

Data Science and Advanced Analytics



BAE SYSTEMS

We are Techmodal

A collaborative data consultancy, bringing the capability and creativity you need to unlock the strategic potential in your data.

As Defence and Government experts, we understand the unique complexity of your constraints. Adaptive, imaginative and iterative, we meet you where you are – and start with what you have.

We focus on making more of your existing tools and technology. Applying smart thinking and continuous improvement to uncover the insight in your data – and help you move past your stickiest problems. Optimising your investments, operations and outcomes. Maximising the impact of your resources towards a better future.

Our clients operate in high-stakes, highly technical and highly secure environments. The pace is fast; the demands are complex and the cost of getting decisions wrong is high. They need partners who bring clarity, precision and practical expertise — not complexity for its own sake.

Our value comes from combining deep analytical strength, applied technology expertise and hands-on consulting experience. We turn ambiguity into clarity and insight into action.

What we offer

We operate at the cutting edge of digital innovation and at the heart of organisations that keep vital infrastructure running, national security protected, and armed forces prepared. Our teams provide:

Decision advantage

We give organisations the insight to act with clarity and pace, ensuring choices made today hold up under tomorrow's pressure.

Our strength comes from being data-led, operationally aware and grounded in real-world context. We explore options, test scenarios and highlight trade-offs before action is taken, building confidence in complex and high-consequence environments.

Technology that works

We help organisations unlock the full value of their technology and existing investments. Our solutions are shaped to our clients' environments — secure, scalable and designed for reuse — delivering faster outcomes and greater value for money.

We stay user-driven, not technology-driven, ensuring what we build is usable, dependable and impactful.

Delivery impact

We work shoulder-to-shoulder with clients to turn ambition into results. Our approach is collaborative, adaptive and focused on rapid progress.

We build momentum early, provide clear answers before the conversation moves on and ensure delivery stays aligned to purpose. Whether defining strategy or supporting implementation, we bring clarity, structure and practical leadership.

Strength in secure and complex environments

All our work is delivered by security-cleared teams who understand the realities of Defence, national security and critical infrastructure.

We design and assure solutions that are resilient, secure and governed — engineered to work in environments where constraints are real and reliability matters.

Powered by BAE Systems Digital Intelligence

We combine the pace, creativity and agility of a specialist consultancy with the depth, reach and security of BAE Systems.

Clients benefit from a unique blend of niche expertise and enterprise-scale capability, with seamless access to Digital Intelligence, engineering, cyber and equipment programmes when required.

Service Overview

Techmodal has 20 years' experience of applying data science methods to address our clients' business challenges. We help our customers to digitise workflows and enhance those workflows with Artificial Intelligence (AI).

We employ the latest tools and thinking in the field of data science and analytics to help our customers derive maximum value from their data. We have proven experience of handling data sets in a wide range of formats and at various degrees of scale, quality, complexity and maturity to reduce manual effort, produce sustainable insights and develop decision support tools.

Techmodal specialises in developing solutions iteratively and responsively, addressing initial requirements and flexibly accommodating changes during the development process. We work collaboratively with our clients to deliver projects at the full range of maturity and Technical Readiness Level (TRL), from data discovery and strategy to capability demonstrators and hosted production applications.

Our service combines our extensive technical expertise with a sharp focus on business need. We bring expertise in all aspects of data science, including experience of developing forecasting, classification and optimisation algorithms and utilising the latest in Natural Language Processing (NLP), Computer Vision (CV) and Generative AI (Large Language

Models, AI Agents, and Agentic AI) to address challenges of unstructured image, text, video and audio data. We have a demonstrable track record of employing the latest vendor tools and open-source technologies, along with proven solution deployment credentials, utilising both cloud and on-premises infrastructure and working in secure, constrained environments.

Our delivery methodology is ISO9001-compliant and follows the Government Digital Services (GDS) framework as follows:

Understanding Your Data (Discovery)

We begin with an exploratory discovery phase where we ask every question we can of both the user community and the data. We assess user needs, build a clear understanding of business challenges, context and constraints and capture user stories to inform future phases.

