MASS
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Unlocking Your Data Saves Lives

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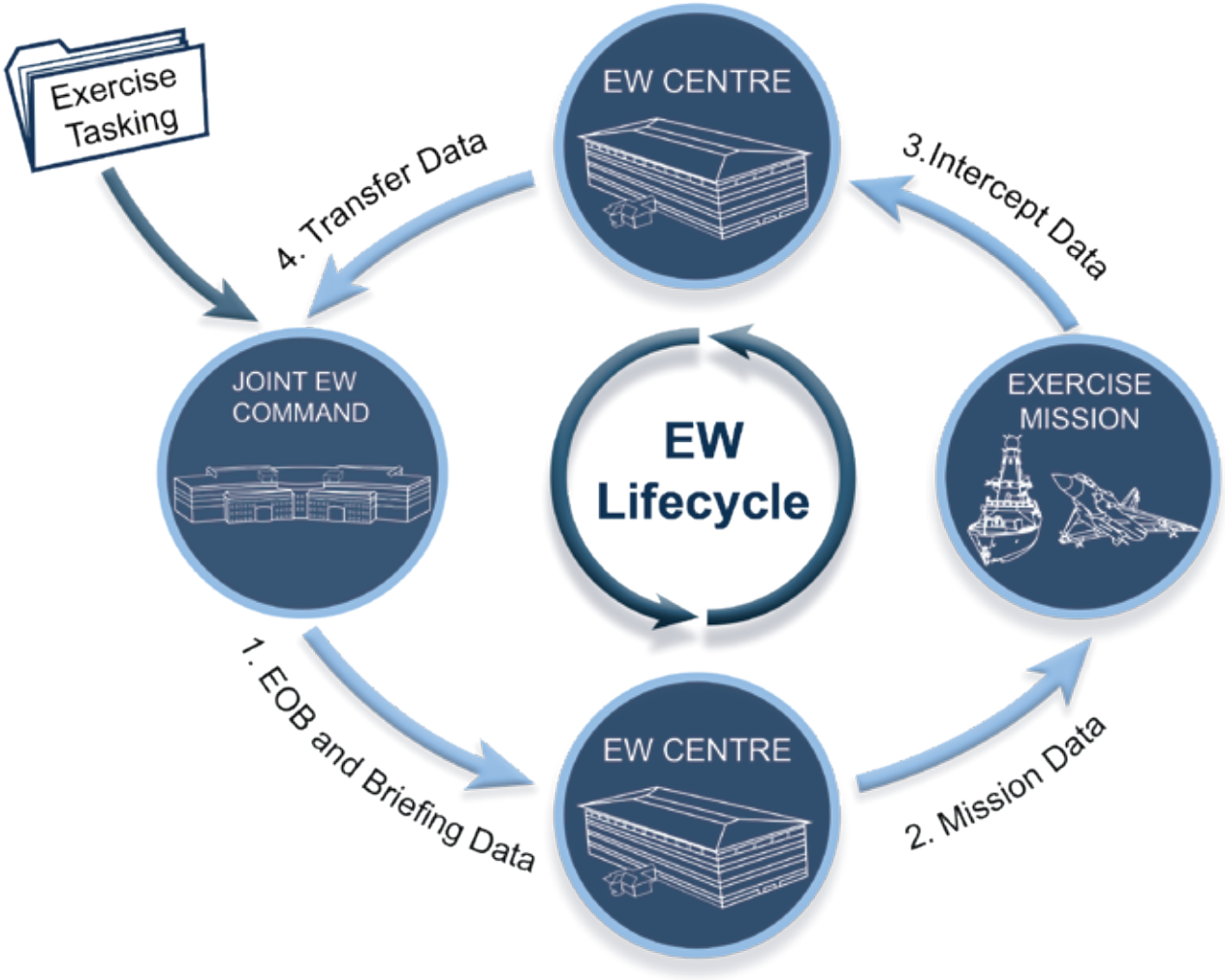
Successful Missions Start Here

War fighters are more reliant on effective Electronic Warfare (EW) data management than ever before. Modern platforms depend on increasingly sophisticated on-board EW equipment, which in turn rely on EW data to provide mission data sets, threat libraries, tactics and countermeasures.

