Mastek™

Trust. Value. Velocity

# G-Cloud 15

## Architecture Service

## Contents

## 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:

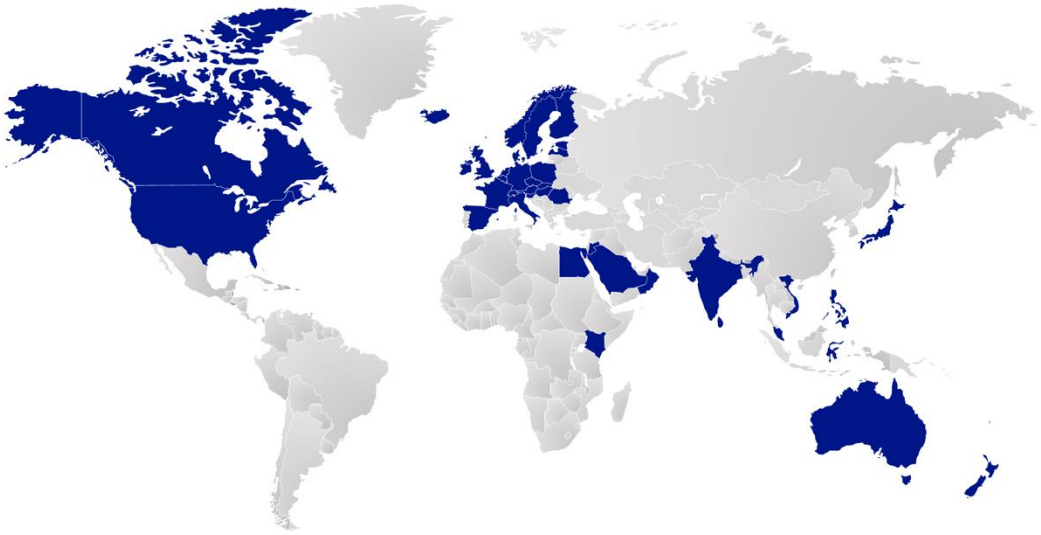
**Working through a complex stakeholder landscape**: We understand the importance of establishing effective communication channels, building trust and fostering a collaborative working environment that empowers stakeholders to contribute meaningfully to the project's success. Our approach is based on 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**

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

# Home Office Biometrics (HOB)

Public sector platform modelled 24x7 with 99.99% availability

## Problem

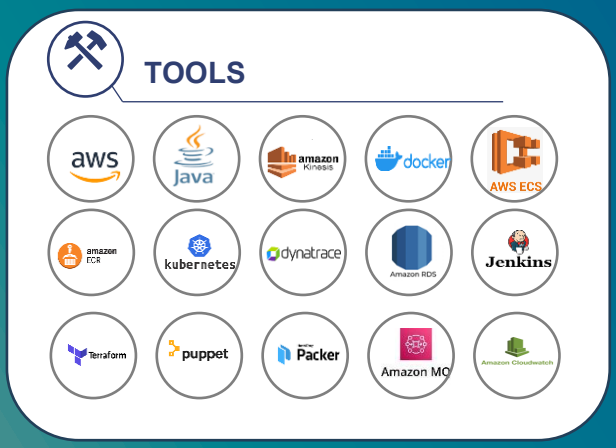
- Transition business-critical Platform services from incumbent supplier with minimal risk
- Migration from private cloud to AWS Cloud.

