

Enabling operational advantage
through agile, integrated and
scalable training

Maritime Simulation and Training

Performance where it counts

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Enabling operational advantage



Maximising operational effectiveness, improving platform availability

At BAE Systems, we cover the whole training lifecycle from initial analysis and design, solution development and testing, through to full warfare training system integration, delivery and in-service support.

Exploiting our experience in the design, manufacture and support of complex platforms and equipment, we have developed a high-fidelity maritime battlespace simulator, MIMESIS to enable customers to gain operational advantage.

MIMESIS supports the design teams of platforms and combat systems in conducting test and integration, augmenting or replacing real world testing with the provision of highly realistic synthetic stimuli; enabling the acceleration of programmes and reducing the operational risk of new systems and upgrades.

MIMESIS enables navies to test evolving sensors and weapons, evaluate doctrine for new threats, and it can be deployed into concept and assessment teams to enable high-fidelity experimentation and analysis of proposed new capabilities.

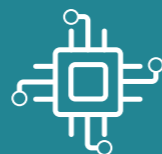
Our portfolio



Training analysis and design



Warfare training systems



Capability analysis and experimentation



Test and integration

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Maritime battlespace simulator



Battlespace simulation delivering mission advantage

The MIMESIS synthetic environment provides a high fidelity representation of the maritime warfare environment and everything in it; from terrain and seabed, to weather and underwater acoustics; accurately modelling the movement and behaviour of ships, submarines and other platforms, and digitally replicating their unique capabilities including combat management systems, sensors and effectors.

MIMESIS can be used for:

- Capability Analysis and Experimentation
- Test and Integration
- Warfare Training

MIMESIS enables high-fidelity replication of real threats and environments with stimulation of the warfighting operational software. Tailored scenarios and behavioural models can be ingested and utilised to enable realistic assessment and comparison of current versus future capabilities.

Integration with support

Enabling navies to float, move and fight

We provide training to bring people from the classroom to the frontline. We have a full suite of training solutions suitable for training individual skills through to teams operating in joint forces exercises. We do this by simulating the tactical environment and place high-fidelity platform representations (including weather, sensors and weapons models often using real operational software) into the environment.

The training can link multiple crew stations across multiple platforms enabling individuals and groups of individuals to develop the skills required to become highly effective warfare operators.

Individual training

From training schools to training media and devices we provide Officers and Ratings with the knowledge and skills they need to be successful.

Team training

Created for surface and sub-surface maritime environments we design and build training solutions to ensure warfare operators are highly practiced and effective.

Collective training

From command teams to multi-nation navies, we provide a broad range of customisable live and synthetic training systems that are available at onshore training facilities or on sea-going platforms.

Our portfolio



Training analysis and design

Offering a fully integrated service through our professional services team, our experts provide end-to-end training needs analysis, course design, content creation and consultancy. Our team is particularly well versed in providing these services for complex new products and platforms entering into military service.

- Training event management - Providing agile and tailored management, assurance, validation and integration of third-party training solution delivery services.
- Curriculum design, development and delivery - Generating naval warfare and technical engineering syllabi, instructional design and delivery materials and specification, procurement and integration of major training devices.



Training analysis and design

Training management

Our training management perspective means we take all the inherent challenges into account, whether they be pan-domain (individual and collective), cross-discipline (warfare, engineering, logistics) or critical learning (career, continuation, pre-joining).

Maintaining optimum delivery requires us to constantly adapt and look for opportunities to influence and maximise our impact across training and support.

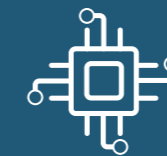
We work with technology to help deliver comprehensive, integrated and optimised solutions, as well as continuously improving and modernising those solutions to deliver even better effectiveness.

By adopting this approach throughout we enable customers to realise significant benefit across integrated programme schedules, reducing programme risk and enhancing long-term value for money - maintaining optimum delivery, coherency and support through life.

Capability analysis and experimentation

Through advanced capability analysis and experimentation, we enable customers to evaluate, test and assure novel concepts, weapons, sensors and doctrine in a safe high-fidelity environment. A broad range of high fidelity interconnected models enables evaluation of "system of systems" concepts and the generation of complex scenarios that incorporate new weapons, new sensors and new threats in any combination.

