TECHMODAL

DATA SCIENCE

We apply Data Science techniques and tools to real-life business and operations challenges which cannot be addressed by more traditional technical approaches

CHALLENGES WE SOLVE

Optimisation

Finding the best acceptable answer, given a particular set of conditions.

Unstructured Data

Images, videos, audio files, and free-text documents. Techniques such as natural language processing, acoustic analysis and computer vision enable exploitation of this data.
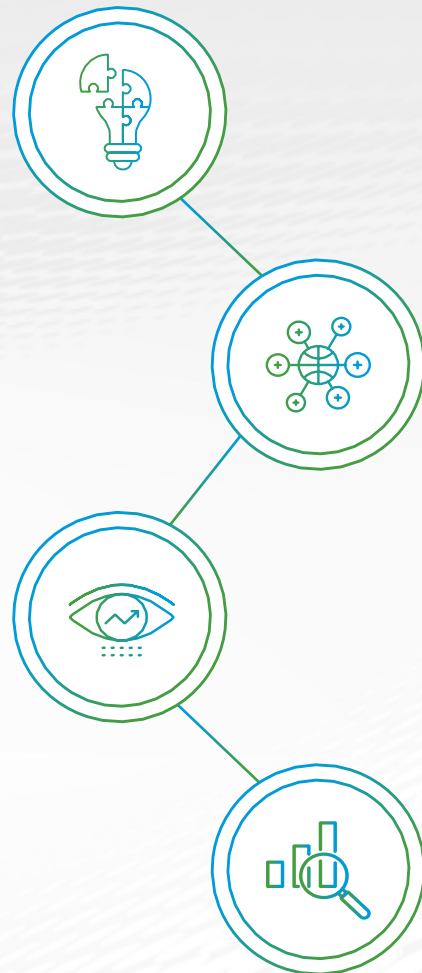
Complex System Modelling

Simulate and better understand complex systems. This includes Agent-Based, Discrete Event, and Semantic, among others.

Forecasting

Understand and predict trends, enabling organisations to:
- Use resources more efficiently
- Estimate recurring costs
- Predict future events

WHERE WE APPLY OUR APPROACH

Defence Data Analytics Platform (DDAP)

The DDAP is a secure data and analytics platform used by the Defence Artificial Intelligence Centre (DAIC) for data science experimentation and prototyping.

We have been part of the team building the DDAP and we continue to develop and deploy Data Science applications to answer complex questions across Air, Space and Weapons domains.

Fast Jet Scheduling App

Using genetic algorithms, we built a scheduling optimisation app for fast jet training programmes, reducing the time taken to create an optimised training schedule from weeks to minutes.

Rapid NLP Search Engine

Within 6 weeks we built an NLP-powered search engine, enabling users to visualise citation relationships between documents using an interactive graph network. This saved multiple hours per user.

Geospatial analysis for Space Command

For Space Command we built a geospatial analysis capability, providing satellite image change detection and search, reducing reliance on manual analysis, saving time and increasing the pace of decision-making.

Front Line Commands

The Royal Navy

Techmodal has been embedded in the Data and Navy Applications (DNA) Data Science delivery cell, working alongside Navy personnel and Industry partners.

We have delivered data science applications and processes to streamline processing and analysis of post-mission underwater platform data, quickly identify events of interest, and improve operational efficiency, reducing analysis time from weeks to hours.

We built a prediction engine and integrated dashboarding to support monitoring of critical systems and maximise the operational efficiency and capability sustainment for the UK's Carrier Strike Group achieved in minutes rather than days.

The Army

Within 8 weeks we built a user-facing app with integrated algorithm to optimise assignment of military personnel into roles, accounting for multiple variables such as personal circumstances, career development and suitability. The app enables review and iteration ensuring best-fit outcomes against Service and Personnel priorities. Initial assignment matching is achievable in minutes.