



Trust. Value. Velocity

G-Cloud 15

Data Insight and Innovation Service

Contents

1.	About Mastek	3
2.	Summary	13
3.	Masteks Service.....	14
3.1	Optimised Target Operating Model	14
3.2	Consulting	14
3.3	Innovation Labs	14
3.4	DataOps	15
3.5	Infrastructure Services	15
3.6	Data Services	15
3.7	Approach to Delivery	16
3.8	Approach to Innovation	16
4.	Key Features.....	18
5.	Business Benefits	19
6.	Technologies, Language, Methods and Vendor Support	20

Table of Figures

Figure 1: Data Insights and Innovation.....	14
Figure 2: Agile-Based Delivery Model	16
Figure 3: Masteks Innovation Approach	16

1. About Mastek

Mastek has been delivering Critical National Infrastructure programmes in the UK Public Sector for over a decade now. We are trusted with multiple contracts for the UK Government across Central Government, Health, Local Government, Policing, Public Protection and Defence. The majority of our national services are delivered in a context of high uncertainty and complexity while collaborating in multi-supplier environments.

While working for these large and complex public sector organisations, we have continuously refined our management, delivery and underlying processes to reflect key learnings from the sector:

Working through a complex stakeholder landscape: We understand the importance of establishing effective communication channels, building trust and fostering a collaborative working environment that empowers stakeholders to contribute meaningfully to the project's success. Our approach is based on a deep understanding of stakeholder needs and requirements. We leverage our experience and expertise to design governance structures that promote transparency and accountability and use data-driven reporting mechanisms to ensure stakeholders have real-time visibility into project status and progress. At the Home Office, GDS, Ministry of Defence and NHS, we have a proven track record of working seamlessly with large stakeholder groups, including civil servants.

Standards, compliances: We comply with >20 policies and standards, including Government Digital Standards and Government CDDO Service Toolkit covering service standards, service manuals, TCoP, API technical and data standards. Our stringent governance, methods, playbooks and processes (manual and automated) span across service delivery phases, ensuring continuous compliance.

Policy-driven: Policies and procedures largely drive Public Sector organisations. We need to be Agile and flexible to meet demands for policy/regulatory changes, geopolitical events and ministerial commitments.

Culture: We adhere to the Civil Service core values of integrity, honesty, objectivity and impartiality. Key behaviours we promote stem from a combination of Civil Service and Mastek values. These include being passionate, accountable, sustaining predictable and repeatable outcomes, not transferring risk, transparent, leading to enable, acting with transparency, practising a no-blame culture and being flexible.

Mastek's global presence



Australia

Austria

Bahrain

Belgium

Brunei

Canada

Denmark

Egypt

Estonia

Finland

France

Germany

Hungary

Iceland

India

Indonesia

Ireland

Italy

Japan

Jordan

Kenya

Kingdom of Saudi Arabia
(KSA)

Kuwait

Latvia

Luxembourg

Malaysia

Netherlands

New Zealand

Norway

Oman

Philippines

Poland

Romania

Singapore

Slovakia

Spain

Sri Lanka

Sweden

Switzerland

United Arab Emirates (UAE)

United Kingdom

USA

Did you know?

75%

Around three quarters of Local Authorities in the UK who run Oracle have worked with Mastek on their digital transformation journey.

300,000 Users

Supported managing up to 750,000 logins per month to MOD through Identity and Access Management

Crime reduction

We designed, built and manage the UK's Strategic National DNA Database that helps Forensics and Law Enforcement Authorities investigate and stop crime

90% faster

We enabled the National Health Service (NHS) to drive 90% faster response times with a billion pharmacy prescriptions a year.

Technical Service Desk

We provide level 2 and ITSM support for the One Login service at Government Digital Service

22k

Our systems enable 22,000 schools to function efficiently every day of the year.

