Mastek™

Trust. Value. Velocity

G-Cloud 15

Green DevOps as a 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:

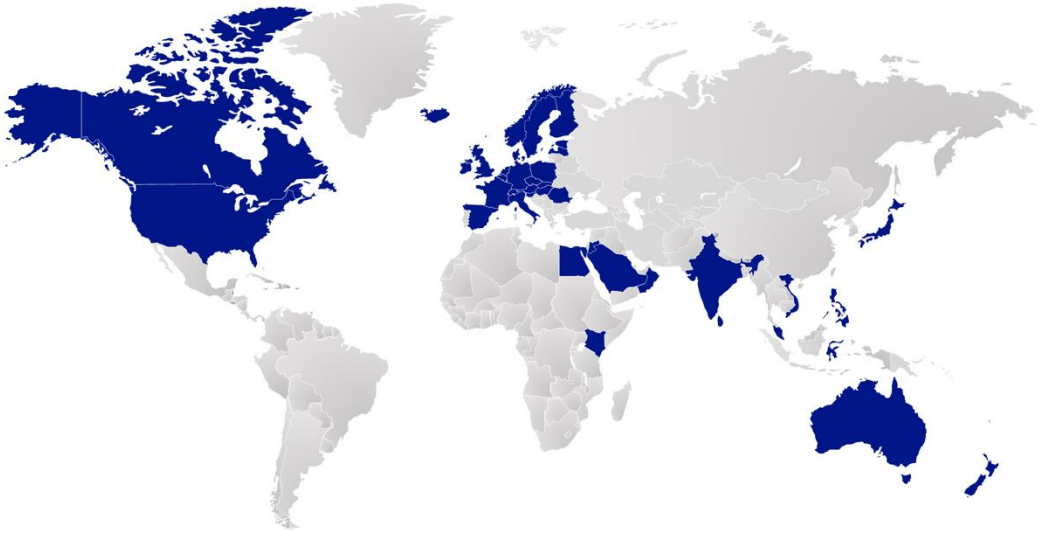
Working through a complex stakeholder landscape: We understand the importance of establishing effective communication channels, building trust and fostering a collaborative working environment that empowers stakeholders to contribute meaningfully to the project's success. Our approach is based on a deep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



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Singapore
Slovakia
Spain
Sri Lanka
Sweden
Switzerland
United Arab Emirates (UAE)
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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 • 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

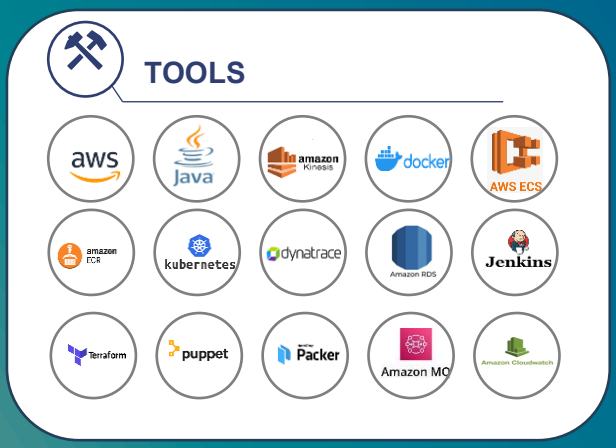
- Transition business-critical Platform services from incumbent supplier with minimal risk
- Migration from private cloud to AWS Cloud.

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:

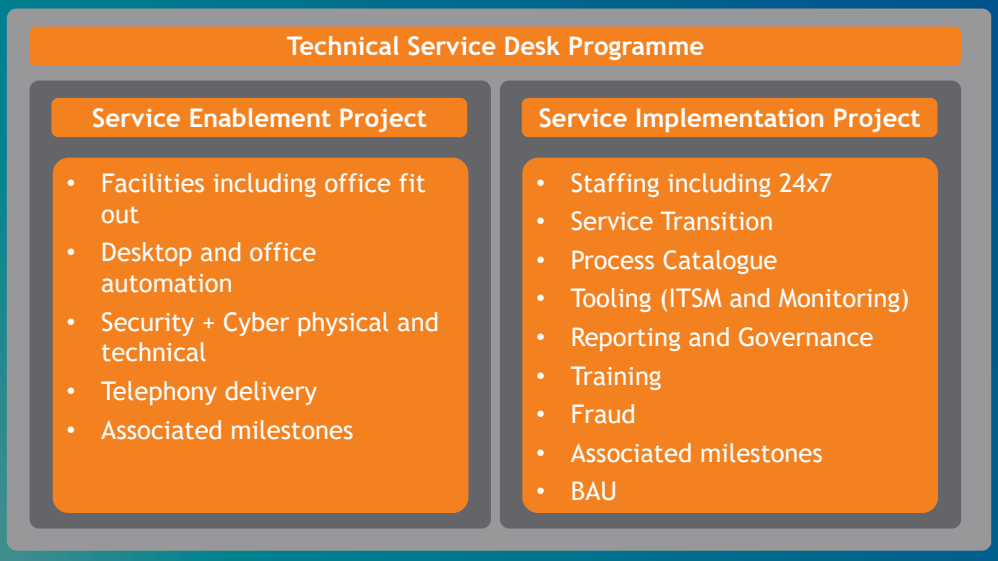
  - Service Management Vice President
  - Programme Director
  - Chief Technology Officer
  - Programme Management office lead.

