A QinetiQ company

GCloud 14 Service Definition

About Naimuri

Naimuri is a software development house specialising in data intelligence solutions.

Working exclusively in partnership with several government and law enforcement agencies, we help to make the UK a safer and better place by creating software, cloud and data analytics solutions that deliver transformative mission impact.

Founded as an SME in 2015, Naimuri was acquired by QinetiQ (a world leader in defence, security and critical national infrastructure) in 2020, after a half-decade of year-on-year growth. We now employ over 180 software development, cloud infrastructure, business change and design, and data science and analytics specialists.

Our work is enabled by deep commitments to innovation, Agile ways of working, and an extensive network of academic contacts that ensures future customer roadmaps are informed by the latest academic research.

Our success has been founded on our customer focus, proven track record in delivery, and the diversity, creativity and expertise of our people.

Agile at Naimuri

Naimuri means 'not overburden' in Japanese, an ethos which inspires and informs the lean, Agile approach we apply to everything we do - Naimuri was born of the need for Agile, and we have an innate understanding of how Agile methodologies simultaneously simplify, support and expedite project delivery, communications and forecasting.

Our success in helping customers realise transformational mission impact using Agile is founded on an appreciation that true agility doesn't just relate to how Software Development, Data Science and Business Change teams work.

Developing and delivering in an Agile way also increases product quality, delivery speed and customer satisfaction, and effectively empowers our customers to make informed choices
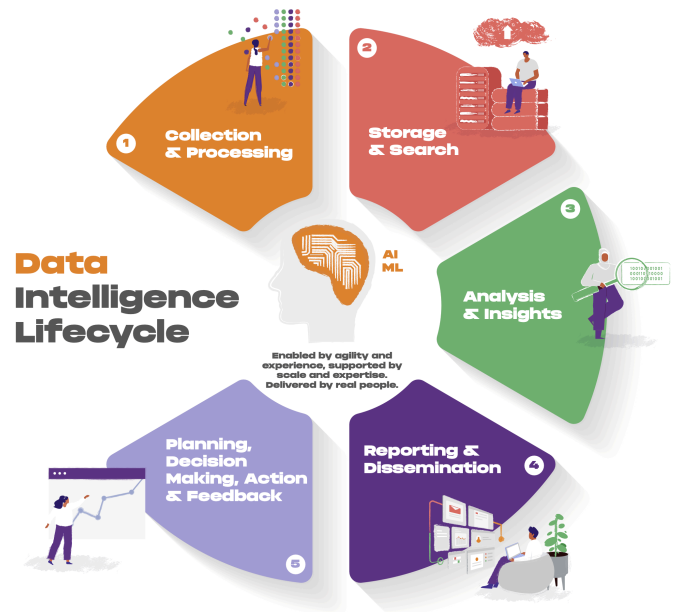
and retain control of their decision-making processes.

Our deep understanding of how Agile simplifies, expedites and supports project delivery, communications and forecasting (and why non-Agile projects typically fail) has been acquired through many years' of experience in successfully implementing Agile methodologies within the law enforcement, homeland security, defence, and secure sector domains.

Introducing Naimuri's Data Intelligence Centre of Excellence (DICE)

Naimuri's Data Intelligence Centre of Excellence (DICE) is an innovation hub for Data Intelligence expertise within our business, with a mission to continuously develop areas in which we excel and push the boundaries of what is possible.

Enabling consistent, ever-improving deliveries at scale, and providing a catalyst for creating new and innovative technology and capability through R&D and engagement with industry and academia, DICE is founded on PACE: **Partnerships**, **Acceleration**, **Capability Development**, and **Excellence**.

Partnerships - We establish and develop collaborative partnerships with our customers, academia (we maintain a roster of 200+ academics within our network) and other technology companies and SMEs (such as Elastic, AWS, Neo4j and Microsoft) through DICE.

