AI and Data Science Consultancy Services

Translating data into actionable intelligence that drives critical decision-making

As our reliance on technology increases, sensor-driven devices, enterprise data and open data sources are becoming more prevalent in our everyday lives. These sensors are collecting huge amounts of data about the devices themselves and how we are interacting with them. In the military environment, this could be traditional IT equipment, mobile devices and weaponry, along with highly valuable capital assets like vehicles and aircraft.

Accurate, meaningful insight

As a result, the volume of data being collected, and made available for analysis is increasing exponentially. These data sources are also becoming increasingly varied and complex. So, knowing which sources to interrogate and how to process the data quickly and accurately, is a critical challenge for military decision-makers. Artificial Intelligence, or AI, and advanced analytics technologies that deliver accurate and meaningful insight are becoming a top priority.

Fujitsu understands the military environment better than most. We have applied this experience to our AI and Data Science Consultancy Services to deliver the requisite skills and expertise required to translate data into actionable military intelligence. By employing the necessary AI, data mining and machine learning techniques, we can help to identify the usable data and understand its relevance to seek innovative ideas and solutions to real-world problems.

Triple Helix – bridging the gap with industry

Fujitsu's consultancy-led approach is designed to work collaboratively with customers to build bespoke, yet responsible, AI solutions to automate, optimise and extract insights that improve their operations and services. Our ultimate aim is to extract the maximum value from the available data.

Fujitsu is acutely aware of the importance of ethical and responsible AI and the potential risks posed by the development of unethical AI systems. As a result, we are closely engaged with industry, academia and government as they continue to investigate and develop best practice and guidelines to ensure the ethical use of AI solutions across a wide range of industry applications.

shaping tomorrow with you

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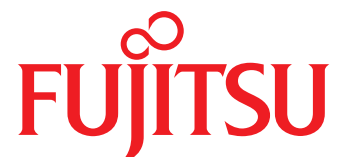
This 'Triple Helix' approach is bridging the gap with industry, enabling agile, innovative yet responsible and ethical adoption of IT.

With such huge volumes of data now being generated, identifying which data is most important to your operational needs is a critical challenge. Once this key data has been identified, it needs to be manipulated into meaningful intelligence that informs critical decision making. Fujitsu's approach to data science greatly increases the capacity of the volume of data being interrogated in a fraction of the time, and the resulting analysis drives a far greater level of insight that would not have previously been possible.
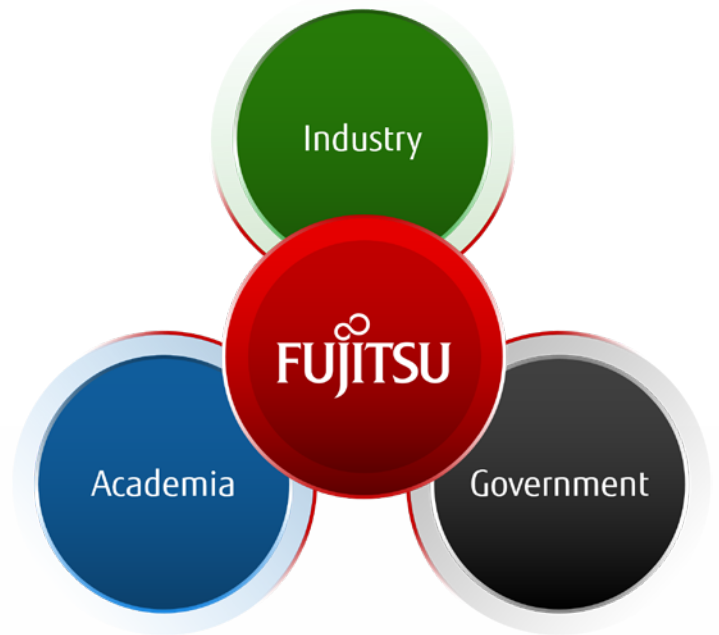
Data sources from different trusted levels can also be layered, allowing users to make sense of all data and information available, trusted or not. Such analysis generates incredibly powerful insight that analysts can then use in a far more meaningful way to inform future decision-making. Our data science services also include:

Data Engineering

Where no standard format for data collection and recording is present, we create a bespoke set of algorithms and tooling to ensure data is standardised prior to analysis.

Data Quality Assessment

AI is only as good as the data behind it, and as such, this data must be fair and representative to ensure that it can be used in a non-discriminatory way. We recognise that bias can be an inherent problem when using AI as a decision-making tool, so we optimise your data sets to minimise data bias and ensure they can be interpreted fairly and add value.

Data Annotation

This approach labels the data available in various formats like text, video or images. Labelled data sets are required for supervised machine learning, so that machines can easily and clearly understand the input patterns. Such approaches like active learning can help create labelled data from the huge volumes of unlabelled data sets that are collected and stored.

Synthetic Data

Fuelled by huge advances in algorithmic innovation, today's AI-models are incredibly data hungry. While having huge volumes of data available is essential, synthetic data can sometimes be created to aid the development of a solution. Synthetically generated data can assist organisations and researchers to build reliable data repositories needed to train, and even pre-train AI models.

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Innovative solutions to real-world scenarios

It can often be expensive and - especially in the military environment – risky, to test and apply real-world scenarios. So, having the ability to replicate these applications in a sterile, risk-free environment can be hugely beneficial. A wide variety of real-world operational scenarios can benefit from the application of AI and data science services across a myriad of different environments. Here are just a few examples where we have applied these techniques:

AI Simulations

Fujitsu has recently acted as the technical lead in an exciting collaboration with the University of Manchester that could potentially enhance military training programmes. The project looked in detail at how the application of AI-based simulations currently used by the video gaming industry can help to evaluate decisions common to a military logistics supply network. The results of the project were presented recently at the 2020 NATO Modelling & Simulation Group Symposium (MSSG).