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.

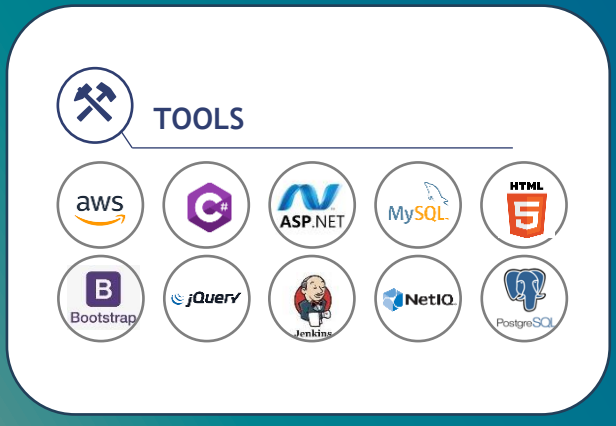
Solution

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

Green DevOps as a Service is a next-generation capability that embeds sustainability, efficiency and responsible engineering principles directly into the end-to-end DevOps lifecycle. The service enables organisations to design, build, deploy, operate and continuously optimise digital solutions with minimal environmental impact while maintaining high performance, reliability and speed of delivery. It transforms DevOps from a purely velocity-focused practice into a value-driven, sustainability-aware operating model.

The service integrates sustainable IT practices across every stage of the software delivery lifecycle, from architecture and development, through CI/CD pipelines, testing, deployment and runtime operations. It combines cloud-native tooling, automation and observability with eco-conscious engineering patterns to optimise compute, storage, network usage and energy consumption across cloud, hybrid and on-prem environments.

Green DevOps as a Service embeds carbon-aware decision-making into DevOps workflows. This includes workload placement based on regional carbon intensity, intelligent scheduling of non-critical workloads to lower-emission time windows, automated rightsizing and scaling policies and lifecycle management to eliminate idle or over-provisioned resources. These capabilities reduce both operational cost and carbon footprint without compromising delivery timelines or service quality.

Sustainability metrics are integrated directly into engineering and operational dashboards alongside traditional DevOps KPIs such as deployment frequency, lead time, error rates and availability. Teams gain visibility into carbon intensity per workload, energy consumption trends, resource efficiency, and sustainability impact at the application, service, and product levels. This enables data-driven trade-offs between performance, cost and environmental impact.

The service aligns DevOps practices with organisational ESG (Environmental, Social and Governance) objectives and regulatory expectations. It supports the auditable reporting of sustainability metrics, carbon reduction initiatives and compliance with emerging environmental standards and public sector sustainability mandates. Policy-as-code and automated controls ensure sustainability guardrails are consistently enforced across delivery pipelines and runtime environments.

Green DevOps as a Service also focuses on capability enablement and cultural change. It provides engineering teams with sustainable design guidelines, reusable green patterns, automation playbooks and training to embed sustainability into everyday development and operational decisions. This fosters shared accountability across engineering, platform, operations and leadership teams.