Our commitment to creating effective partnerships is evidenced by our creation of our flagship TAG (Tech, Academia, Government) events, which were established to share innovative ideas, showcase insights, and demonstrate how state-of-the-art academic research might address real-life challenges at the heart of UK Government and Defence.

Bringing together leading academics from across the north of England and representatives from several government agencies, TAG events explore the interface between real-life challenges at the heart of government and defence, by applying the latest innovative ideas, data, and state-of-the-art research from academia.

We also supervise and author projects for MSc and PhD students, and work with University departments to help shape their curricula.

Acceleration: At Naimuri, we take pride in delivering tangible benefits to our customers within days and weeks (rather than months) using a proven suite of Accelerated Capabilities which help deliver mission impact at pace; these capabilities include:

- **Data Labs:** Comprising a structured one or two week programme, where we work collaboratively to understand the fundamentals of data challenges, deliver working solutions, and explore possibilities that lead to demonstrable benefits and mission innovation, Data Labs connect our customers' data to some of UK's best Data Science talent, and explore the insights that can be obtained using state-of-the-art Data Science techniques.

- **Innovation Sprints:** Our team collaborates with customers to explore a challenge, find a solution, and bring it to life with a working prototype, which is typically produced in a very short space of time (i.e. from just one week).

- **Accelerated Discoveries:**

  Too often, the design and build stages of new technology are hampered and slowed by an unclear understanding of the business requirements driving the new technology and the end users who will rely upon it.

  Naimuri Accelerated Discoveries are a fast and Agile approach to requirement gathering and design commencement which supports effective cloud development.

  In a short burst of activity our technology experts collaborate with our customers and their technology users to identify, understand, document and prioritise the key business requirements driving their development of new technology and to commence the design and prototyping process to begin to understand what the end solution might look like.

  Our customers come away from Naimuri Accelerated Discoveries with a clear and understandable requirement set, insightful prototypes to inform their technology development and a set of outputs to support their outline business cases.

Capability Development & Innovation: Naimuri's CD&I team (Capability Development and Innovation team) is our primary internal research and development function, and a key component of DICE.

D&I team responsibilities and activities fall into two principal categories:

- **Research:** Building the internal relationships needed to ensure the knowledge and experience of key project leaders, stakeholders and subject matter experts is shared freely within our business, and valuable insight into what our customers need (or may need in the future) is leveraged effectively.

- **Development:** Working up plans for the development of effective capabilities and solutions relating to this insight over a three month period, before an internal poll is conducted to gauge each solution's potential for delivering maximum mission impact, and suitability for further development.

CD&I team activities also support skills development within Naimuri (by ensuring these are transferred effectively between internal teams), and our frameworks for personal and professional development.

The CD&I team develops its ideas for ready-made, reusable solutions (which can be quickly adapted and customised to meet specific customer issues and challenges), by carefully considering documented customer feedback and pain points before rapidly devising prototypes and building functional demonstrators, typically within three months.

A break from development is then taken, to conduct demonstrations showcasing what's been achieved, and ensure the resulting feedback informs plans for further development.

CD&I team work has already contributed to our established Technology Catalogue, a library of innovative software assets that can be quickly and easily repurposed to accelerate development processes, a key enabler for delivering projects sooner and at lower cost.

Used wherever appropriate, we have already identified that this activity can shorten Alpha development by up to 50%, resulting in prototypes produced within weeks rather than months.

Excellence: In addition to the initiatives and activities detailed above, DICE further supports and promotes excellence in the following ways:

- **People:** Our people and the skills and specialisms they bring through their activities across the business, projects and innovation are a central component of DICE.

  Associated activities undertaken include (but are not limited to): providing specialist knowledge to projects; providing expertise to bidding or solution concept design; leading or conducting Research and Development to further the Naimuri Knowledge Base or Technology Catalogue; and contributing or leading innovations and development activities.