Yet EW Operational Support (EWOS) is undergoing change at an unprecedented rate, driven by a ten-fold increase in data consumption in as many years. Without upgrading their core data management capabilities, EWOS Centres risk falling behind the needs of their users. Platform survivability is put at risk, both in the sovereign domain and in collaboration with partners and allies

This article describes a way to radically increase EWOS Centre productivity and to reduce support costs, by unlocking data and automating the EW support cycle in a unified EW data management system.



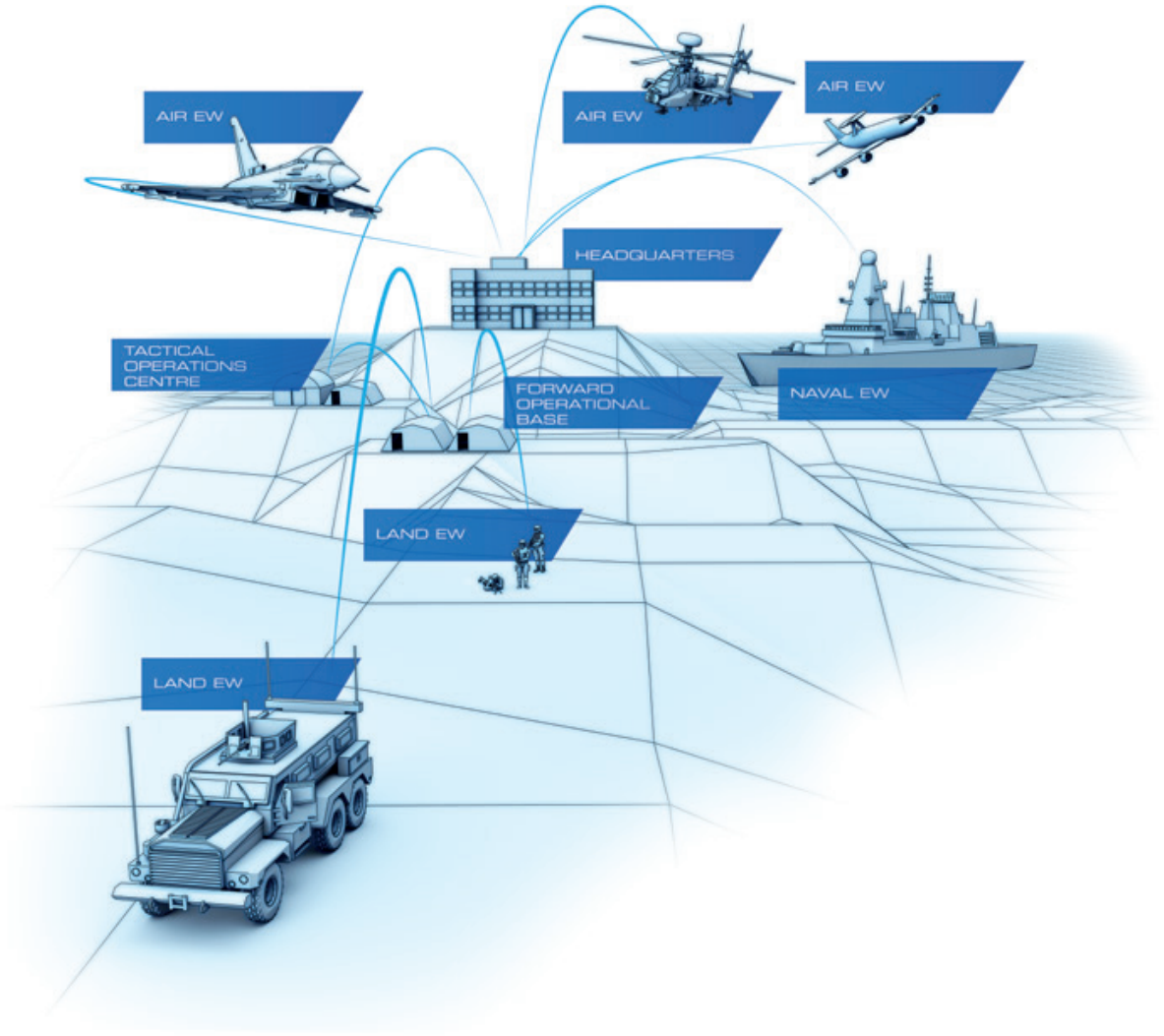
EWOS Centres Face Increasing Data Management Challenges

