



Trust. Value. Velocity

G-Cloud 15

BI and Data Warehouse Strategy Roadmap and
Consultancy Service

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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:

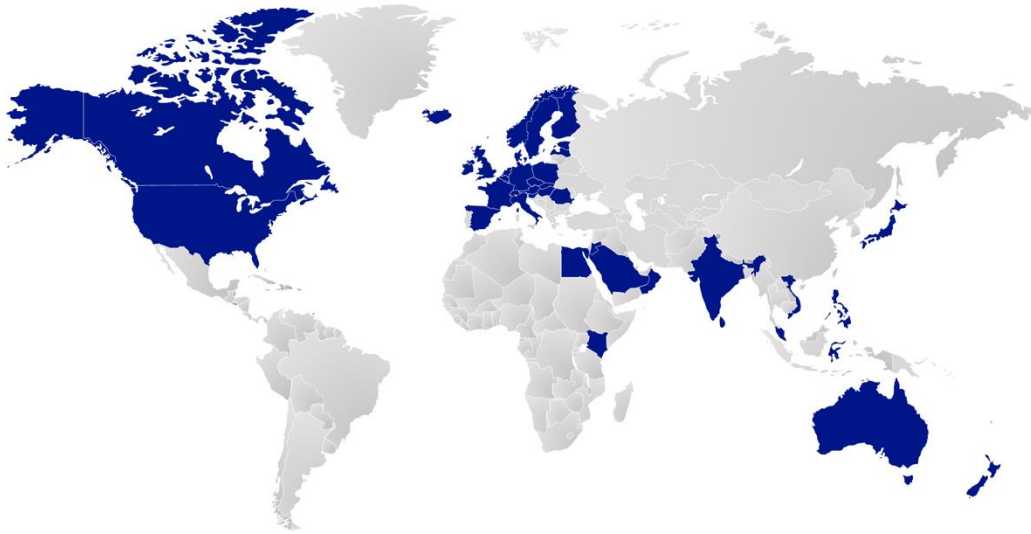
Working through a complex stakeholder landscape: We understand the importance of establishing effective communication channels, building trust and fostering a collaborative working environment that empowers stakeholders to contribute meaningfully to the project's success. Our approach is based on a deep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

Business Intelligence (BI) is crucial to decision-making for data-driven organisations.

The BI strategy service from **Mastek's BI and Data Warehouse Strategy, Roadmap and Consultancy service** helps organisations develop an approach for creating an insight-based decision-making framework through the optimal modernisation of processes, people, technology and dimensions to drive their business strategy.

Our experienced BI consultants consult with business stakeholders and decision-makers at all organisational levels. We assess the gaps across the above three dimensions and provide a strategy to achieve the desired state of BI maturity.

The identified gaps drive a roadmap based on business priorities. If implemented, this ensures that the planned DW/BI competency will meet the organisation's ongoing and future analytic needs for responsive decision-making and that the organisation's DW/BI capabilities align with the business's strategies.

3. Masteks Service

Mastek offers a complete range of end-to-end Business Intelligence/Data Warehousing (BI/DW) services. A common starting point is to review the organisation's current BI/DW competency and recommend an overall strategy for delivering enhanced DW/BI capabilities. This includes the overall methods of data management, project scope, people organisation, required tools/technologies and data architecture to deliver agility in decision-making. This encompasses functional architecture, dimensional modelling and analytical reporting, as well as considering business, process and project execution aspects.

Typically, this service will integrate with our data modernisation service and Basecamp approach.

Sometimes, a health check assessment may be more appropriate than a full strategic review. This is a consultative engagement that focuses on a subset of known issues and provides both tactical and strategic recommendations for improvements.