Healthcare and manufacturing

We delivered Finance, HCM and Supply Chain transformations for clients across health and manufacturing globally powered by Oracle Cloud

Transformation of trade

Transforming UK's trade with the EU and rest of the World by supporting Customs Declarations Services and its trade users.

99.99% Availability

We support the Home Office Biometrics (HOB) Platform, Having migrated it to an AWS platform.

Our digital and cloud services portfolio

Powered by Glide 4.0 and value-based delivery

Industry-aligned approach with business outcomes

Digital engineering and experience	• Cloud engineering and migration • Legacy modernisation • Low code / no code App Dev • DevSecOps • Enterprise integration	• MACH • Digital commerce • UX and CX • Platform engineering • Gen AI software development.
Oracle Cloud and enterprise apps	• Oracle Cloud applications • Oracle consulting • Oracle Cloud infrastructure	• Value-based delivery • Glide 4.0.
Data, automation and AI	• Cloud data modernisation • Business Intelligence and Analytics	• Data management • Intelligent automation • Data Governance.
Salesforce	• Sales Cloud • Service Cloud • Marketing Cloud • Industry Cloud	• Experience Cloud • Mulesoft.
Innovation labs and platforms	• Enterprise workforce scheduler • Connected enterprise • icx-Pro – intelligent part assistant	• iLeaseFinPro.
Cloud enhancement managed services	• Oracle managed services • Digital managed services • Commerce managed services	• Salesforce managed services.

Home Office Biometrics (HOB)

Public sector platform modelled 24x7 with 99.99% availability

Problem

- Transition business-critical Platform services from incumbent supplier with minimal risk
- Migration from private cloud to AWS Cloud.

Solution

- Migrated the infrastructure from private cloud to AWS
- Embedding Kubernetes Containerisation
- Introduced Docker and fully-baked AMIs
- Supporting the platform's self-service functionality using Jenkins Jobs
- Applying security updates to the OS base images through pipelines
- Instituting automated patching and testing for infrastructure images
- Support of configuration, test and releasable artefacts through the pipeline.

Outcome

- **Zero impact** on live service
- **80% automation** of SIT
- Environment Provision **2 days to 1 hour**
- **5x scalability** in handling student BRPs
- Cost saving the authority circa **£9.5m/year.**
- Won the '**Best Use of Cloud Services**' award
- **35%** Incident Volume Reduction.



Government Digital Service

Problem

GDS initiated the One Login programme to create a single front door for identity verification and authentication, which could be adopted and scaled across all government departments. This would improve the user experience by providing the public with a single identification and verification service for the government, reduce costs as each department no longer required its own identity service and reduce identity fraud and identity-enabled crime.

GDS released a tender in June 2023 to provide a Technical Service Desk (TSD) managed service for the One Login service. This service would provide a single point of contact for level 1 and 2 service support as part of the wider support ecosystem. It would be provided in the UK and replace the incumbent's scaled-down non-ITIL-aligned break-fix service.

Solution

In September 2023, Mastek were successfully awarded the TSD contract to deliver TSD on behalf of GDS. GDS had an extremely aggressive programme driven by the onboarding of HMRC as a user, which was a major milestone planned for February 2024, migrating new and existing HMRC users to the One Login platform. The TSD service was expected to go live in November 2023. This was an extremely complex programme which, within this timescale, would deliver:

- The contact centre provider for level 0 directly facing the public
- The TSD supplier in place directly facing all government departments
- The TSD supplier in place providing L1 and L2 engineering support and monitoring
- Continued delivery on the One Login backlog of features
- Continued migration of smaller government departments to the platform.
- Delivery of a new ITSM toolset to be configured for use by GDS and the One Login programme, integrating level 0 to level 3 support
- Working as one team, Mastek quickly integrated into the programme, appointing the leadership team early in the engagement. We collaborated with GDS from the outset, ensuring we tailored the service to their expectations rather than delivering what was written in the contract.