EW systems are growing in diversity and sophistication, with new sensor technologies generating large, complex data sets at every sortie. EWOS Centres need to turn data from these increasingly complex sources into usable intelligence. Operational requirements are driving the need to converge EW intelligence across air, sea and land domains, enhancing collaboration with partners and national allies.

Yet most systems do not share data beyond their manufacturer's proprietary data format. EW equipment suppliers are unable to combine data from multiple platforms, or share data with hardware from other Original Equipment Manufacturers (OEMs).

EWOS Centres have little choice but to maintain a wide variety of niche EWOS processes and interact with numerous incompatible systems. Effort is duplicated throughout the EWOS lifecycle: to acquire multiple data feeds, merge data into a single situational picture, transfer data into countermeasure development tools and then programme a range of mission equipment.

There will always be valid reasons to use equipment from multiple OEMs. However, the intelligence produced and consumed by all deployed equipment must be under the direct sovereign control of the EWOS Centre Commander.



Platform Survivability is at Risk Without Effective Data Management

Intelligence locked in diverse, incompatible systems threatens the quality, integrity and availability of mission support data. For progressive EWOS Centres, this causes several problems

Inadequate platform protection

Data locked in diverse, proprietary systems often results in delays supplying up-to-date mission data to front-line platforms. Delays may in turn jeopardise mission readiness. Working at tempo, operational platforms may embark on missions without the latest intelligence on threats. Lives are put at risk without effective countermeasures.

Poor integration across platforms

Exploiting intercept data collected by one platform to monitor threats to another platform is near impossible when the mission support systems are isolated and incompatible. Sharing data across land, sea or land domains adds additional challenges and even more EW systems into the mix. Although EW equipment OEMs may be experts in developing EW systems, they are not necessarily expert in EW Operational Support. As such, OEMs would not necessarily offer solutions to sharing data with competing suppliers. The burden of data integration, and the associated risks, remains with the EWOS Centre Commander.

No support for end-to-end EWOS process

OEM analysis tools and databases are focused on supporting their own equipment, but do not support the whole EWOS life cycle. A key example is where OEM mission systems provide EW data to the platform but don't satisfy the needs of countermeasure development and mission data testing. When this happens, countermeasure development and testing (whether via simulation, trials or operational feedback) suffers from poor data sharing with the remainder of the EWOS process, impacting efficiency and the quality of outputs. Both activities can become isolated and poorly understood, requiring niche skills that often rely on verbal communication of intent to the mission data programmers, which is prone to error. Platform survivability is reduced because mission data may not be tested as robustly as it could be and countermeasures may not be wholly effective against operational threats.

Duplication of effort

The processes for extracting, analysing and using that data is essentially the same, but in practice duplicated, for each system.

EW staff are locked into standalone processes and switching tasks can cost valuable handover time. This constraint means that EW Commanders may struggle to respond to peaks in operational demand or deliver their nation's commitment to joint operations.

Inefficient Staffing

EWOS Centre staff carry the training burden of learning to use different mission support systems that carry out similar functions. Drawing from an already limited pool of scarce manpower, manning such a labour-intensive, duplicated and manual process can be a real drain on human resource. Inefficient use of technically skilled, scarce manpower draws personnel away from valuable intelligence analysis work and can be demotivating.