3.1 Health Check - Common Symptoms and Challenges

Topic	Common symptoms and challenges
Data Maturity Assessment	A Data Maturity Assessment is a series of strategic and tactical considerations and action items that lead to the successful adoption of data platforms. Technology can help an organisation make the most significant impact, but a healthy data culture involves many considerations across the spectrum of people, processes and technology. Data maturity measures the sophistication and effectiveness of an organisation's data collection, management, analysis and use of data to guide decisions and strategies. Understanding an organisation's current position on the data proficiency spectrum is crucial for charting the next steps in the data journey. To gain clarity, we engage with the organisation's teams with a series of workshops, asking the following sample probing questions: • Where is your data currently stored for each team? • What metrics or KPIs do you use to gauge the success of marketing initiatives? • Is your team able to seamlessly access and analyse data? • How promptly can they derive insights regarding initiative success? • Is your team adept at integrating qualitative and quantitative data into their analyses? Reflecting on these questions will pinpoint the organisation's data maturity and foster a culture of continuous improvement and data-driven decision-making. The journey to data maturity is iterative and requires regular introspection.
BI Maturity Assessment	Establishing the customer's BI maturity curve is a helpful starting point, as it guides the thought processes around the potential journey to improvement. Consideration can be given to the potential business benefits of adopting highly advanced BI capabilities such as predictive/prescriptive analytics. However, it is also essential to ensure that users can walk before they try to run. Our BI Maturity Assessment measures the following 4 Maturity Levels: • Level 1 - is referred to as initial or performed. It's the starting point for new data-related investments that are new, undocumented and without any process discipline. • Level 2 is referred to as repeatable or managed. Data management is planned and executed at this point on the maturity curve. Defined processes exist,

Topic	Common symptoms and challenges
	although these processes may not be uniformly applied throughout the organisation. • Level 3 - is referred to as defined. At this point on the maturity curve, a set of standardised data management processes is established and consistently applied across organisational boundaries. • Level 4 - is known as capable or measured. Data is well-managed across its entire lifecycle at this point on the maturity curve.
User adoption and engagement	Many customers report user adoption rates of 30% or less compared with the expected user base and adoption will decline over time if the system is not fit for purpose. Factors influencing this include: • Confidence in the quality, relevance and completeness of data. • Ease of use and functionality of BI tools, particularly for information visualisation. • User engagement, ongoing support provision, assistance and coaching to address evolving requirements and effective use of available tools and data. The recommendations in this area are often people-related rather than technology-related.
Delivery approach	One common reason for perceived DW failure is the delivery approach. BI is business-driven and the implementation approach has to incorporate a high degree of agility to keep pace with changing business requirements. Mastek favours the establishment of a BI Competency Centre to manage the critical balance between the needs of the business, IT and power users and prioritise requirements accordingly. Mastek also advocates for modern, Agile delivery approaches, including Enterprise Agile and DevSecOps, to provide the required rapid time-to-value. The assessment will include a review of BI governance and delivery approaches and how these fit within the overall organisational culture.
Data content	It is common for knowledge workers to open BI reports to extract data from the warehouse and then transfer it to Excel or other tools. This is often because either the report is not in the required format or the required data has not been placed in the data warehouse. Quick solutions may exist to add relevant reports/visualisations. Where the issue is missing data, the long-term plan may be to incorporate it into the data warehouse. However, a more robust short-term solution may also be required. A modern BI architecture often addresses this by creating a more controlled ab/sandbox environment using techniques such as data virtualisation and data discovery tools, with a migration plan to move this into the production DW later.
Report rationalisation and visualisation	Many ageing BI solutions have hundreds/thousands of static, tabular reports. In all likelihood, many of these are outdated, obsolete versions or hastily created copies with different selection criteria applied for one-off purposes. The problem is that quite often, nobody really knows whether a report is still needed. Several groups of reports are often extremely similar. Therefore, each group could be condensed into a more interactive multidimensional analysis, greatly rationalising the reporting catalogue and providing a rich user experience. Modern BI tools are capable of far more insightful visualisation of information. This provides a greater understanding of the underlying cause/effect relationships, enabling better decision-making.