- **Project Delivery:** DICE leverages expertise, experience and 'lessons learned' during project deliveries in the following areas:

    - *Knowledge Base:* Creation of Ways of Working documentation, which provides a framework from which projects can be started and operated in alignment with Naimuri best practices.

    - *SMEs and Project Arrowheads:* SMEs and Project Arrowheads within

DICE are available to support project onboarding and start up, and assist with rapid deployment and value delivery to customers wherever appropriate.

- *Advisory SME Input*: SMEs remain available to support projects beyond initial delivery on an advisory and knowledge support basis, as is the case with the wider business as a whole. This advisory facility helps ensure we continue to deliver expertise into our client projects where the resource is not directly allocated to the project.

- To advance our capabilities and engage the market, DICE also runs internal innovation sprints to deliver new innovations and bring thought leadership to industry and market.

User-Centred Design
User-Centred Design (UCD) at Naimuri focuses on understanding users, tasks and environments. Our User Researchers and User Experience Designers are highly experienced in working with users to quickly identify and understand the challenges they face, and rapidly and iteratively create solutions that solve problems efficiently and effectively.

We ensure UCD informs a holistic approach to product delivery by building, maintaining and safeguarding cultures that prioritise people, interactions and accessibility.

We also understand that successful UCD approaches must carefully consider how teams are built and empowered to solve problems directly, and adapt effectively in order to achieve success in both Agile and more traditional waterfall development and delivery methodologies.

In our experience, UCD is most effective when embedded at the heart of an Agile 'DevSecOps' approach to product development and delivery.

Founded on the principles of iterative development, effectively adapting to change, and delivering value early, Agile DevSecOps ensures user feedback informs and improves each iteration of a product's development.

Naimuri's Analysis, Change and Design Capability (ACDC) focuses on representing the user and ensuring they are central to all design and development decisions.

This ensures products are built correctly from the offset, and can quickly adapt and iterate to suit changing user needs ultimately bringing the most value to our customers' users.

DevSecOps Expertise

Naimuri are pioneers in DevSecOps, having built and deployed several secure cloud infrastructures for ingesting, storing, processing, retrieving and analysing data at OS, S and international classification levels for our customers.

Our lean, collaborative ways of working includes: regular pattern of joint Naimuri ad customer team stand-ups, story refinement sessions, story-pointing sessions and sprint review/planning sessions.

Delivering projects under a Scrum-based Agile methodology, we use lean DevSecOps practices to build CI/CD pipelines that incorporate frequent code check-ins with merge requests, release versioning and test automation. Our DevSecOps Engineers utilise: GitLab CI to implement a CI/CD system; Kitchen Sink (for automated design assurance coverage and unit tests); Terraform for Infrastructure as Code (IaC) to ensure we are consistently versioning changes to the system.

Critical Infrastructure testing is used to ensure what is designed translates to what is deployed, providing confidence to the customer (internal or external).

For Naimuri, security of data is our first consideration: our approach is to be secure by design, not as an afterthought.

Naimuri has designed, developed and supported multiple systems and applications across HMG, within security controlled environments.

Our 'secure by design' approach to system architecture draws heavily from industry best practices (e.g. AWS Well Architected reviews and NCSC Secure by Design), and includes secure public cloud-based implementations capable of storing data to the highest security classifications (and accreditable to the highest level of security controls).

Secure cloud deployment models are default on Naimuri projects: Automated CI/CD tooling and reusable patterns enable our teams to remain secure whilst delivering at pace.

Security control and governance is also key: We engage with security and accreditor stakeholders at the earliest stages of design and development, to ensure secure design and controls are considered at the outset.

Naimuri has used these practices and controls to build multiple OFFSEN accredited services operating on public cloud infrastructure delivered within the control gateways defined by Government Digital Services (GDS) and Central Digital & Data Office (CDDO).

Naimuri undergoes annual accreditation, auditing and certification processes by HMG accreditors and HMG recognised bodies, and holds CyberEssentials and ISO:27001.