Working with toolsets that fall well behind the integration capabilities commonly seen elsewhere in industry affects an EW specialist's perceived career prospects and jeopardises staff retention.

Limiting strategic choice

OEMs continue to uphold their own proprietary data formats, which in turn coerces customers into buying new EW systems from the same OEMs so that mission support systems will interoperate.

Enhancement and maintenance projects are also locked into existing suppliers and rarely competitively tendered to drive out value for money.

This OEM lock-in is anti-competitive and drives up acquisition, maintenance and support costs across the lifespan of the equipment.

An Independent, Integrated Systems Approach

Understanding how multiple data sources need to be managed throughout the EWOS Cycle allows us to derive capability requirements and the top 10 design principles for a world-class EW Data Management solution.

	Requirements	Solution
1	Unlock data to enable interoperability	Data formats based on open industry standards
2	Ingest of data from multiple collector sources	Modular 'connectors' to harvest proprietary data into a central EW data store
3	Merging numerous data structures	An extensible metadata model to unify proprietary EW data into a coherent database
4	End-to-end process support	Role based workflow, embedding best procedures and practice, using common data sets
5	Easy to maintain ICT hardware	A system designed and built on standard, robust COTS hardware
6	Data under secure sovereign control	A secure, industrial strength Oracle database at its core
7	Template and ad hoc reporting	Easy to read, definable report formats including maps, graphics and all outputs required for Electronic Order of Battle
8	Rapid programming of mission equipment	An accessible XML output capability designed to interface with all OEM equipment
9	Freedom to connect new equipment or merge partner capabilities at speed	An EW Data Management System architected to adapt and grow
10	System support from EW experts	An independent, expert supplier of training and support services dedicated to EWOS Centres

