



Trust. Value. Velocity

G-Cloud 15

Sustainability Led FinOps Cloud Optimisation
Architecture 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 (both 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, being transparent, leading to enablement, 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.

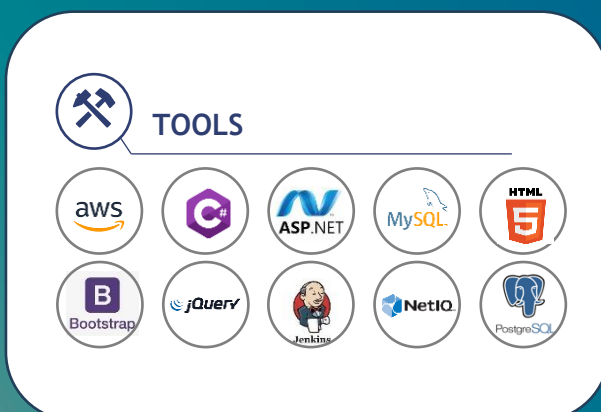
Solution

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

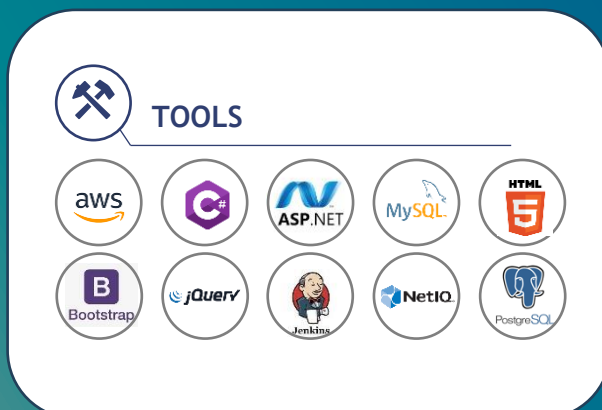
- Leveraging DevOps platform based on reusable GitHub, AWS and Azure DevOps Pipelines
- Introduce more flexible, scalable and reusable IaC capabilities
- Implement CI/CD pipelines.

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

Sustainability-Led FinOps Cloud Optimisation Architecture is an outcomes-driven framework that integrates FinOps (Inform → Optimise → Operate) with GreenOps/ESG principles at both design-time and run-time. We implement the policies, controls, automation, dashboards and governance cadence required to:

- Inform: achieve granular visibility of spend, usage, unit economics and carbon intensity per service, product and business unit.
- Optimise: apply cost-and-carbon levers (rightsizing, commitments, Autoscale, storage lifecycle, carbon-aware scheduling), enforced via policy-as-code.
- Operate: institutionalise quarterly business reviews (QBRs), Well-Architected remediation and sustainability scorecards, with evidence-backed attestation packs for finance and executive stakeholders.

The service is multi-cloud (AWS/Azure/GCP) and public-sector ready, with architecture rationalisation and compliance practices embedded throughout.