## 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:

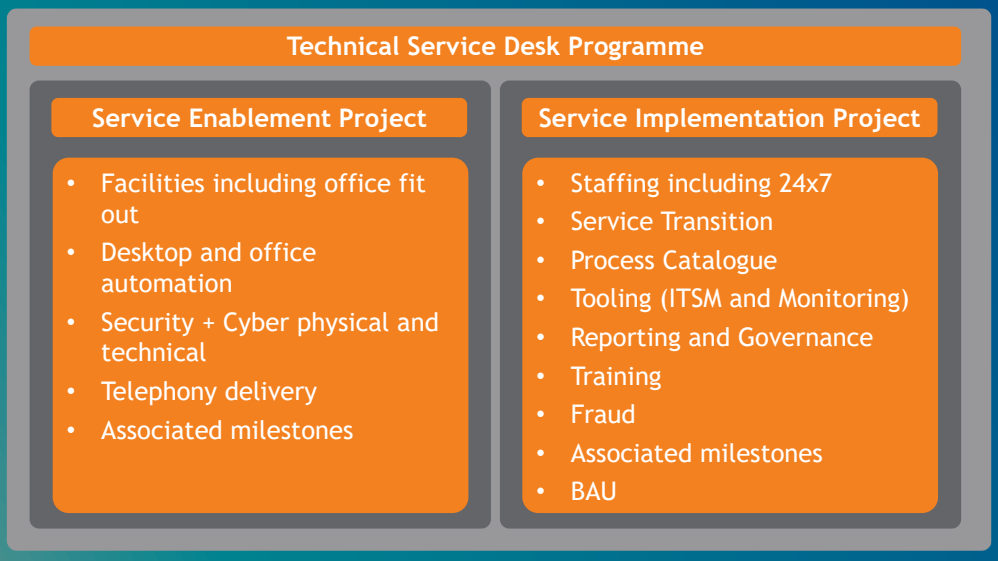
  - Service Management Vice President
  - Programme Director
  - Chief Technology Officer
  - Programme Management office lead.

## 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

**Our Architecture Service** provides independent, structured and pragmatic architecture capabilities to support government organisations in designing, assuring and evolving complex digital, data and technology landscapes. The service ensures that business objectives, policy constraints, security requirements and operational needs are translated into coherent, deliverable technology architectures and align with the client's strategic vision.

The service covers enterprise, cybersecurity, business, data, application, integration and technology architecture and supports organisations at all stages of maturity, from discovery and options appraisal through to delivery assurance and transition to live.

Our architecture approach embraces Agile methodologies, promoting iterative development, continuous feedback and incremental delivery. Our Agile mindset enables us to respond to changing requirements, mitigate risk and deliver value to our clients. We engage closely with stakeholders, including business leaders, IT teams and end-users, fostering collaboration and communication throughout the architecture lifecycle to ensure alignment, transparency and successful outcomes.

# 3. Mastek's Service

## 3.1 Architecture Organisation Maturity Assessment

- Conduct assessments to evaluate the agility and effectiveness of an organisation's existing architecture practices, processes and tools.
- This assessment helps identify areas for improvement and develop a roadmap for adopting Agile architectural practices.

## 3.2 Architecture Strategy and Target State Design

- Definition of current (as-is), transition and target (to-be) architectures.
- Development of architecture principles, standards and patterns.
- Alignment to government strategies, including Cloud First, Secure by Design, Open Standards, Data Strategy and AI policy.
- Technology roadmaps and investment sequencing.
- Options analysis with clear cost, risk and benefit trade-offs.

## 3.3 Architectural Assessment of Technology Solutions

- Structured assessment of existing applications, platforms and infrastructure to determine fitness for purpose, risk, cost and technical debt.
- Evaluation of solution architectures against current business needs, future demand and government policy constraints.
- Identification of resilience, security, scalability and supportability issues.
- Assessment of vendor platforms and SaaS solutions, including Oracle, Salesforce and cloud services.
- Clear recommendations for retain, remediate, re-platform, replace or retire decisions.

## 3.4 Capability Modelling

- Definition and modelling of business and technology capabilities to support strategic planning and transformation.
- Mapping of capabilities to processes, services, data and enabling technologies.
- Identification of capability gaps, overlaps and dependencies across the estate.
- Support for prioritisation and sequencing of change initiatives.
- Use of capability models to create a common language between business, digital and technology stakeholders.
- Evidence-based inputs to business cases, options appraisals and investment decisions.

## 3.5 Architecture Assurance and Governance

- Architecture assurance for programmes, projects and suppliers, ensuring regulatory compliance, risk management and quality assurance.
- Design reviews and compliance assessments against agreed standards and reference architectures.

- Establishment and support to Architecture Review Boards (ARBs), design boards and other governance forums supporting Agile delivery.
- Risk identification and mitigation related to technical debt and architectural decisions.
- Assurance of supplier proposals and delivery approaches.