Our platform enables the testing and development of new tactics and doctrine, and facilitates the assessment of operational concepts and the human demands associated with emerging capabilities. Through high-fidelity experimentation, we provide comprehensive insights for both conceptualisation and assessment of current and future capabilities.



Capability analysis and experimentation

Powered by MIMESIS®

Central to our capability analysis and experimentation is MIMESIS, our maritime battlespace simulator providing a synthetic environment with high-fidelity representations of the maritime warfare environment, including combat management systems and operational software for all warship sensors and effectors.

With tailorable scenarios and behavioural models, we enable rigorous assessments and comparisons of present and future capabilities. Our simulator also supports in-depth human factor interface analysis, ensuring the operability and effectiveness of proposed capabilities prior to deployment.



Delivering high-fidelity, on-board synthetic training and mission rehearsal to enhance operational effectiveness.

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Warfare training systems

From individual crew training through to preparing for a full joint services command team exercise, and using MIMESIS, our high-fidelity maritime battlespace simulator, we accurately simulate multi-domain environments, the platforms and their systems to enable complex live, virtual training. Our solutions benefit from using real operational software to drive unrivalled simulation fidelity and better training outcomes for our customers.

- Submarine training - Definition and development of training solutions, including courseware production and maintenance, infrastructure, training equipment/ media and wider training support services.
- Major surface platform warfare operator training - Provision of reconfigurable warfare training in a high-fidelity simulation environment to individual and team operators, enabling multi-site continuation training and facilitating joint training with allies and coalition partners.
- On-board synthetic training - exploiting operational Combat Management Systems on-board and amplifying these with simulation capabilities enables on board deployment of proven in-service training system solutions.
- Major surface platform warfare operator training - Providing reconfigurable warfare training in a high-fidelity simulation environment to individual and team operators, enabling multi-site continuation training and facilitating joint training with allies and coalition partners.

- Mine warfare training - Generating high-fidelity mine warfare command and operator trainer solutions for the UK Royal Navy and its allies.
- Command team training - Enabling warfare teams to develop the skills and expertise needed to deliver mission success.

Powered by MIMESIS®

MIMESIS provides high-fidelity training using our digital twin technologies to enable navies to safely train on-board as individual ships and as part of a wider task group.

This allows for a blend of live, virtual and constructive synthetic training for each ship, with different modes of operation in exercise waters or congested open waters, with safe separation of live operational systems from the synthetic training and mission rehearsal digital twin.



Warfare training systems



Test and integration

Our Test and Integration toolset supports design teams in the deployment of capability upgrades and the introduction of new platforms into service.

Through the provision of highly realistic synthetic stimuli, we can augment or replace real world testing, enabling the early proving of system capabilities and system of systems interactions, facilitating the acceleration of programmes and reducing the operational risk associated with new systems and upgrades.

