

BAE Systems

keeps up Flight Operations with Infor Asset Management Solution

Background

BAE Systems is an international company engaged in the development, delivery and support of advanced defense and aerospace systems in the air, on land, at sea and in space. The company designs, manufactures and supports military aircraft, surface ships, submarines, fighting vehicles, radar, avionics, communications, electronics and guided weapon systems. It is a pioneer in technology with a heritage stretching back hundreds of years and is at the forefront of innovation, working to develop the next generation of intelligent defense systems.

BAE Systems has major operations across five continents and customers in some 130 countries. The company has more than 90,000 people and generates annual sales of approximately £12 billion through its wholly-owned and joint venture operations. BAE Systems was formed in 1999 as a result of the merger between British Aerospace Plc and Marconi Electronic Systems. Its prime contracting capability combines in-depth skills in systems, defense and aerospace, enabling it to manage the most complex high-level system tasks and provide total solutions. In aviation, the company takes a leading role in joint programs for military and civil aircraft such as Typhoon, Joint Strike Fighter and Airbus, in partnership with the world's other leading aircraft companies.

The BAE Systems sites in Warton and Salmesbury, Lancashire, are primarily involved in the defense aviation business, involved in the design and manufacture of the Typhoon combat aircraft, Hawk advanced jet trainer, Joint Strike Fighter and Nimrod MRA4 maritime reconnaissance aircraft. In addition, Warton is involved in the maintenance, upgrade and support of various other military aircraft including the Tornado and Harrier.

As a manufacturer of products each worth many millions of pounds, the associated tools, machinery and equipment is also worth millions, and it is essential for BAE Systems to be able to keep track of these assets. BAE Systems carries out work for a number of key customers, including the Ministry of Defense (MOD), Department of Defense (DoD), NETMA (Nato Eurofighter & Tornado Management Agency) and others.

It is common practice within this industry for the customer to fund the design and manufacture of tooling assets required for product manufacture, assembly and test. Customer requirements for accountability and correct management of this commodity are becoming ever more stringent, placing increased demands on the contractor to deploy totally effective asset management technology and processes. Therefore, there is increased focus on the audit of contractors to ensure that adequate controls are in place. It is essential that full asset tracking is in place to satisfy such audits. There are, of course, other highly significant benefits which come from such asset management best practice.

For these reasons, BAE Systems has been using Datastream 7i, an asset performance management system, for several years. This provides them with fully effective traceability of assets from demand through to disposal or return to the customer, as well as improved data integrity, risk mitigation and simplified generation of customer inventory reports.



Foreign Object Debris

As in any aviation business, flight safety is paramount and managing and keeping track of assets is not necessarily as simple and straight-forward as it sounds. It is of ultimate importance that no tool, piece of equipment or extraneous object be left on, or in, any part of the aircraft after the work has been completed; anything that is taken on to an aircraft must be removed. BAE Systems is driving the elimination of foreign object debris, known as FOD in the aviation industry, as anything, even something as tiny as a nut or bolt, left on an aircraft or in a piece of machinery can have horrendous consequences. According to Steve Frost, Warton Site Support Manager, "We have to be constantly aware of the dangers of FOD. Any item left lying around, from a sweet wrapper to a bolt or screwdriver, has the potential cause major damage to an aircraft at the very least, and a fatal crash, at the very worst."

There was much publicity after an incident which happened in September 1996, when a Tornado F3, which took off from Warton on a routine test flight after completion of a refurbishment program, crashed into the sea just meters from the sea wall and close to Blackpool Pleasure Beach. Fortunately no lives were lost, but given that this was a Saturday afternoon the potential consequences could have been catastrophic. The outcome of the lengthy enquiry was that a small piece of FOD had become lodged in the right taileron actuator, causing the plane to flip over into an irretrievable dive. As the production manager in charge at this time, the memories for Steve Frost are still very fresh in his mind, and he is passionate about how important it is never to get complacent about FOD.

Systems & Controls Best Practices

BAE Systems has strict controls in place to manage the elimination of FOD, including processes and policies, supported by the use of Datastream 7i to record the exact whereabouts of tools and equipment. The company uses barcode technology on all items, which are booked on to, and off, jobs using barcode scanners from the tool stores. Information on who is using which pieces of equipment is then automatically stored within Datastream 7i, which eliminates the need to fill in lengthy forms and enables employees to get back to the job as quickly as possible. All data is stored within Datastream 7i for an infinite period of time, providing the company with the information about the exact whereabouts and history of any piece of equipment at any given time.

With prestigious contracts also including the Joint Strike Fighter, in partnership with Lockheed Martin, BAE Systems is fully auditable and has to achieve certain standards and adhere to strict service level agreements (SLAs), which are dictated by the Customer. Datastream 7i reduces the risk of audit failure and embarrassment to the company by fully supporting this process and compliance with the Federal Acquisition Register (FAR).