### 3.6 Solution and Platform Architecture

- End-to-end solution architecture for digital services and platforms.
- Design of cloud-based and hybrid architectures using AWS and Microsoft Azure.
- Architecture for COTS and SaaS platforms, including Oracle and Salesforce ecosystems.
- Integration and interoperability design across legacy and modern platforms.
- Non-functional design covering security, resilience, performance, scalability and sustainability.

### 3.7 Data and AI Architecture

- Data architecture covering ingestion, storage, processing, analytics and governance.
- Design of cloud-native data platforms, including data lakes, warehouses and streaming services.
- Architecture to support AI and machine learning use cases, including model lifecycle, MLOps and responsible AI controls.
- Alignment with data protection, ethical AI, transparency and explainability requirements.
- Metadata, master data and information assurance considerations.

### 3.8 Delivery and Transformation Support

- Architecture support embedded within agile, waterfall or hybrid delivery models.
- Collaboration with product owners, delivery teams and suppliers.
- Transition and migration architecture, including legacy decommissioning.
- Support to operational readiness, handover and service management alignment.

# 4. Key Features

The Architecture Service is technology-agnostic but includes deep expertise across:

- Oracle platforms (applications, databases, cloud services).
- Salesforce platforms (CRM, service, data and integration capabilities).
- AWS and Microsoft Azure cloud services and reference architectures.
- Microsoft ecosystem, including M365, Power Platform and identity services.
- Data platforms, integration tooling and API management.

## 4.1 Architectural Outputs

All deliverables can be provided in line with recognised frameworks such as TOGAF, MODAF, NATO Architecture Framework, or government-specific standards, as required.

- Architecture vision and strategy documents.
- As-is, to-be and transition architecture models.
- Capability models.
- Solution architecture designs and patterns.
- Data and AI architecture designs.
- Technology roadmaps and options appraisals.
- Architecture decision records (ADRs).
- Assurance and review reports.
- Reference architectures.
- Conceptual, logical and physical designs.
- Industry-aligned architectural best practices, guiding principles and standards.
- API standards and canonical model development/alignment.
- Centre of excellence creation/operation.
- Architectural process and governance.
- Stakeholder interviews and BDAT assessments.

## 4.2 Engagement Models

The Architecture Service can be delivered as:

- Short-term advisory or discovery engagements.
- Embedded architecture capability within programmes or portfolios.
- Independent assurance and review services.
- Ongoing architecture support as part of a transformation programme.

## 5. Business Benefits

- **Alignment with business objectives**: Our solutions are designed and implemented in alignment with our clients' broader business objectives. By understanding the business requirements, our architects can develop solutions that directly address business needs, maximising the value delivered.
- **Scalability and flexibility**: Our architectures accommodate future growth and changes in business requirements. They provide scalability and flexibility, allowing our clients to adapt to evolving market conditions, technology advancements and customer demands without significant disruptions.
- **Risk mitigation**: Our architecture process reduces risk through assured architecture decisions, ensuring enterprise alignment and identifying challenges early in the design process. By proactively addressing risks, such as technology alignment, security threats, performance issues, or compliance concerns, our clients minimise costly rework.
- **Data Foundations**: Architecture services enabling strong enterprise data foundations and data quality, reducing operational cost, building data-oriented businesses and making organisations AI-ready.
- **Optimised resource allocation**: By identifying the most suitable technologies, platforms and infrastructure, our clients can make informed investment decisions and allocate resources where they will have the greatest impact on achieving business objectives.
- **Enhanced collaboration**: Mastek promotes collaboration and communication among stakeholders, including business leaders, IT teams, developers and end-users. By fostering collaboration, we ensure that all parties share a common understanding of project requirements, goals and constraints, leading to more informed decision-making and better outcomes.
- **Competitive advantage**: Our clients can gain a competitive edge in the market by leveraging innovative technologies and designing tailored solutions. Our designs enable our clients to differentiate themselves by delivering unique value propositions, superior customer experiences and innovative products or services that meet or exceed their customers' expectations.

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