Powered by MIMESIS®

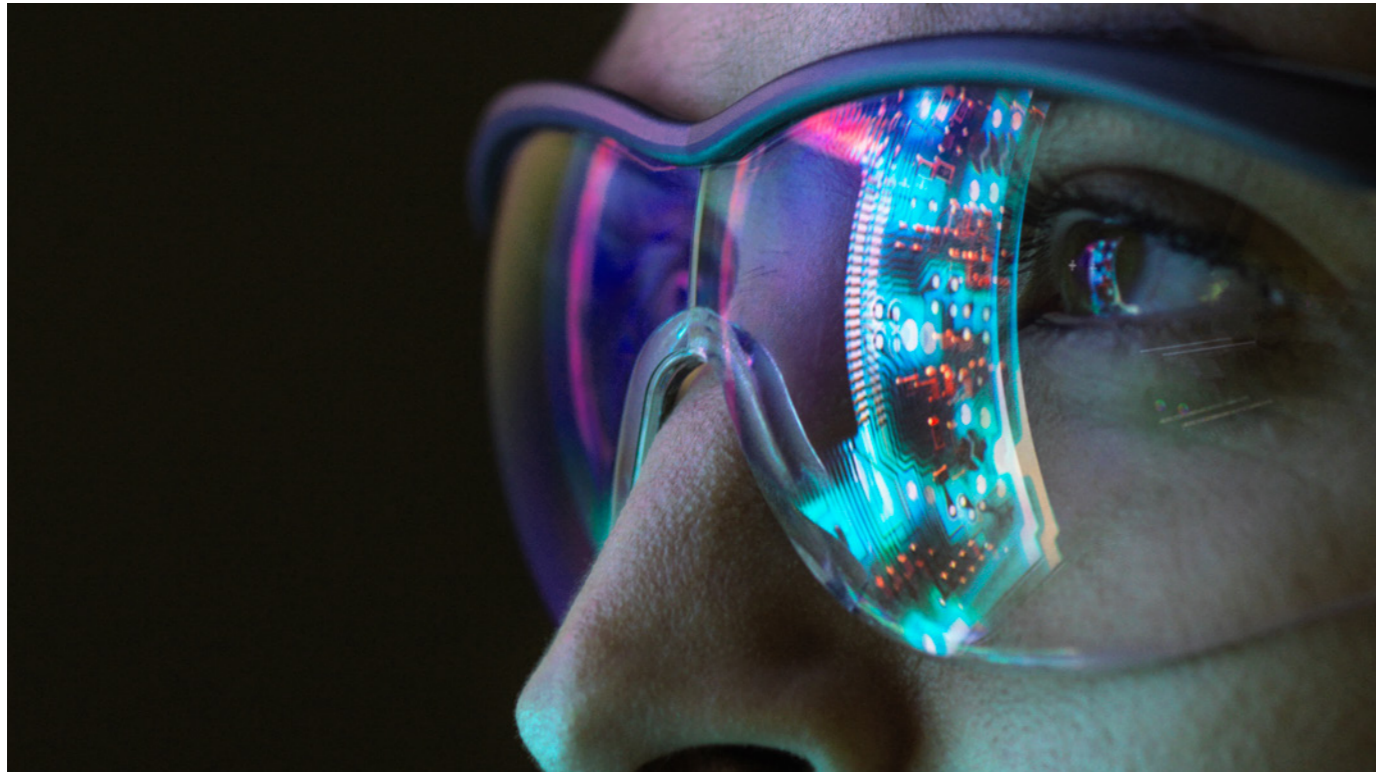
To enable ongoing integration testing, assurance and validation of complex platforms' systems, prior to deployment, our maritime battlespace simulator product suite provides high-fidelity digital twins of platforms' warfighting systems, including stimulation of all sensors and effectors.

MIMESIS provides the simulation systems for land-based test and reference sites for complex platforms and enables design teams to ensure that sensors and effectors are safely integrated into combat management systems.



Test and integration

Support from our subject matter experts



We ensure military personnel are capable and ready for maritime operations.

Our systems engineering specialists leverage their combat systems design expertise to transform their operational and support requirements into trainer and training requirements. They support procurement and development, as well as the holistic integration of solutions for entry-to-service need.

Many of our training specialists have military training backgrounds, holding relevant defence training qualifications. They understand the culture and values of the UK Royal Navy and its allies.

Most are ex-Navy operators and maintainers, with experience as instructors and instructional designers within defence training establishments.

Others are ex-Navy training managers with experience in the development of training strategy and policy, training needs analyses, the procurement and acquisition of training, and the management and validation of training delivery.

Through a collaborative approach with government, military, industry and the supply chain, we design and deliver fully integrated and comprehensive training solutions, ensuring military personnel are capable and ready for maritime operations.

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Proven training and simulation solutions for the Royal Navy



Warfare and command team training

BAE Systems is the leading manufacturer of warfare operator training solutions for the UK providing all the Royal Navy's command team and warfare team trainers across surface, sub-surface and mine warfare.

Designed, developed and supported by BAE Systems in partnership with the Royal Navy, the facilities replicate Operations Rooms found on-board all the Royal Navy's major warships.

These high-fidelity training solutions use an optimised blend of operational software and emulations to provide a realistic and safe environment to enable warfare operators and teams to learn and practice their skills using threats and a battle tempo that cannot be replicated in live training.

Integrated workforce



Creating synergies and interoperability

BAE Systems is one of the world's largest defence, aerospace and security companies with a highly skilled and motivated workforce.

