to develop a system that would drastically increase productivity, and achieve an infinitely better level of stock visibility and labour management – the system has scored on all three points” says Col. RitchieHe sees visibility as one of the many areas BODMS can assist them to reduce future costs. “ In the past, trying to establish what stock was held

was a very long winded process. By using BODMS we have instant, accurate and timely information and total visibility of all stock in every location,” continues Col. Ritchie. “ Freeing our staff from these time consuming paper processes has made a significant difference to our ability to proactively manage our business”.

Before BODMS, a large amount of buffer stock had to be carried as it took 16 days from the point an item was received to the point that item became available for supply. BODMS has virtually eliminated that delay reducing the lag time to 24 hours with the consequent benefits of reducing stock on hand by several days. Furthermore, BODMS has the capacity to reduce that lag time to as little as 30 minutes – the system’s only constraint is how often the Stores System 3 order management software can currently accept updates. BODMS sits on two resilient Hewlett Packard V Class servers running Informix 4GL, the most powerful servers available at the time, and links into the military QMG. net internal network.

The system drives 300 Telxon RF handheld units, 38 truck mounted RDT’s, and 40 portable label printers linked in to the RF system. A mix of 500 dumb terminals and PC’s together with 340 Zebra Thermal printers and 110 line printers complete the hardware package at the two main DSDC’s. The Telxon units are all the commercially proven PTC 960 SL’s, utilising the most advanced laser scanning and wireless technologies in a lightweight handheld device. The rugged, go-anywhere scanner/computers have become the acknowledged tool-of-the trade in a broad variety of applications and are ideally suited to the rigorous demands of the military logistics environment. The units access the EXceed-driven WMS in real time through 130 Telxon

supplied RF access points at Bicester and Donnington – with further deployments planned for the near future. BODMS receives orders from Stores System 3 – the inventory control and order management system.

BODMS checks the system every 30 minutes for high priority orders and rates all other orders according to Priority State and availability to pick. Picking lists are selected and printed in each warehouse to meet the capacity and optimal cycle time. Orders at each DSDC are packed on site and forwarded by vehicle or train to the main transit area where products are crated and despatched worldwide. Between the warehouse and the transit area, an EXE application called ‘ track-it’ is used to identify exactly where consignments are – a crucial utility should the priority status of an order suddenly change. At point of despatch, MOD’s VITAL consignment tracking system takes over.

Linking directly to BODMS, VITAL covers everything moving within the military network outside of the distribution gate and into theatre. It can track stores from issue all the way through to the final point of delivery – wherever in the world that may be. Once an issue is despatched, VITAL reports back to BODMS that the order is complete. Importantly, VITAL works with BODMS to consolidate unit orders and allows demand reference tracking – a unit in the field can call up and a single number enables complete tracking of all items despatched to meet that order. In addition, as each package carries a unique reference number, consolidations can be split at any point in the journey (priority status changes for instance), and still the integrity of the tracking system is maintained. VITAL has also benefited from the BODMS project and the Telxon RF technology used.

The RF units are able to work with both systems – goods are received and barcode scanned into the transit area by BODMS and scanned for despatch via VITAL – all with the same RF unit. Returns are a big issue for DSDA; “ our requirements are quite different to a commercial system,” says Col Ritchie “ as squadrons or units move and re-equip, items will be returned to Bicester for inspection and return to stock, sale or disposal. Again, BODMS manages this process for us and provides instant traceability of all returns”. Visibility has also resulted in the military freeing up much needed resources. They had found in the past that in a number of cases they had been carrying spares and items for military equipment long since out of use such as Cromwell tank wheels and parts for Vickers machine guns. BODMS is unusual as it is configured at individual warehouse or even aisle level to account for the differing equipment and requirements of each location.

Rather than saddle warehouse managers with a system that forces them to fit their activities to a template, BODMS provides individual warehouse managers with the flexibility to optimise layout and methods to their individual needs. Management reporting tools are provided through EXE’s Business Objects partnership, allowing selected users to view the ‘ DSDA universe’ as a set of objects – numerous items of data expressed in business terms. The EXE team created individual universes for different parts of the business looking at performance, operational situation reports, and operational rations reporting. The result has been that managers are able to look at performance or statistical data in any number of different ways at the touch of a button. So what measurable benefits do the military have for the

system? According to Colonel Ritchie it’s a little too early to quantify the exact benefits although the process improvements speak for themselves.

“ The major benefit of course has been in working towards convergence of systems between the three Services. EXE’s solution and sheer hard work has been instrumental in that process. We do have anecdotal evidence that the system is delivering a real financial return on investment but we require a full twelve months of operation before we can publicly quantify those figures.” The project was initially viewed with some scepticism in Government circles, as there have been a high number of IT project difficulties with other software companies much larger than EXE (EXE report annual sales of approximately US$100 million (Nasdaq: EXEE)). “ We have shown how an integrated team with a good product such as EXE’s can deliver a project on budget and on time.

We’ve convinced the rest of the defence area that it can work”, comments a happy Colonel Ritchie. “ As for EXE themselves, they have met all of our requirements and in many cases have greatly exceeded them.”