Our leadership team consisted of:

- Service Management Vice President
- Programme Director
- Chief Technology Officer
- Programme Management office lead.

Outcome

At its height, the programme team was circa 15 strong, covering programme/project delivery, PMO, architecture, fraud, security, support, omni-channel and quality assurance. The service team is currently in place providing circa 21 resources now covering end-to-end service management, service delivery and L1 and 2 engineering roles.

As the One Login migrations continue, Mastek is supporting Government departments onboarding to the platform as they transition into the new service and provide One Login a secure Technical Service Desk managed service with:

- Omni channel access for other government departments via telephony, email and web form
- Provision of L1 and L2 engineering support
- 24x7, 365 days a week cover
- 24x7x365 eyes on monitoring service
- Fraud detection and security, GDPR compliant
- End-to-end (L0-3) incident and problem management
- End-to-end 24x7 Major incident management (MIM)
- On-call/call-out engineering support, incident and MI management
- Adherence to stringent SLAs on incident response, call handling and fix times
- End-to-end monthly service reporting alongside TSD KPI and SLA reporting.
- A shift left culture and mindset, reducing the impact of service on product teams (L3)
- Support with service maturity in the programme, preparing GDS to run critical national infrastructure.



Internet-facing platform and applications for Army Digital Services

Developed mobile app and web app with 24*7 high availability

Problem

- New Defence Gateway Portal
- Combine all internet-facing applications into one
- Easy to use
- Enable easier access to the MySeries portfolio of products.

Solution

Designed and developed the following easy-use Progressive Web Apps:

- Defence Gateway Landing Page
- My Leave App
- My Expenses App
- My Health App
- My Details App
- My Appraisal App
- My Admin App
- COVID-19 Reporting Tool
- Commanders' COVID-19 Tool.

Outcome

- Delivered 20+ successful projects
- Deployment Automation
- £7.5m in savings annually
- Zero Downtime
- Environment creation in hours.



Delivered a platform for the Department for Health and Social Care

Delivered capability supporting 200k+ tests in a day, traced millions of COVID-19 infections

Problem

- Leveraging DevOps platform based on reusable GitHub, AWS and Azure DevOps Pipelines
- Introduce more flexible, scalable and reusable IaC capabilities
- Implement CI/CD pipelines.

Solution

- Uplifted from Cloud Formation into Terraform (IaC)
- Pre-built the AMIs using Packer, with automated security checks
- Immutable infrastructure, thus eliminating the risks of partial upgrades and patches
- Continual Cost Optimisation processes and other service functions, such as Change and Risk management
- Migrated into an organisation-wide collaboration toolset. This included Jira, Confluence, Trello, Miro, Teams, SharePoint, O365, Slack, etc.

Outcome

- 75% reduction in lead time due to pre-built AMIs
- Zero Downtime Deployments
- Delivered a Platform - Secured, multi-tenanted hosted on Azure and AWS in 5 weeks
- Cost reduction achieved through close monitoring of resource utilisation.



Mastek and Technology in the Public Sector

Technical Capabilities	Relevant Technology Capability	Mastek Scale
Software Development Continuous Integration, Platform - Other Products, Cloud Collaboration Tools		Software Engineering 2354 FTE
QA and Test; API, Automated Functional and Compatibility, Accessibility & Performance		QA and Testing 774 FTE
Cloud Platforms Amazon Web Services AWS Microsoft Azure		Cloud Platforms 1046 FTE
Data BI/MI Components, Integration		BI and Visualisation 725 FTE
User-Centered Design		UCD 25 FTE
Office Automation Tools		Collaboration 4565 FTE

2. Summary

In the 4th Industrial Revolution, the Big Data revolution and with the democratisation of computing power, data has become a critical asset for all businesses and enterprises. Regardless of the sector and business department, every change is driven by big data, which also requires an optimum way to process and analyse it.