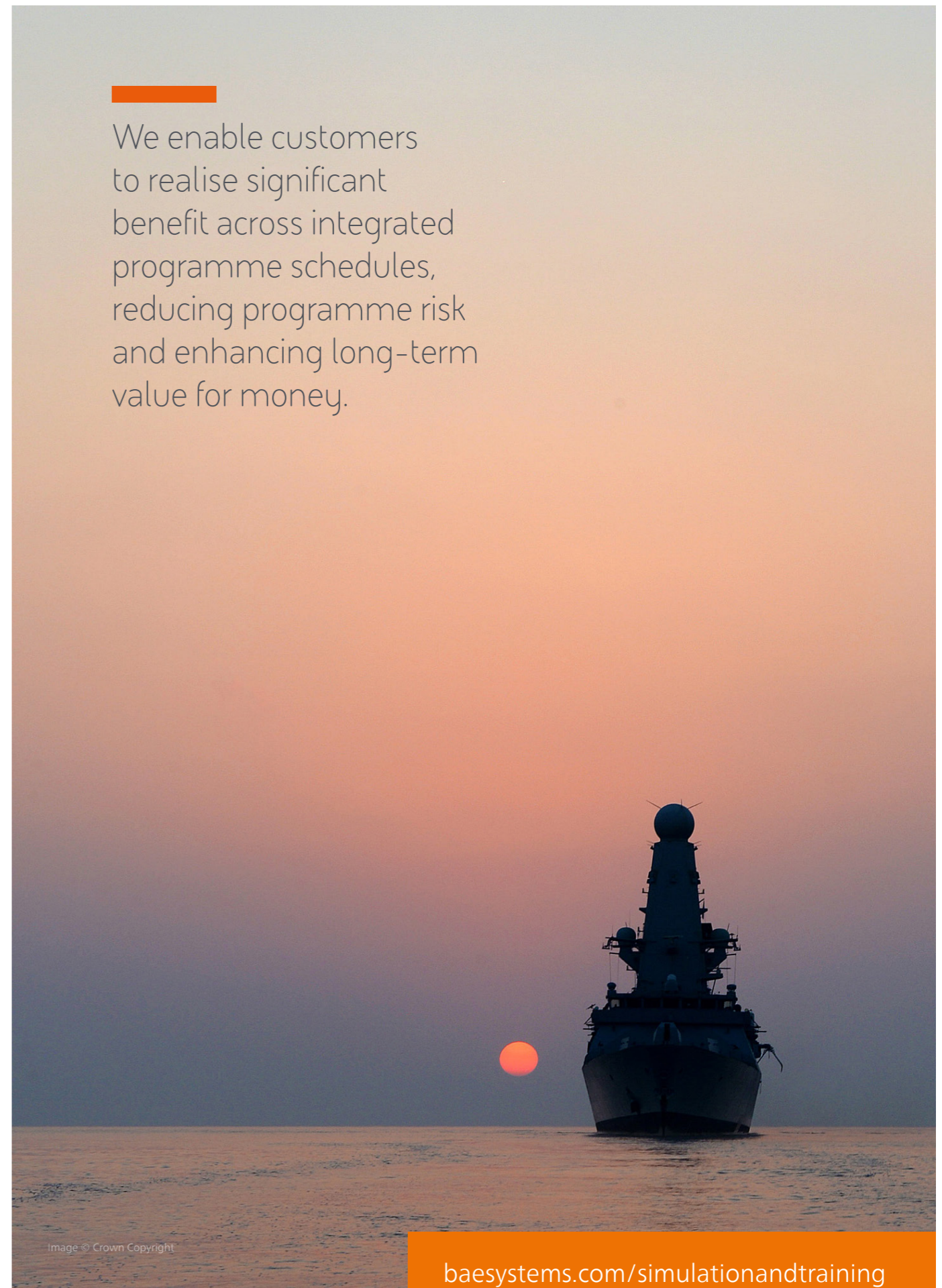
We seek opportunities to help reduce any decline of engineering 'SQEP' (Suitably Qualified and Experienced Personnel), and rebuild confidence by sharing skills across military and industrial workforces.

By taking a fresh look at how we deliver training and support alongside and during deployed operations, we

aim to ensure the ships' companies are better able to diagnose and remedy problems, support surge capacity and reduce reliance on expensive contingent solutions.

Providing broadening employment and experience opportunities across organisational boundaries can help to achieve this. Through developing and sharing skills across operational and organisational boundaries we are able to create synergies and interoperability.

We enable customers to realise significant benefit across integrated programme schedules, reducing programme risk and enhancing long-term value for money.



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