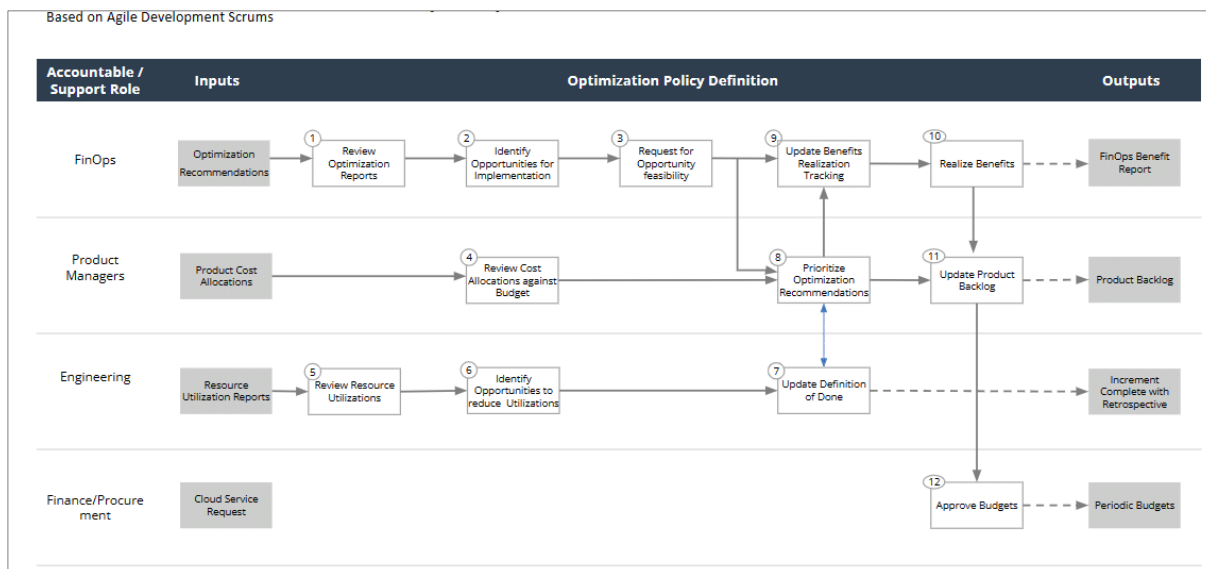


Figure 1: FinOps Optimisation Process Flow

3. Masteks Service

3.1 Discovery and Baseline (Inform)

Objective: establish a trusted, auditable baseline for cost and carbon.

- Spend and Usage Baseline: ingest billing/usage data, normalise tagging, map costs to BUs/services/environments and define unit cost per transaction/service.
- Carbon Baseline: calculate workload carbon intensity by region/provider; identify energy proxies (CPU utilisation, storage tiers, data movement).
- Architecture Rationalisation Scan: highlight redundant platforms, over-provisioned components, chatty integrations and high-emission patterns.
- Governance Assessment: review roles, ownership, variance handling, commitments coverage, risk/exception flows and cadence against public-sector expectations.
Deliverables: Baseline KPI pack (cost + carbon), opportunity heatmap, tagging/taxonomy remediation plan, governance gap analysis.

3.2 Operating Model and Controls (Optimise)

Objective: design the FinOps/GreenOps operating model with clear accountability.

- RACI and Decision Logging: define shared accountability across Finance, Product, Engineering, Ops/Platform and EA/Governance; establish decision logs and remediation backlogs.
- Policy Pack (Policy-as-Code):
 - Cost Guardrails: auto-shutdown schedules, idle resource cleanup, budget alerts, anomaly detection.
 - Sustainability Guardrails: carbon-aware region selection, storage tiering defaults, event-driven/serverless preference and workload quiet hours.
 - Commitments Strategy: Savings Plans/Reserved Instances coverage targets, purchase review cadence, exception workflows.
- Optimisation Levers: rightsizing, Autoscale tuning, spot/preemptible adoption, data compression/partitioning, image/artefact retention, container density, modern instance families.
- Deliverables: Operating Model charter, policy library, optimisation playbooks, commitment purchasing plan with governance gates.

3.3 Automation, Dashboards and Evidence (Operate)

Objective: make optimisation repeatable, measurable and audit-ready.

- Automation Runbooks: scheduled shutdowns, orphaned resource cleanup, non-compliance detection, IaC cost-drift checks, CI/CD cost gates.
- Role-Based Dashboards: executive, finance, BU/product and engineering views—tracking forecast accuracy, savings realised, commitment coverage, idle waste, unit cost and carbon deltas.
- Attestation and Audit Packs: monthly savings reports, quarterly Savings and ESG certificates, change/evidence logs, Well-Architected remediation summaries.
Deliverables: Automation playbooks, dashboard suite, attestation templates and quarterly governance report.

3.4 Continuous Improvement and Sustainability Integration

Objective: embed sustainability into design and governance for durable impact.