The Data Insight and Innovation Service helps to understand how data is collected and turn it into actionable insights, clarity and value using modern data integration toolsets and data science technologies, such as Artificial Intelligence (AI). This involves pinpointing how data can be better leveraged across lines of business and utilised for innovative purposes.

3. Masteks Service

In an ever-changing market landscape, businesses operate in an environment where data-driven initiatives are increasingly aided by top-line growth, bottom-line optimisation and operations optimisation. Effective data-driven initiatives deliver better outcomes when operated in a bimodal operating model that focuses on both requirements-driven and exploratory analytics.

Our expertise is in applying technology that meets and grows with data requirements. Mastek's data insights and innovation service leverages data insights to deliver a data value chain of exploration, integration, action and consumption, underpinned by robust data management and governance.

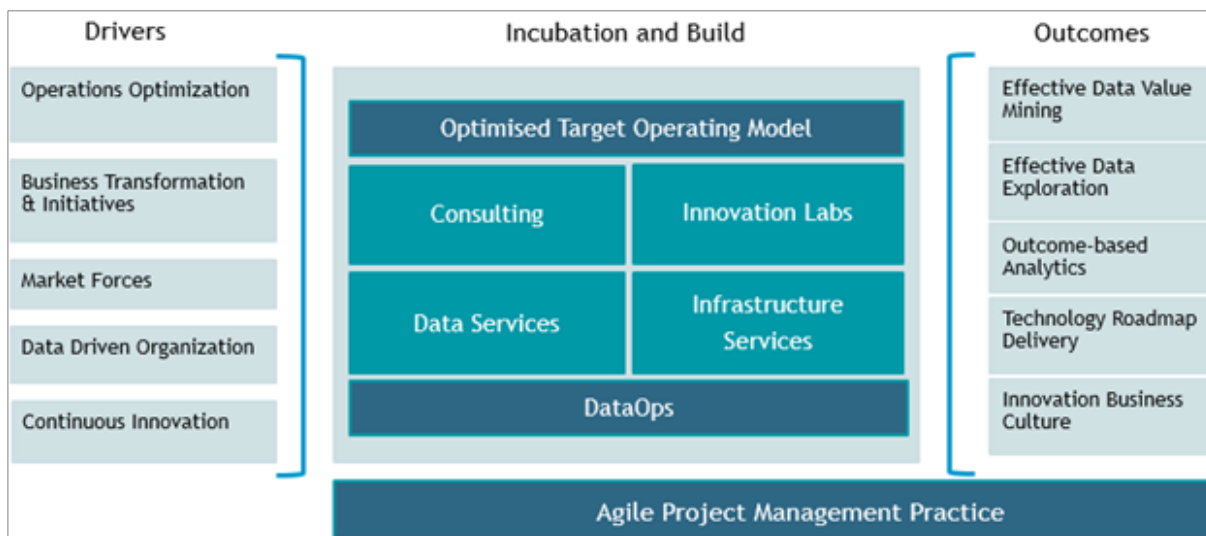


Figure 1: Data Insights and Innovation

3.1 Optimised Target Operating Model

Our optimised target operating model helps customers translate their business strategy into business results by effectively utilising their resources.

Our operating model focuses on new technology trends to help customers adapt to changes and trends with agility and speed.

3.2 Consulting

Our consulting services include Discovery, preparation of the maturity model and definition of a technology roadmap. We help customers determine the Data/Bi/AI Maturity Model, Target Operating Model and Technology Selection Discovery, as well as identify the right business case and Use Case Selection Discovery.

AI services, combined with analytics and automation solutions, enable customers to develop the optimal AI strategy, empowering them to invest in the right systems and tools and establish responsible practices.

3.3 Innovation Labs

Data Innovation Labs is a full-service Data Science and Data Management expertise group of people. Their mission is to help Mastek teams and customers deploy cutting-edge and emerging technologies to drive operational efficiencies, inform insightful decisions and enhance the customer

experience. They collaborate with Mastek architects and customers to identify sources of value, translate these into problem statements with measurable outcomes and build prototypes as proof of value. These data products are deployed to the production environment upon adequate validation from business users.