Table 1: Top 10 design principles for a world-class EW Data Management System

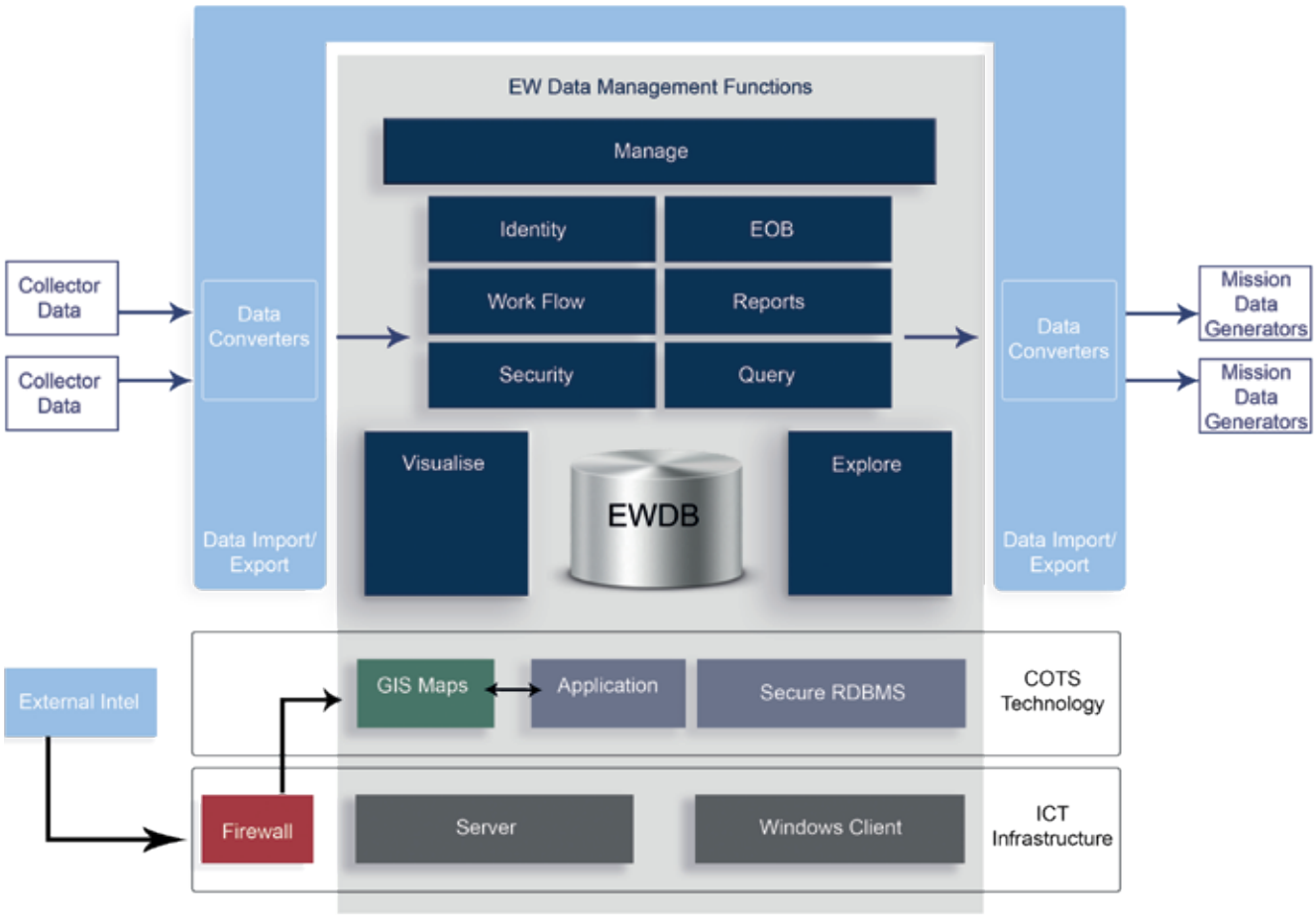


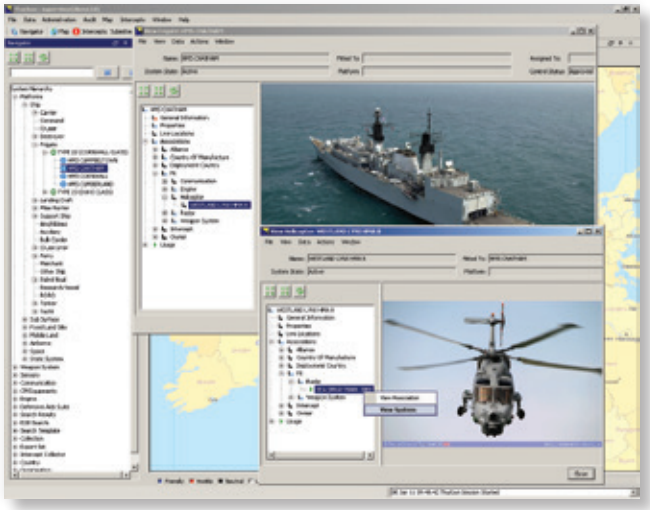
Figure 2: A High Level EW Data Management System Architecture