QBR Cadence: review KPI trends, approve next optimisation wave, retire high-emission/low-value designs, track risk and exceptions.

Design-Time Sustainability: Add sustainability checks to architectural reviews (efficient data patterns, event-driven designs and carbon-aware scheduling of batch workloads).

ESG Alignment: Connect FinOps KPIs to ESG measures and produce board-ready narratives that link cost savings to environmental impact, ensuring alignment across all stakeholders.

Deliverables: Updated optimisation roadmap, sustainability scorecards, design review outcomes, training artefacts.

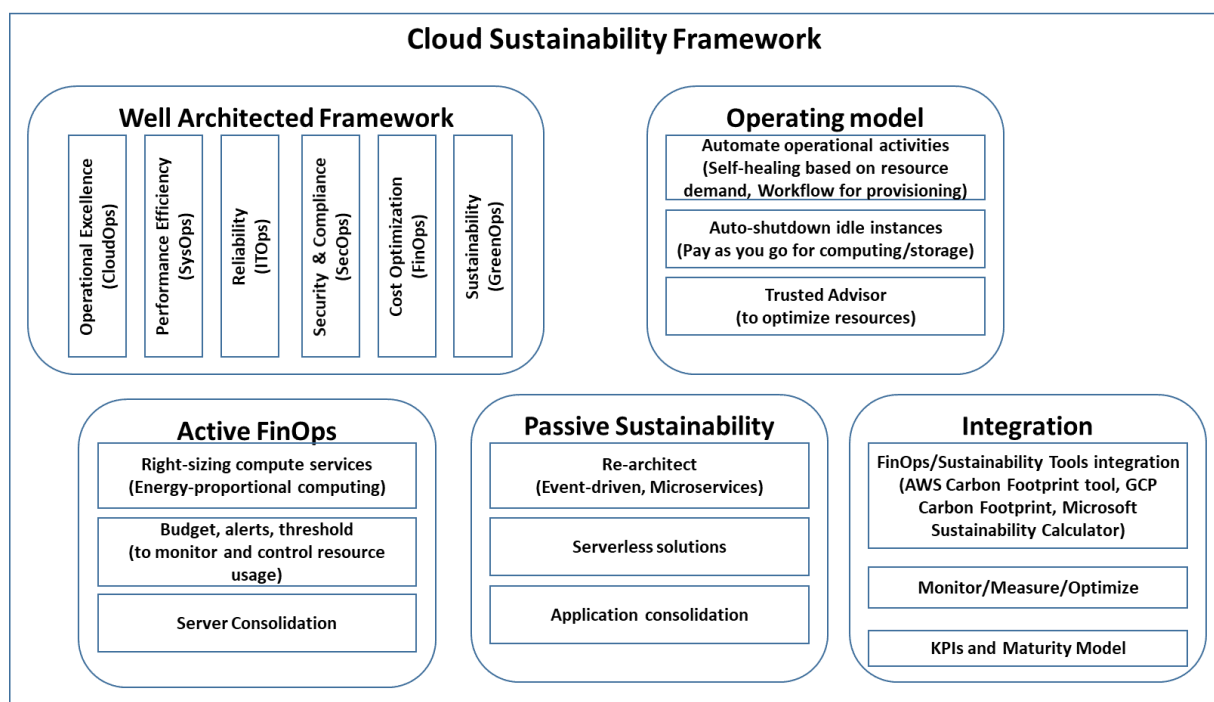


Figure 2: FinOps Cloud Optimisation Architecture.

