



BAE Systems Puts People First

▶ MES & Quality Customer Success Story



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Introduction

BAE Systems, plc, a British multinational conglomerate, is one of the largest Aerospace & Defense (A&D) companies in the world—the product of a 1999 merger between British Aerospace (BAe) and Marconi Electronic Systems. One of the company’s numerous global subdivisions is its U.S. based electronic systems division, which manufactures components and systems for the U.S. defense sector as well as various commercial industries.

Much like its parent organization, the BAE Systems electronics systems division has a legacy of several mergers and acquisitions, which resulted in a heterogeneous culture with numerous and disparate locations. With divisions and subdivisions all over the world, keeping their business running smoothly can be complicated.

When it came to change management in its US-based electronic systems division, BAE faced the same challenge: numerous physical locations, heterogenous work culture, and over 10,000 employees. All of this necessitated a streamlined solution for manufacturing execution.

With such a large workforce across diverse locations and market sectors, BAE Systems quickly learned the importance of capturing the necessary engagement across functions within the project lifecycle, from the generation of requirements to scenario testing and gap identification to training and post go-live support.

The Approach

In the end, a phased approach was deemed the best option. While BAE Systems originally envisioned a “Big Bang” type of roll-out that included a simultaneous five-site go-live, it was quickly recognized that this would have been an unsuccessful strategy largely due to the unwieldiness of the project’s people component, as well as a perception of too much risk to the entire business. With such a monolithic approach, there also existed no way to model and pilot new processes to evaluate and make any necessary adjustments based on collaboration and feedback.

The company decided to move to a more gradual, incremental roll-out, starting with two smaller sites going live initially and followed by three remaining sites in the following six months. This phased approach allowed for a much greater real-time evaluation of the effectiveness of the project and flexibility for any necessary adjustments required. It also allowed extra people resources to be deployed in a concentrated fashion to devote to different phases of the project.

“People will think it’s a technology-based project—it’s really a people project,” said Steve Rubenfeld, Manager of Operations Systems at BAE. “Think of who’s touching that software—it’s all people. People need to become accustomed; they need to be trained, they need to understand, and they need to embrace that change. You have to get them involved throughout the project lifecycle.”

The company set up a matrix of leaders covering functional areas across the project, including solution training, information training, supply chain integration, performance excellence, and especially—change management.

By bringing in dedicated change management assistance, the company was able to gain a clearer view of a current and future-state, and to better anticipate the impacts of project change on people and processes.

In evaluating the cycles of change, people involved within the project had a variety of professional and locational characteristics, including:

- Many different sites, with 5-25 factories of various sizes
- Skillsets
- Legacies
- Toolsets
- Processes

Communication Plan

The most critical point of the go-live phase is a plan around communication. For BAE Systems, no single method of communication proved to be superior, and the company used an array of communication methods to roll messaging out to its people, including emails, electronic signage, website, and direct people-to-people interaction. In-person communication is particularly important for plant floor workers who may not have the time or inclination for the other methods listed.

Training

The company developed role-based training guides as well as hands-on training classes by role with a top-down approach, “train the trainer” in MES (Manufacturing Execution System) functionality with intensive boot camps. In these sessions, the trainers were educated across many roles and functions to ensure cross-functional understanding and to avoid the creation of any silos.

Role-based guides created for:

- Operators
- Supervisors
- Process Engineers
- QA Engineers
- Tech
- Customer



Lifeguards

The company defines a “lifeguard” as a subject matter expert that completed a boot camp and is designated as a go-live resource. BAE Systems deployed multiple lifeguards across each factory representing various functions and areas. The company created a rating system for lifeguards to capture the feedback of workers across locations. In addition to supporting the go-live transition, their responsibility was also to form the basis for post go-live support as the first point of contact for resolving issues.

BAE Systems held daily meetings with lifeguards and management to receive timely feedback on any go-live issues to be able to adjust quickly, as necessary. Additionally, the company prepared detailed completion schedules and program readiness assessment for each factory to ensure proper support was in place. The company leveraged the pre-authoring work instructions feature of the solution to slowly roll-out new work instructions live.

BAE Systems created a centralized Web portal offering quick references, training videos, and announcements as a guide for its constant stream of new users.

To integrate optimally with the company’s existing ERP system, the company implemented the ability to move serial numbers independently, with the ability to view orders by serial numbers.

BAE also created customization around Engineering Change Order control, whereby open work orders related to previous revisions are placed automatically on production hold, and new work orders for the new revision automatically placed in work order create hold.

Another feature BAE Systems created to help with customer communications is what it refers to as a route card report. The company flows its MES data through a data warehouse to a real-time report for customers to view by an assembly or serial, and as a one-stop-shop for information on that particular serial.

The Results

In its second phase of MES go-live, BAE Systems has accomplished many things that have increased the flexibility, agility, and visibility of its manufacturing processes, including:

- Developing an interface for test equipment
- Enhancing part traceability
- Performing manufacturing audits using the next release of its MES backported to its current version
- Communicating special instructions without alterations to orders
- Printing labels directly off the work order
- Handling Bill of Materials specific alternate parts

The company's next phase is to systematically implement the top 10 enhancements of the MES forum, delivered in three packages. Future projects include updating the client browser to be more user-friendly as well as updating to the next MES release version.

When undertaking a major software solution implementation like MES, organizations must engage and incorporate the feedback of the full spectrum of the affected workforce at the very onset of the project, not at the end. Adequate time and project runway—the degree to which will be conditional on the size, scope, and complexity of the implementation—must be accounted for at the project's start.

To ensure the right level of engagement from the workforce, careful consideration must be given to change management, including the creation of SMEs to work cross-functionally within the workforce to educate employees, effectively handle project backlash and misunderstanding, and escalate any concerns that arise, as necessary. It requires close attention to the perspective and perceived value of plant floor employees as well as management to ensure they embrace a new system without reservation and that role-based value is communicated and accepted.



About iBase-t

Headquartered in Lake Forest, California, iBase-t is a software company that simplifies how complex products are built and maintained. Founded in Southern California in 1986, iBase-t delivers solutions that ensure digital continuity across manufacturing, quality, and maintenance, repair, and overhaul (MRO) operations on a global scale. iBase-t's Solumina Manufacturing Operations Platform is a cloud-native solution that establishes a digital ecosystem to drive innovation and improve operational performance. With offices in the U.S., UK, France, and India, iBase-t customers include Lockheed Martin, Northrop Grumman, Rolls Royce, Pratt & Whitney, and Textron.

The Solumina Manufacturing Operations Platform by iBase-t consists of an integrated suite of MES, SQM, and MRO solutions. Designed for complex, highly regulated discrete manufacturers who seek to digitally transform their operations, Solumina connects manufacturing operations, quality, and sustainment management in a seamless flow of data across the value chain and product lifecycle.

The Solumina Manufacturing Operations Platform creates the technology infrastructure manufacturers need to harness advances in model-based functionality like PMI continuity, Assisted Engineering Changes and augmented reality guidance for the workforce, IIoT connectivity for equipment, new levels of intelligence for decision making, and higher levels of customer and supply chain collaboration.

Learn more at ibaset.com.



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