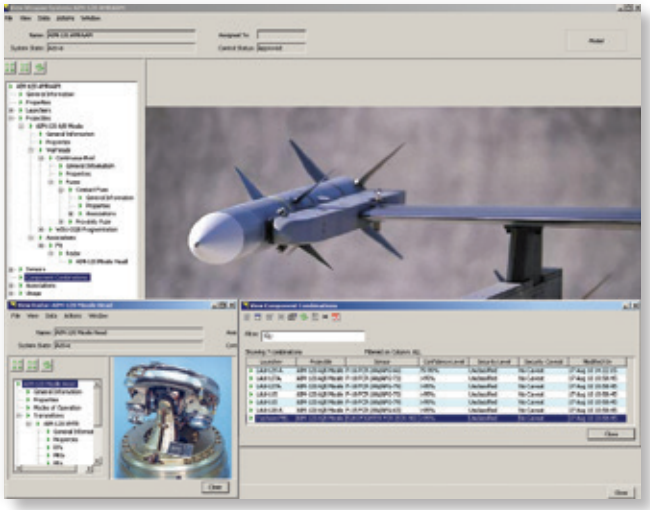
Benefits for all Stakeholders

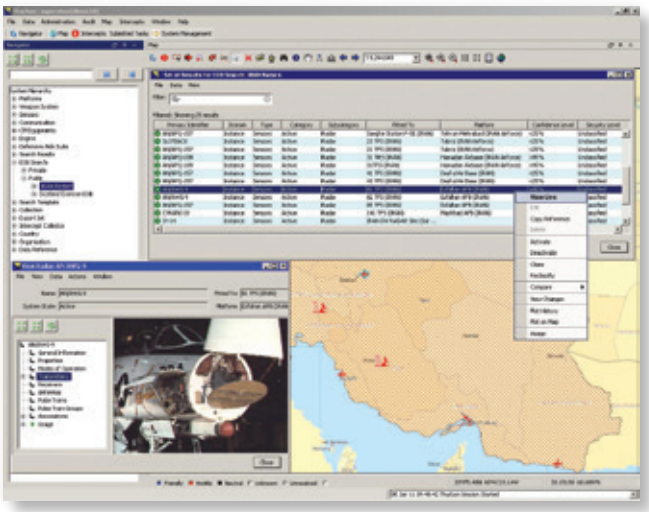
An independent yet integrated EW Data Management System such as THURBON® delivers a range of benefits for the Platform Operator, EW Analyst, EWOS Centre Commander and Financial Authorities.

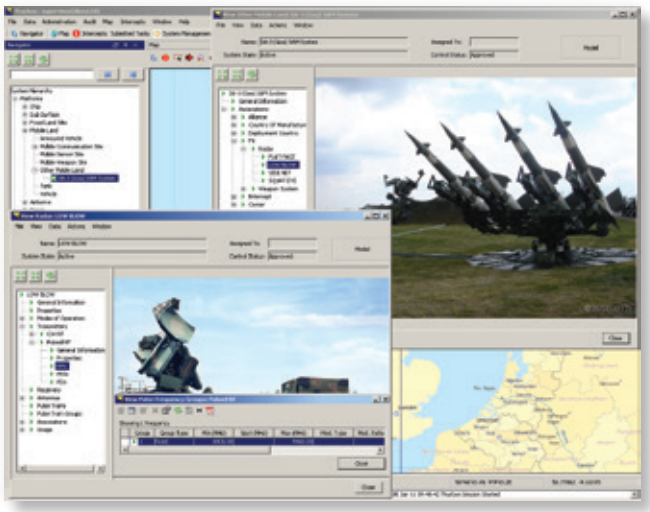
Front line protection for the Platform Operator • Improved platform protection using high quality data, drawn from a wider range of sources and tools • Reduced mission turnaround times through end-to-end process automation, accelerating development of mission data sets and countermeasures • Improved mission success.	**Reliable and fast intelligence delivery for the EW Analyst** • Data under control in a unified data management system • Managed interaction with OEM mission support systems through agreed interfaces • Quality data to exploit analysis tools, producing higher value outputs.
World-class service capability for the EWOS Centre Commander • Independent capability to respond to the needs of national and joint operations • An EWOS Centre that sustains a modern EW data management infrastructure and a 'platform' for continual improvement • Better deployment of EW expertise to satisfy 'customer' needs	**Efficiencies and choice for the Financial Authority** • Reduced support costs through systems consolidation, and reduced operating costs through increased staff productivity • Building indigenous capability and freedom to choose whichever EW systems best suit the military need • Negotiating power in all future procurements.

Table 2: Benefits of an integrated EW Data Management System









MASS' experience of supporting EWOS Centres around the world is that a modern data management system, developed and enhanced over many years, is the only feasible way to ensure a robust EW capability.

Combined with world-class skills and training, unlocking your data saves lives.

For further information, please contact ewos@mass.co.uk or call +44 (0)1480 222600

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