4. Key Features

- **Multi-cloud cost and carbon baselining** at account/subscription, service and environment levels—mapped to BUs and products with **unit economics**.
- **Green tagging and taxonomy standards** to ensure reliable financial and sustainability reporting (ownership, environment, service, cost centre, carbon scope).
- **Architecture rationalisation and modernisation** to eliminate redundant stacks and high-emission designs; prioritised remediation backlog with clear ROI/ESG targets.
- **Commitments optimisation governance** (Savings Plans/RI) with utilisation analysis, purchase simulations and approval gates to ensure predictable budgets.
- **Rightsizing and Autoscale tuning** based on performance envelopes, SLOs and energy-efficiency targets; separation of burst vs baseline capacity.
- **Storage and data lifecycle optimisation** (tiering, compression, partitioning, archival policies) tied to cost and carbon reduction.
- **Policy-as-code guardrails** (shutdown, cleanup, exception workflows, anomaly detection) enforced through IaC and cloud-native controls.
- **CI/CD cost awareness** (pre-deploy cost checks and drift detection) to prevent cost regressions at design-time.
- **Role-based dashboards** for C-suite, Finance, BU/Product and Engineering, surfacing forecast accuracy, idle waste, commitment coverage, unit cost and ESG metrics.
- **Well-Architected review cadence** with trackable HRIs, remediation backlogs and funding pathways where applicable.
- **Sustainability scoring in design reviews** (energy proxies, data movement, compute type, storage tiering) to promote low-carbon architectures.
- **QBR governance rhythm** with decision logs, savings/ESG attestation and next-wave optimisation approvals.
- **ESG reporting enablement**, mapping operational metrics to ESG disclosures; board-level narratives that demonstrate tangible environmental outcomes.
- **Training and change management** for Finance, Product, Engineering and Ops to build a culture of shared accountability for cost and carbon.

5. Business Benefits

5.1 Financial Control and Predictability

Achieve single-pane transparency of spend and usage with **explainable variance** and **accurate forecasting**. Systematically reduce run-rate costs by attacking idle waste, over-provisioning and unmanaged growth, while maintaining service resilience.

5.2 Operational Efficiency and Governance

Automations remove repetitive toil (shutdowns, cleanup, alerts). **Policy-as-code** standardises compliance and accelerates remediation. Governance embeds **Well-Architected** checks and optimisation pipelines into BAU, improving performance and reducing risk without adding bureaucracy.

5.3 Sustainability Impact with Traceability

Carbon-aware placement, **storage lifecycle policies** and **efficient designs** deliver measurable emission reductions alongside savings. ESG metrics are integrated into dashboards and **quarterly attestation packs**, enabling confident executive communication and regulatory reporting.

5.4 Architecture Modernisation and Risk Reduction

Rationalising duplicated stacks and high-emission patterns reduces complexity, technical debt and security exposure. Modern instance families, event-driven patterns and right-sized data services boost efficiency and reliability.

5.5 Stakeholder Alignment and Culture Change

A clear **RACI**, decision logs and attestation build trust across Finance, Product and Technology. Teams adopt **shared accountability** for cost and carbon, resulting in balanced decisions and durable benefits that persist beyond the initial optimisation wave.

6. Technologies, Languages, Methodologies and Vendor Support

#	Technologies	Languages	Methodologies	Vendor Support
1	AWS Cost Explorer, Azure Cost Management, GCP Billing	SQL, Python	FinOps Framework (Inform—Optimise—Operate)	AWS, Microsoft, Google
2	Sustainability APIs and Carbon Data Sources	JSON, REST	GreenOps Integration and ESG Reporting	Cloud Carbon Footprint, Open Source
3	IaC and Policy-as-Code Tools (Terraform, ARM/Bicep, OPA)	HCL, YAML	Policy-as-Code Governance	HashiCorp, Microsoft
4	Well-Architected Review Tooling	—	Architecture Rationalisation and Compliance	AWS, Azure
5	Dashboarding and Analytics (Power BI, Tableau)	DAX, SQL	KPI Dashboarding and ESG Metrics Mapping	Microsoft, Tableau
6	Automation and CI/CD Cost Gates (InfraCost, Jenkins, GitHub Actions)	Bash, PowerShell	Continuous Optimisation and Cost Drift Prevention	Open Source, GitHub

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