

Data Engineering



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 deep experience in data engineering tools, processes, and technologies. We have worked with our clients to develop solutions across the full range of maturity, from data discovery to production software applications. Techmodal understands that data engineering done well provides an organisation with rapid, easy access to the data it needs, when it needs it.

We build data engineering solutions to drive automation of business data and process flows, including real-time data ingestion and surfacing. We remain focused on maintaining flexibility, designing for scalability, and ensuring cost-effectiveness. Our Data Engineering service enables clients to benefit from a solid foundational data platform to increase the pace of further development and avoid being bogged down with unmanageable, unscalable solutions.

We are vendor agnostic and will always aim to leverage existing client technologies and technology investments, to maximise pace of delivery, align to customers' digital strategies and deliver greater value for money. 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.

Our data engineering specialists have proven experience across a variety of technology stacks, tools and programming languages, including Microsoft Azure, Amazon Web Services (AWS), Oracle Cloud Infrastructure (OCI), SQL databases, NoSQL (e.g. MongoDB), Databricks, Azure Data Factory, data streaming technologies (e.g. Kafka, PySpark), Apache Airflow, Alteryx, Microsoft Power Platform, Python, TypeScript, JavaScript, containerisation technologies (e.g. Docker, Kubernetes) and more.

Our solutions are deployable on-premises or within cloud infrastructure. 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.

Our delivery approach is ISO-9001 compliant, and we follow Government Digital Services (GDS) Agile principles and deliver using the Discovery-Alpha-Beta-Live cycle. We work closely with our clients to understand the business requirement, their data and technology landscape, and determine the best fit solution. After understanding the root causes of business and user challenges, we scope possible architectures and/or solutions with the following guiding principles:

- Flexibility: Experience with data warehousing solutions has taught us data requirements can change and grow with time.
- Granularity: Starting at the lowest level of granularity provides the most flexibility to enhance solutions and capacity in future.
- Simplicity: Implementing best practices to enable growth and reduce risk to future development.
- Scalability: Data and computing requirements can rapidly grow. We design solutions with the future in mind.
- Cost Effectiveness: We use our experience across multiple platforms and tools to identify the best approach within budgetary requirements.
- Automation: Our solutions are designed to reduce or eliminate manual intervention.
- Agility: We work using GDS Agile practices and develop using iteration, close stakeholder collaboration and change management processes – adding value early and often.
- Robustness: We utilise robust and refined testing practices to ensure the integrity, usability, and maintainability of our solutions.

We regularly work in secure and constrained environments and understand the need to obfuscate data or generate synthetic data to support development and testing. We have developed our own reusable toolset to mask sensitive data, giving us the ability to build out workflows, pipelines, and data models on representative data securely. Our toolset can also be used to extrapolate large volumes of representative data from a small initial data

set. This generates usable synthetic data in sufficient volume to aid development of appropriately scaled solutions.

Service Features

- Big Data cloud solutions for effective Business Intelligence (BI)
- Processing structured, semi-structured & unstructured data
- Understanding data requirements for sustainable analytics
- Data cleansing, enriching and feature engineering
- Data warehouse design & implementation
- Data migration from on-premises to cloud
- Real-time data processing
- Automated reporting
- Automated data pipelines
- Combining disparate data sources
- Database management & tuning
- Technical consulting
- Distributed computing
- Query tuning
- Data obfuscation and synthetic data generation

Service Benefits

- Scalable solutions, either on-premises or cloud
- Flexible infrastructure and hosting options
- Proven approaches and architectures
- Strong track record of deploying solutions in secure environments
- Rapid access to data to enable data-driven decisions
- Improved data quality
- Infrastructure to enable predictive and prescriptive diagnostics
- Reduce future costs of future BI & Data Science projects
- Managing security & compliance
- Single source of truth
- Transformation enablement

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