Our security team ensures ongoing governance and compliance with our security policies, customer security aspects, and accreditation requirements.

Accordingly, Design principles are pulled from and designs validated against NCSC cloud principles, such as: Least-privilege access; encryption of data in transit and rest;

understanding of responsibility models (e.g. AWS Shared Responsibility Framework); authenticated and authorised systems; limited perimeter attack surfaces.

Naimuri's development systems are secured by: use of centralised authentication (Google SSO); limited access to code repositories; specific IAM roles for pipelines; limit perimeter attack surface through the use of VPNs and zero-trust proxies; Internal use of DevSecOps tooling.

An AWS partner for several years, Naimuri is also a Microsoft partner. Having developed and delivered multiple solutions in both AWS and Azure environments, our experience and expertise enables our solutions to remain 'cloud agnostic', and guided by our customers' needs.

Data Science

Naimuri's extensive Data Science capability enables organisations to maximise value and intelligence from data, and has developed a reputation for handling and modelling vast amounts of data quickly and securely.

Coupled with our proprietorial data analytics platform, this experience has enabled us to develop a unique data lifecycle approach using:
- Open source intelligence (OSINT) and tooling to derive value from data as quickly as possible.

- Advanced Artificial Intelligence (AI) and Machine Learning (ML) techniques, to identify patterns and automate mission-critical decisions.

- Data analytics software, building software specific to our customers' needs and utilising it to better analyse, understand and obtain value from their data.

- Predictive analytics**,** analysing current and historical data to help predict future events.

We employ best practices in Data Engineering, ML Engineering, MLOps and ML Assurance, and also have considerable expertise in: Natural Language Processing (NLP); Computer Vision; Data Synthesis; Data Analytics; Large Language Models (LLMs); Knowledge Graphs; and Data Governance.

A selection of our key capabilities and specialities are summarised below:

> ***Software Development, Analytics and Visualisation*** - Drawing insight from data is at the core of what we do. Creating meaningful, information-rich visualisations enables us to convey deep and complex relationships to our customers in innovative and intuitive ways. Our bespoke software allows users to easily and efficiently interrogate their data, and better understand their problem area.

> ***Large Language Models*** - We provide expertise for designing, building, deploying, and monitoring Large Language Models (LLM)-based solutions for secure

Government applications. Our experience covers implementing cutting-edge model architectures, with techniques such as fine-tuning and RAG for maximising domain-specific performance in areas such as defence and homeland security.

Knowledge Graphs - Utilising the latest advancements in knowledge graph databases and algorithms, we are experts in creating structured graph databases from both structured and unstructured data sources. We can utilise graph algorithms and Graph Neural Networks (GNNs) to gain insight from graph databases, including developing extensive and scalable knowledge graphs, networks of transactions or people.

Data Governance - Data governance is an essential pillar for any data driven organisation. We provide tools and expertise to help manage and ensure the integrity, security and compliance of data stored in cloud environments with features such as data access control, lineage tracking, auditing, security and ethical considerations.

AI Assurance - Providing 3rd party AI Assurance for Government customers and their vendors. This allows risk-quantification of AI solutions prior to deployment and development of best practices for automation and increased accessibility to MLOps. We provide expertise across a range of sub-disciplines, such as; computer vision, language models, uncertainty quantification, research tasks & automation.

Software Development
Keeping our customers' systems secure is as important to us as it is to them. We understand their data is critical and sensitive – and there's a lot of it. Whilst we recognise It has to be stored completely securely in a place of their choosing, we also understand it needs to be accessible on demand, and from wherever they happen to be.

This may be easier said than done if the system-set is complex (i.e. made up of a myriad of heritage components that have been added over several years, or consisting of differing technology stacks and designs from diverse sources). It is also possible that hundreds or even thousands of business rules have been added and adjusted over time, often making the extraction of data intelligence a slow process.