Data Innovation Labs has experience delivering various data products, including customer analytics (churn, cross-sell, channel shift, fraud and default), utilising machine learning, image-based and voice-enabled recommendation systems, intelligent document profiling and innovative applications of sentiment analysis leveraging various cognitive services.

3.4 DataOps

DataOps processes simplify the complexity of data analytics creation and operations. They streamline and automate the analytics development lifecycle, from building the environment to deployment. They focus on Sandbox management, development of use cases, orchestration of data pipelines, testing the model, deploying it and monitoring its accuracy. They also align data analytics development with user priorities.

3.5 Infrastructure Services

Our Infrastructure Services offer managed infrastructure and Environments with automation capabilities, enabling the seamless execution of data pipelines.

3.6 Data Services

Our Data Services are a collection of end-to-end data pipeline services. These technology-enabled services bring a new dimension to analytical capabilities, enabling customers to uncover problems and opportunities and innovate to develop new products and services. Technology-enabled services help customers move from data to insight to value.

The table below lists Mastek G Cloud's "Data Services," which are the foundation of building your organisation's data insights and innovation journey.

Mastek G-Cloud connected services.				
Exploration	Integration	Exploitation	Governance	Data Mgmt.
• Big Data Analytics • Machine Learning • Data exploration and visualisation.	• Data integration	• Cognitive • Predictive and advanced Analytics • Reporting, UX and self-service BI.	• Data quality and governance.	• BI Data warehouse strategy, roadmap and consultancy. • Business intelligence and Data Warehouse testing. • BI and Data Warehouse production support service.

3.7 Approach to Delivery

We follow an Agile-based delivery model, delivering an incremental business value approach, which is described below:

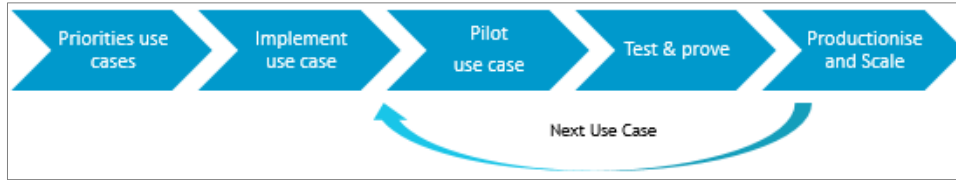


Figure 2: Agile-Based Delivery Model

- a) **Prioritise use cases:** We help customers to identify use cases and capture these to create a product backlog. Using our methodology, we identify high-value, right-fit use cases across time horizons for delivery to the business.
- b) **Implement the use case:** We implement use cases using cutting-edge technologies and our proven delivery method iteratively.
- c) **Pilot use case:** We deploy the use case at the customer's location and our infrastructure team helps the customer build the relevant infrastructure required to host the pilot use case.
- d) **Test and prove:** Business users and SMEs are typically responsible for testing the use case to validate the business outcome and complete the feedback loop.
- e) **Productionise and scale:** Once the business approves, we productionise the solution to scale for enterprise adoption.

3.8 Approach to Innovation

We recognise that technology and customer needs are continually evolving. Our six-stage Innovation approach helps customers define the scope of the requirement, identify key focus insights, validate the solution, assess market fit in terms of ROI and deliver to business groups.

