



AI and Data Services

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About this service

BMT provide AI and data services which are focused on user needs and support mission-critical decision making in Government, Defence and Security. We translate user needs into well-defined AI, ML and data problems and build operational solutions ranging from rapid prototypes to production-grade cloud deployments. BMT have a long history working in the defence, security and public sectors.

We specialise in:

- **Generative AI** for domain-specific scientific and analytical tasks
- **Machine Learning (ML)** for supervised and unsupervised learning
- **Reinforcement Learning (RL)** for autonomous decision environments
- **Computer Vision** and **Natural Language Processing** for multi-modal data handling
- **AI Ethics & Explainability** for safe, responsible, human-centred AI
- **Data Governance & Management** aligned to DAMA and Defence data standards

Our delivery model is **cloud-focused**, platform-agnostic and uses modern tooling such as Azure Machine Learning, containerisation and cloud-scale MLOps.

When to use this service

Use Data and AI Services when you need to:

- Develop or scale **cloud-native data and AI solutions**
- Build AI where **safety, assurance and ethics** considerations are essential
- Apply **generative models** to domain tasks
- Detect **misinformation, cyber threats or anomalies** using ML
- Process and exploit **imagery, document or sensor data** at scale
- Improve **AI readiness** with robust data management, governance, and modelling

What we deliver

BMT's primary business is to provide design and support services to government departments and commercial organisations. BMT has over 20 years' experience in providing technical consultancy and support services to major programmes and projects. Key to these services is BMT's software capability including hosting, support, testing and development of bespoke and Commercial-Off-The-Shelf (COTS) software applications. BMT is certified to ISO 9001/27001 and TickITplus. BMT staff are UK Security Cleared.

Below are the **service modules** included within this unified Data and AI Services offering.

1. Generative AI

- Domain-specific generative models for scientific/technical problem solving
- Large Language Models (LLMs) for chatbot creation, bespoke to a domain
- Transformers for predicting cyber threat sequences of actions
- GenAI + RL for molecular/energetics discovery

2. Machine Learning

- Big data processing for sensor and satellite data, including dimensionality reduction techniques
- Neural Network approaches for timeseries forecasting
- Graph Neural Networks for detecting and classifying misinformation in social network data

3. Data Analytics & Agentic AI

- Data discovery, cleansing, transformation and storage
- Data scalability handling techniques
- Agentic workflows that support human decision making

4. Reinforcement Learning (RL / MARL)

- Multi-Agent RL (MARL) for autonomous cyber threat decision-making and automated response for military systems, with performance evaluation
- Explainable RL to provide decision rationale
- Meta-RL for more efficient learning

5. AI & Computer Vision

- Automated corrosion detection in vessel imagery using Convolutional Neural Networks
- OCR/object/entity extraction for security and operational data
- Propaganda/abuse imagery detection

6. Natural Language Processing

- Document triage, data extraction and classification
- Topic modelling

- Sentiment analysis

7. AI Ethics & Responsible AI

- AI assurance and ethics frameworks with safety policy development
- Human-in-the-loop and Explainable AI

8. Data Management & Governance

- DAMA-aligned data governance
- Defence/JSP440/GDPR/Data Privacy compliant processes
- AI readiness and data maturity assessments
- Data modelling (schemas, metadata, provenance)
- AI-enabled metadata automation and document-access optimisation

What benefits we provide

- **Faster adoption** of AI/ML with cloud-native, scalable delivery
- **Improved insight and efficiency** through automation and analytics
- **Mission-readiness** for Defence/Security AI applications
- **Trustworthy AI** through explainability, ethics and HF integration
- **Data maturity uplift** aligned to Defence and DAMA standards
- **Reduced R&D risk** using BMT agile processes and multidisciplinary teams

How we work with you

We work collaboratively with product owners, analysts, SMEs, mission teams and cloud engineers. BMT's multidisciplinary workforce includes:

- AI researchers
- Data scientists
- Data engineers
- Software developers
- Cyber security specialists
- Human Factors experts
- Business Analysts
- Solution, systems and mission-systems architects
- Platform and asset specialists

As an **employee-owned trust**, we provide **independent, unbiased advice** without commercial conflicts. We use **agile delivery** and embed **knowledge transfer** throughout.

How we deliver this service

We understand the Government, Defence and Security domain and its operational environment. We use our domain expertise and experience to realise your business needs and goals. We understand State of the Art (SOTA) algorithms, tools and techniques. We use agile work principles and will work collaboratively with your team to ensure success.

The AI/ML/Data Lifecycle:

1. **Frame & plan:** Define outcomes, risks, constraints and governance.
2. **Data & preparation:** Build data pipelines, catalogues, privacy/security controls.
3. **Model build:** Develop models or pre-trained models where appropriate.
4. **Evaluate & assure:** Define and apply metrics, explainability, usability/HF trials.
5. **Deploy & integrate:** Deployment, APIs, dashboards, monitoring.
6. **Operate & improve:** MLOps (drift detection, retraining, lineage); learning loops.

Experience

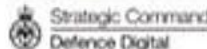
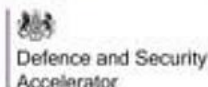
BMT sit on a range of Academic, Industrial, Defence and Government AI boards and committees including:

- UK MOD AI Strategy Board
- The UKRI Centre for Doctoral Training in Accountable, Responsible and Transparent AI (ART)
- Vision and Imaging Technical Network, IET

We are passionate about engaging with and investing in the communities in which we operate. Our work is internationalised recognised, and we have published and presented at:



Innovation and Collaboration: We work with domain experts; our multidisciplinary teams are collaborative bringing projects closer to operational readiness to meet mission objectives. Our previous and current customers include:





Contact details

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