Naimuri effectively addresses these issues by collaborating closely with customers to understand their objectives, demonstrate progress through regular incremental deliveries, build trust, and improve the speed and accuracy of reporting by replacing heritage tooling with modern and flexible architectures that support enhanced data analytics.

We provide:

Full stack development:
  - HTML, Java, Typescript, React, Node.js, Java, Python, RESTful SQL / NoSQL.

Cloud Native / Agnotics:

- Azure, AWS, Terraform, Cloudformation, Kubernetes, IaC

Rapid prototyping
- Balsamic, Figma, draw.io.

Test automation:
- Cypress, Cucumber, Gherkin, K6.

Database design:
- Elasticsearch (we are Elastic Partners), MongoDb, Oracle, Neo4j, Postgres.

CI / CD:
- Github, Gitlab, DICE assured pipeline patterns.

Cloud Capabilities

There are huge benefits of working within the cloud; however, managing systems as well as remote infrastructure owned by other organisations can often be a cause of major concern.

Cloud requires a whole new modus operandi, and vastly different approaches to architecture, development, deployment and ongoing maintenance: Old ways of thinking are tested, historic working methods may no longer apply and, with Cloud machines starting-up and tearing-down at a moment's notice, there are challenges to address at every turn.

As cloud natives, the elastic nature of cloud infrastructure doesn't faze us. We have access to the latest tools, techniques and insights through our strategic partnerships with AWS and ongoing investment in major cloud provider training.

As with everything we do, security is paramount. We draw on our DevSecOps capability to build this in at the outset, identifying and mitigating vulnerabilities without the necessity for downtime.

The serverless architecture we set up has the provider dynamically managing machine resources without drawing on customer resources.

Our exclusive cloud infrastructure testing approach provide:

Cloud security:
- ensuring our customers' highly sensitive systems and data are secure on a public cloud infrastructure.

Containerisation:
- for greater portability, security and efficiency of our customers' applications.

Serverless Technologies:

- enabling our customers to lower running costs and reduce attack surfaces.

Cloud Infrastructure Testing:
- managing the demands of working in the cloud.

Support Service

Naimuri is highly experienced in providing sustained application and environment support and management (including hybrid support and development models), and is trusted to deliver support services to a number of Threat to Life operational systems.

We have extensive experience and knowledge of working with organisations to manage resilience and risk, including: Event Monitoring; IT Operations Centre and Service Desk teams; and setting up and configuring alerts to facilitate high system availability.

This ensures issues, or potential issues, are rapidly identified and alerted so triage and resolution can commence as quickly as possible (and, potentially, before the issue becomes service or user impacting). As part of this service we support systems that work across multiple confidential customers and across multiple infrastructures. We have built an excellent reputation for best practice in delivering support services.

Naimuri's tested approach to Business As Usual sustained service support is to deploy a Site Reliability Engineering (SRE) team. This is based on our experience developing systems through the full development lifecycle across Government agencies and departments, taking systems from Proof of Concept technology to sustained support services. This involves working collaboratively with project and support teams, key stakeholders and users. A key skill of our Software Reliability Engineers (SRE) is that they have a deep understanding of the application, the code, how it runs, is configured, and scales, enabling them to proactively monitor and support operational systems.

Our support service operates to the following principles:
- Deploying people with the appropriate skills and knowledge to enable a knowledge transfer process that ensures support tasks are understood and picked up within a short timeframe.
- Embedding support alongside the existing Naimuri development team reduces risk and ensures consistency of knowledge, development, configuration management and deployment practices.
- Working closely and integrating with customer teams and all other stakeholders to ensure smooth running of the system, from 1st to 3rd line support.
- Working with Agility within defined ITIL processes, procedures and best practice.
- Remaining secure by design, and complying with all applicable security standards and industry best practice for coding, testing and deployment.
- Demonstrating a commitment to continuous improvement in terms of ways of working, the service provided, and the tools and technologies used.
- Being able to scale quickly in response to increased demand.