The following figure illustrates Masteks innovation approach:

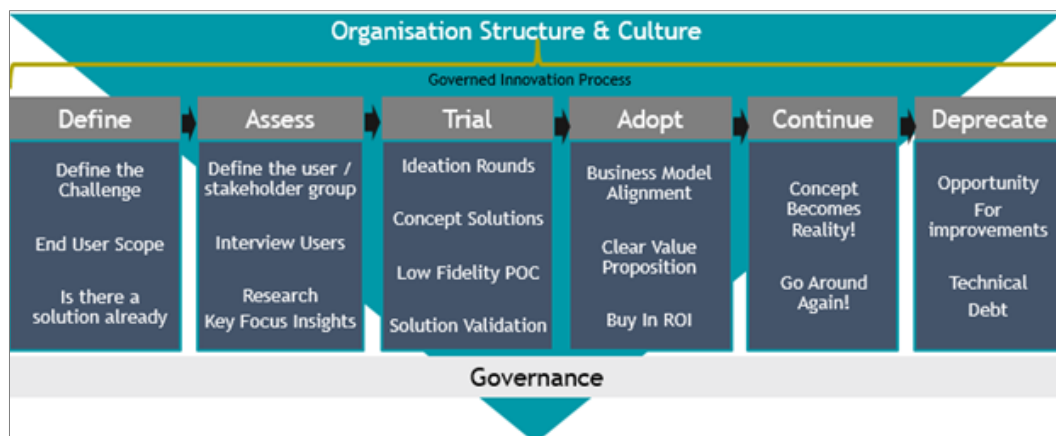


Figure 3: Masteks Innovation Approach

- a) **Organisation:** A dedicated innovation function that leads and marshals innovation, acting as a link between customers and Mastek innovation. This function also promotes culture and identifies relevant target areas for innovation.

- b) Process: Formal process of idea generation, cultivation and transition to the roadmap.
- c) Governance: Innovation governance model with clear responsibilities and accountabilities.

4. Key Features

- Transforming data into strategic assets.
- Combining modern technology with business data to innovate and build effective data collection, analysis and insights.
- Incremental approach to accelerate delivery and higher adoption.
- ROI driven and get the business value at a very early stage.
- Productivity gain through data automation, collaboration, interactive data exploration and visualisations.
- Mastek offers solutions to create an innovation culture in the organisation, such as innovation labs offshore or at customer premises.

5. Business Benefits

- Attract businesses to retain and grow the most profitable customers and promote cross-sell opportunities.
- Provide an in-depth and precise picture of who your customers are and what they want.
- It helps identify microsegments of customers and your competitors, letting you know where the competition falls short and helping you focus on your unique selling points.
- Reduce the number of business risks by getting insights into things like the success of new products, getting an idea of businesses they are dealing with or assessing the demand for something in the future to identify new opportunities.
- By analysing future trends, you will be able to take better steps towards working on an optimal approach, optimise resources and reduce the cost of operations.
- Quickly and easily optimise data analysis and visualisation tools cost-effectively.
- Data insights and innovation techniques can help public sector organisations in use cases like:
 - Service facilitates volume to value-based care for health organisations, providing the right data and the right tools.
 - Help government economists with more accurate financial forecasts by correlating multiple data sources.
 - Help policymakers from public sector organisations to prioritise services based on citizen sentiment analysis.
 - Measure traffic volumes, environmental pollution, usage levels of waste containers, location of municipal vehicles, or detection of abnormal behaviour of citizens.
 - Better targeting of taxpayers for possible non-compliance/ tax evasion and liquidation for public sector organisations.

6. Technologies, Language, Methods and Vendor Support

#	Technologies	Languages	Methods	Vendor support
1	Cloud-based	Spark, Python, TensorFlow	Data Integration, Data Transformation, Machine Learning	Microsoft, AWS, Google Cloud
2	Hadoop-based	Impala, Kafka, Java, Scala	Data Integration, Data Transformation	Cloudera
3	Data Virtualisation	SQL/VQL	Semantic Layer	Denodo, Alteryx
4	Data Visualisation	Power BI, Tableau, QlikView	Dashboards, Reports	Microsoft, Tableau, QlikView, Google Data Studio
5	AI tools and frameworks	Scikit Learn, TensorFlow, Keras, PyTorch, CNTK	Deep Learning	Microsoft, AWS, Google AI

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