Topic	Common symptoms and challenges
Mobility	The availability of highly visual information dashboards on tablet devices is essential for most modern BI systems. As part of the reporting estate and potential visual improvements, it is necessary to assess the ability to add mobile capability into the BI platform.
Support for advanced analytics	In many organisations, particularly those with a customer-focused approach, mainstream production BI is often supplemented by advanced analytics, performed by specialist data scientists with job titles such as Customer Insight Analyst or similar. It is essential to consider the needs of these power users in parallel with mainstream BI. All too often, their work is isolated, relying too much on personal knowledge and unmanaged data sources. Hence, much of the business benefit will only be realised when the work is integrated with traditional reporting and business processes. A common modern architectural solution for this is establishing a formal discovery/information lab environment. This environment would include advanced tools, access to a wide variety of data with proper provenance, governance and security, as well as an established process for converting the research's findings into business as usual.
Big data integration	Many organisations are now experimenting with the collection and analysis of big data - whether that be social media content and sentiment, web scraping to benchmark with competitors, data streams from the exploding number of devices and sensors (the Internet of Things), text and voice data from customer interactions, or a myriad of other semi- or unstructured data. In addition to testing the hypotheses and harnessing suitable use cases, this data must be managed, secured, blended, trusted and accessed consistently alongside more traditional structured data sources. In other words, an architecture must integrate all data types for effective business exploitation.
Real-time data	There is a growing demand for real-time data. However, it is essential to understand the real requirements and potential business benefits. Accurate real-time data demands connectivity and suitable techniques for accessing live transactional data sources, which can be challenging. However, providing near-real-time access to specific subsets of data, such as point-of-sale data refreshed every 15 minutes, may yield significant and more achievable benefits.
Architecture	The above challenges highlight that traditional monolithic data warehouses can no longer provide the necessary user data and access independently. A flexible information architecture is required. There is now a relatively substantial degree of consistency among vendors, analysts and practitioners regarding how this should look – at least at the conceptual level. An important technical aspect of the health check is reviewing the information architecture and considering the benefits of the modernisation roadmap. This will help address the growing diversity and volume of data, as well as sophisticated analytic aspirations and the urgent need to address new business requirements.
Performance	Poor system performance or latency can be a significant source of user frustration and disengagement. The technical aspect of the review will consider best practices, assess all relevant elements and seek potential solutions to any bottlenecks. In addition to traditional best practices for review, such as aggregation strategy, partitioning and indexing, many recent technological advances provide significant enhancements to performance, including in-memory processing and columnar data

Topic	Common symptoms and challenges
	stores. Some of these may be relevant to consider for enhancing a poorly performing system.
Data quality, governance, security	If there is no existing internal programme in place to address these important issues, the health check can assess the current position and recommend a suitable improvement programme.
Security and Data Protection	• BI and data warehouse strategies are recommended with security by design and privacy by default, aligned to UK public sector requirements, including: – UK GDPR and Data Protection Act 2018 – Secure handling of Sensitive data – Least-privilege access models – Auditability and traceability of data usage. • Security considerations are embedded into: – Target data architectures – Data ingestion and transformation design – Reporting and analytics access patterns – Operating model and governance structures.

4. Key Features

- Assessment maturity level of current BI.
- Understand where you are today and provide a path to improve enterprise data management capability.
- Framework to help organisations benchmark their capabilities, identify strengths and gaps and leverage their data assets to improve business performance.
- Identifying gaps in attaining the end state of BI competency.
- Roadmap to bridge the gaps.
- Blueprint architecture for building incremental capabilities.
- Technology and deployment recommendation.
- Solution delivery options (In-house, outsourced, product purchase, etc.) and level 1 delivery plan.
- BI organisation structure to manage new competency.
- Cost-benefit analysis.
- Experienced consultants to work on emphasising BI as a business competency.

5. Business Benefits

- Visibility to areas of improvement in the decision-making process.
- Planning and estimating resource requirements and costs to deliver the end state.
- Better assessment of risk and lost opportunities for doing nothing.
- Mapping the anticipated benefits from the proposed BI platform with business directives.
- Enables assessment of the impact on the current IT strategy based on the end-state requirement.
- Identifies the skill gaps and actions within the current BI organisation.

6. Technologies, Tools and Standards

- Industry standards Data Management Frameworks.
- Microsoft Office tool.
- Mastek BI assessment framework and tool set.
- Interviewing key stakeholders.
- Brainstorming sessions with operational executives.
- Audit current processes.
- Reviewing current documentation.

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