We perform data discovery, applying statistical analysis to understand existing data structures and highlighting data quality issues early so we can take proactive steps to improve this over the project. The outputs of this phase are:

- Clear answers to a small number of well understood and scoped questions.
- An assessment of what can currently be achieved and what questions could be answered with additional sources.

This phase focuses on adding value; the benefits are understood from conception and managed through delivery.

Concept Creation (Alpha)

With a detailed understanding of the user requirements and the nature and structure of the data available, the next phase is a solidifying capability demonstration. This Alpha phase includes experimentation and testing to ensure any solution we develop is fit for purpose and meets business needs. Extensive feedback and thorough testing (including CI/CD validation & Unit Testing) are central to our development approach.

As firm believers in ethical development practices, we ensure that all models are explainable; our clients understand how any outputs are determined, bringing confidence in the work we deliver.

Concept Validation (Beta)

Our Beta phase takes the concepts developed in Alpha and ensures they work in a representative operational environment. This includes extensive user testing and feedback as we iteratively develop and improve our offering throughout a project. This ensures the final product is delivering against the user stories and benefits identified in Discovery. Delivered solutions are stress-tested to ensure they can handle data outliers and control for data drift from inputs. This also helps ensure scalability; the solution scales to meet

both current demands and future growth without the need for extensive redevelopment work.

Production Models (Live)

In the Live phase we focus on deployment and integration of any solution, hosting seamlessly within suitable infrastructure (on-premises or cloud) and connecting to all relevant data feeds. This includes integrating the solution with downstream systems that use the insights, while retaining the ability to build upon the project should further requirements emerge. This ensures the solution is sustainable. We provide clear technical documentation and well-written, formatted, and commented code.

We ensure all calculations and assumptions are validated and satisfactory to the client. This is combined with working to influence the cultural attitudes our clients have towards their data, such as unawareness of the full value of their data until tangible insights have been generated.

By working with our clients to establish a chain of consequence from data source to output, we demonstrate the potential their data holds. We enable them to recognise other business problems that might benefit from similar solutions. This creates a positive feedback loop on improvements in data quality and outputs, essential to a sustainable solution.

Flexible Deployment and Hosting

We work with our customers' existing technology stacks wherever possible to maximise the pace of delivery, align with wider digital and data strategies and derive maximum value from existing investments. To support this, we are experts in using a range of COTS and open-source tools and platforms, ensuring we can bring the most effective solution to our customer's challenges.

Techmodal has repeated experience of developing and deploying data science and analytics solutions on customer platforms, including on-premises infrastructure and cloud environments such as Amazon Web Service (AWS), Microsoft Azure, Oracle Cloud Infrastructure (OCI) and Google Cloud Platform (GCP). Our work spans different classification levels, and we have experience of MODCloud (AWS, Azure and Palantir Foundry), Army Hosting Environment (AHE) and Navy Digital environments.

Service Features

- End-to-end discovery and development, from AI strategy to AI deployment
- Latest in Machine Learning and AI technologies
- Natural Language Processing, Computer Vision, Large Language Models, Agentic AI
- Repeatable data processing and Extract Transform & Load (ETL) pipelines
- Model deployment via DevOps/DevSecOps pipelines
- Clear, ethical development practices and outputs that empower end users
- Intuitive User Interface for seamless interaction between human & AI
- Service delivery follows Government Digital Services (GDS) framework and ISO9001
- Explainability and transparency
- Chain of consequence from data source to output

Service Benefits

- Proven approaches and model architectures
- Strong track record of deploying data science and analytics solutions in secure environments
- Scalable solutions, either on-premises or cloud
- Flexible infrastructure and hosting options
- Vendor agnostic and experienced in open-source software
- Greater utility from existing data
- Enhanced business decisions
- Business insight through powerful data visualisation
- Better awareness of critical information
- Improved process efficiency
- Increased understanding of cost, and ability to better manage risk
- Financial performance improvement
- Enabling delivery of strategic objectives
- Managing compliance to contractual, legal and policy requirements
- Improved resilience through scenario modelling

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