Digital Twinning

By replicating existing physical objects, infrastructure, systems or processes in a digital twin environment we can create a virtual representation of the real-world scenario. Various parameters can then be adjusted and tested to evaluate their impact within a sterile, laboratory environment, to find the optimum solution. This improves decision-making, enhances learning and helps to dynamically understand how a product is performing, both now and in the future.

Scenario Planning

We are able to apply multiple scenarios to the available data to conduct course of action analysis. This helps to evaluate the size and severity of any impact any changes may have to a particular event or other actors within that scenario using agent-based modelling techniques. For instance, what impact will a temperature increase have on the performance of a vehicle, and its occupants on a given journey.

Machine Learning Ops Environment

Once the AI scenario has been created and tested, it is ready to be deployed. But in order to introduce AI into its real-world scenario, we need to understand the tooling required to bring it into a live production environment. Creating a machine learning operational environment helps us understand what we need to have in place to fully leverage the AI that's been created.

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Case Study
Health Usage Monitoring System (HUMS)

Challenge
Create an algorithm and toolset that predicts component failure on military vehicles, as well as the vehicle's future availability, while also enhancing the scheduling of vehicle maintenance.

Solution
We took the raw, unprocessed data of the vehicle fleet and optimised it to allow it to be analysed. Once analysed, an algorithm was created which presented the likelihood of component failure over a user-defined timeline.

Outcome
Fleet managers, maintenance engineers and operation planning staff can confidently know the availability of vehicles at any given time with a high degree of accuracy, based on real-world data. This has enabled the military to move to a conditions-based maintenance regime, meaning vehicle maintenance can be scheduled based on the actual condition of the vehicle and its components, rather than time-based. This has resulted in a reduction in rudimentary maintenance which has delivered a significant cost saving, while increasing vehicle availability. This capability can also be coupled with Fujitsu's GlobeRanger RFID asset tracking solutions that accurately monitor and assess the conditions of a specific asset.

Case Study
Fujitsu Information Management Portal

Challenge
Provide a user community with a single view where information can be discovered, connected, de-risked and governed centrally, before being shared. Creating such a portal will improve information visibility to the user through intelligent natural language search and retrieval methods across disparate data modalities, like text, imageor audio.

Solution
We developed an information management portal consisting of bespoke AI functionality to help manage information efficiently, while also aiding the user during their discovery process. Data used for concept purposes was predominantly open information (e.g. Twitter, Wikipedia) facilitating the move to incorporating open source intelligence.

Outcome
The end result is that users will be able to triage and identify key factual information quickly to provide timely insights for effective decision-making outcomes.
This is made possible by providing the user with a 'connected view' of this unstructured data landscape with the right tools to answer key strategic objectives in a timely manner.
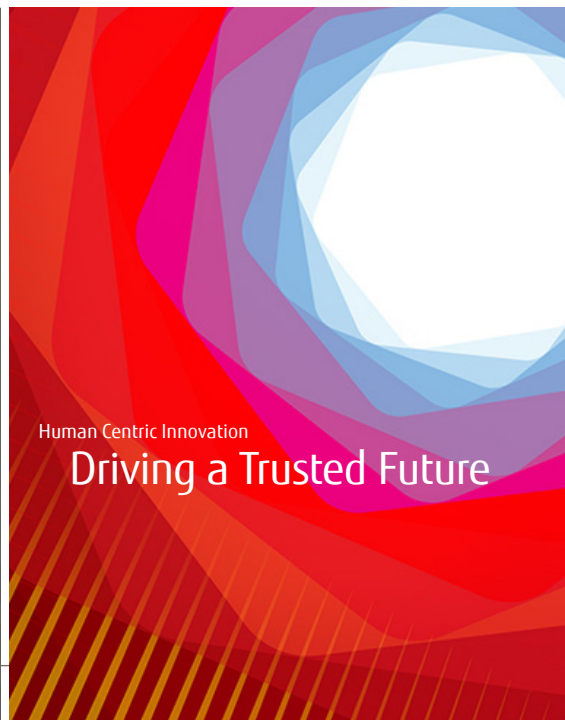
Why Fujitsu?

For over five decades Fujitsu has been a major supplier to the MOD, Government Departments and intelligence communities, co-creating new technologies and capabilities. As a result, Fujitsu has around 4,000 security cleared UK staff and the experience to deliver and manage both generic industry offerings and those tailored to specialist needs at **OFFICIAL**, **SECRET** and **ABOVE SECRET** classifications.

Enabling *Your* Information Advantage
In today's complex, digital operational environment, never before has information been such a key asset in securing operational advantage. Fujitsu's vision is to provide customers with the means to translate complex data into useful information upon which to base critical decisions and actions.

Transforming this ever-increasing pool of data into meaningful, useful information through analytics, automation and genuine Artificial Intelligence is critical to achieving this goal.

Fujitsu is fully committed to working closely with our customers, and through the use of co-creation will seek to enhance capability both through the acceleration of existing processes, and also through the delivery of truly new capabilities and ways of working. Our approach is based upon maximising both existing investment and best-in-class innovation, delivering the full spectrum of capabilities needed to enable *your* information advantage.

Human Centric Innovation
Driving a Trusted Future