Uses of Datastream 7i

The aim behind the implementation of Datastream 7i was to ensure the full control and accountability for customer-owned property across the whole of the Air Systems Division. The system is currently deployed across two thirds of Air Systems businesses, in line with Air Systems IT strategy. It is a proven solution for the management of tooling assets, providing accountability to their customers and strict control of tooling in an aircraft assembly environment, which is essential due to the potential threat of foreign object debris.



Datastream 7i currently manages 160,000 assets, which include fighter jets, missiles, assembly jigs, machinery as well as each technician's individual tool box, the majority of items are identified with barcodes. The process behind the booking out of tools for particular jobs is fully automated using the system. According to Steve Frost, "the objective was to track and manage the tooling lifecycle, from acquisition, through receipt, on to use and finally disposal—the key point being to ensure absolute aircraft safety through total accountability, which has been 100% successful. The system ensures that the right tool is in the right place, at the right time and in the right condition."

One of the main benefits to this is the time savings that have resulted from always knowing where things are at any given time. Steve says, "We've saved literally thousands of man hours that would otherwise have been wasted when you can't find the right tool." This means that employees can quickly get back to the job, rather than waiting around for tools to be found, and has resulted in substantial cost savings that would otherwise have just been swallowed up by the company. Datastream 7i has also given BAE Systems such rigid control on what tooling they have that they have been able to reduce tooling inventory in one area from 120,000 to 30,000 and close down an entire warehouse.

Datastream 7i is also in use at Apollo Logistics, which provides BAE Systems with a central logistics, storage and distribution facility for many items of tooling. Apollo Logistics has a system link into BAE Systems' server at Warton enabling them to access Datastream 7i, and operates within a 24hr SLA to BAE Systems. Apollo Logistics check the system twice daily for any tooling requests, and although they aim to turn the request round within 24hrs, they have a success rate of 75% delivery within 12hrs. Once a request has been made for a tool via Datastream 7i by BAE Systems, it is then booked out on the system by Apollo, and then booked into BAE Systems at the other end. This enables them to keep accurate track of all tooling and assets, which is essential considering the cost of certain items of tooling can be millions of pounds. According to Mark Poole at Apollo Logistics, "We also use Datastream 7i to generate invoices to BAE, and both sites have visibility of this so know what they will be charged in advance."

Production Maintenance, Estates & Facilities Management

As well as being used to manage tooling and flight safety, Datastream 7i is also used by the Facilities department at BAE Systems for all of their facilities management needs on 5 sites across the UK. This comprises of several functions including production maintenance, estates maintenance and contractor management, as well as the fire service, canteen and media services. The system is currently used by around 100 employees for production maintenance and 50-60 people with estates maintenance across the UK.

Possibly one of the most importance jobs of the production maintenance department is that of planned maintenance. Due to the nature of the business, BAE Systems has many items of extremely high-tech, precision machinery, which is used to machine parts of the aircraft to 10microns accuracy. The departments have a list of 60,000 planned maintenance jobs that need to be carried out every year, as required by health & safety regulations, Civil Aviation Authority (CAA) regulations, as well as the work required by the machinery manufacturers and production customers.



At BAE, production maintenance people are highly skilled engineers, and with 30,000 maintainable assets their skills have to constantly evolve to keep up with latest technological developments. For example, the company has invested in several ICY machines for new contract work worth many millions of pounds each. Datastream 7i has enabled BAE Systems to generate staffing efficiencies for particular jobs, based on the skill-set required to carry them out, which has meant that the lower-technology equipment is now looked after by the estates department, leaving the production maintenance team to look after equipment which requires their high levels of skill and qualifications.

The system helpdesk also helps with job recording with a team feeding maintenance and service requests directly into Datastream 7i. They receive an average of 10,000 requests each year, which are then distributed to the engineers. According to Steve Smith, Business Support Engineer, “weekly reports are produced using information from the system on work backlog, labor utilization and prioritization workloads, which enables staff to be very focused on improving efficiencies and benchmark themselves against industry best-practices.”

Summary

Datastream 7i has become an essential component of BAE Systems' FOD prevention and asset management strategy over the past few years, helping them continue to strive towards best practices and optimum flight safety. As one of the world's largest aerospace and defense companies, safety and best practice are of paramount importance. Datastream 7i provides the company with the ability to track and manage all tooling and government-owned assets, as well as production maintenance, buildings and facilities and calibration. With the system also rolled out to their logistics suppliers and contractors, they are sure of a seamless asset tracking solution all day, every day. According to Steve Frost, “we couldn't cope without Datastream 7i now, and I have no idea how we coped before.”



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