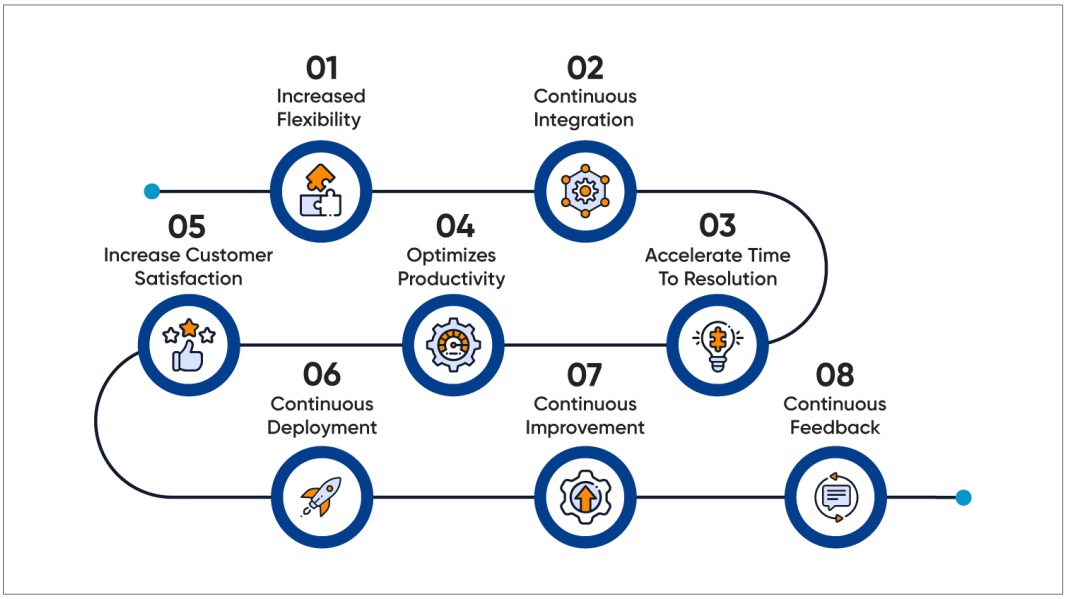


Figure 1: Green DevOps as a Service

By integrating Green DevOps with FinOps and platform engineering practices, the service ensures that sustainability, cost optimisation and operational excellence reinforce one another. Organisations benefit from reduced cloud spend, improved system efficiency, faster recovery and more resilient platforms, while clearly demonstrating commitment to sustainable digital practices.

The outcome is an organisation that delivers innovation at speed while operating responsibly. Green DevOps as a Service enables measurable reductions in carbon footprint, improved resource efficiency, stronger ESG reporting and enhanced brand and stakeholder trust. It positions DevOps as a strategic enabler of sustainable digital transformation and long-term enterprise resilience.

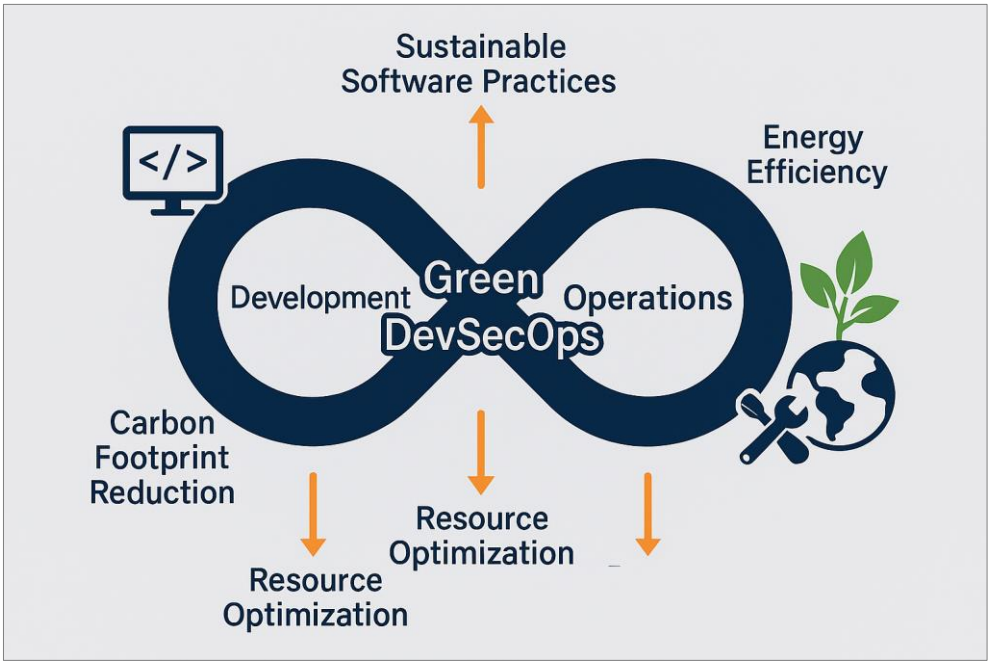


Figure 2: Green DevSecOps as a Service

3. Masteks Service

This service provides end-to-end support for implementing, operating and optimising Green DevOps practices across the enterprise. Key elements include:

- **Sustainable DevOps Strategy:** Assessment of current DevOps maturity, environmental impact and business objectives. Definition of a Green DevOps vision, principles and roadmap aligned with organisational ESG targets.
- **Eco-Efficient CI/CD Pipelines:** Design and deployment of automated pipelines that optimise compute, storage and network usage. Integration of carbon-aware scheduling, ephemeral environments and right-sizing for cloud resources.
- **Green Infrastructure and Cloud Optimisation:** Implementation of cloud-native architectures, serverless computing and container orchestration to maximise resource efficiency. Use of renewable-powered cloud regions and automated scaling to minimise waste.
- **Sustainable Coding and Testing Practices:** Adoption of energy-efficient coding standards, static analysis for resource usage and green testing frameworks to reduce build times and test cycles.
- **Monitoring and Sustainability Analytics:** Real-time monitoring of energy consumption, carbon emissions and resource utilisation across the DevOps toolchain. Dashboards and reporting for continuous improvement and compliance.
- **Governance and Policy Automation:** Policy-as-code for enforcing sustainability standards, automated tagging and lifecycle management of resources. Integration with ESG reporting and audit frameworks.
- **Stakeholder Engagement and Change Management:** Training, workshops and communication strategies to drive adoption, foster a culture of sustainability and ensure continuous improvement.

4. Key Features

4.1 Sustainable DevOps Strategy and Roadmap

- Maturity assessment, environmental impact analysis and ESG alignment.
- Vision, principles and phased implementation roadmap.
- Stakeholder engagement and change management.

4.2 Eco-Efficient CI/CD and Automation

- Carbon-aware scheduling, ephemeral environments and right-sizing.
- Automated pipeline optimisation for compute, storage and network.
- Integration with green build/test frameworks.

4.3 Green Infrastructure and Cloud Optimisation

- Cloud-native, serverless and containerised architectures.
- Automated scaling, resource tagging and lifecycle management.
- Selection of renewable-powered cloud regions.

4.4 Sustainable Coding and Testing

- Energy-efficient coding standards and static analysis.
- Green testing frameworks and reduced build/test cycles.
- Automated code review for resource optimisation.

4.5 Monitoring and Sustainability Analytics

- Real-time monitoring of energy, carbon and resource usage.
- Dashboards, alerts and sustainability KPIs.
- Integration with ESG reporting and compliance tools.

4.6 Governance and Policy Automation

- Policy-as-code for sustainability standards.
- Automated tagging, resource lifecycle and compliance enforcement.
- Audit trails and reporting for regulatory alignment.

4.7 Stakeholder Engagement and Enablement

- Training, workshops and communication strategies.
- Adoption roadmaps and continuous improvement mechanisms.
- Community of practice for sustainable DevOps.

5. Business Benefits

- **Reduced Environmental Impact:** Minimise carbon footprint and resource consumption across the software delivery lifecycle.
- **Operational Efficiency:** Optimise compute, storage and network usage, reducing costs and improving performance.
- **Regulatory Compliance:** Ensure alignment with ESG standards, industry regulations and sustainability reporting requirements.
- **Innovation and Agility:** Accelerate delivery of digital solutions with eco-conscious automation and cloud-native practices.
- **Brand Leadership:** Demonstrate commitment to sustainability, enhancing reputation with customers, partners and regulators.
- **Continuous Improvement:** Embed sustainability metrics and feedback loops for ongoing optimisation and value realisation.
- **Stakeholder Engagement:** Foster a culture of sustainability and shared responsibility across business and IT teams.

Figure 3: Use cases and Benefits of Green DevOps

6. Technologies, Languages, Methodologies and Vendor Support

#	Technologies	Languages	Methodologies	Vendor Support
1	Azure DevOps, GitHub Actions, GitLab CI, Jenkins	YAML, Shell, Python	CI/CD, pipeline automation, carbon-aware scheduling	Microsoft, GitHub, GitLab, Jenkins
2	AWS, Azure, GCP, IBM Cloud	Python, Go, Java, Node.js	Cloud-native, serverless, container orchestration	Amazon, Microsoft, Google, IBM
3	Kubernetes, Docker, OpenShift, Helm	YAML, Bash, Go	Containerization, orchestration and resource optimisation	CNCF, Red Hat, Docker
4	SonarQube, ESLint, Green Software Foundation tools	Java, JavaScript, Python, C#	Static analysis, green coding standards, energy profiling	SonarSource, Green Software Foundation
5	Prometheus, Grafana, Azure Monitor, AWS CloudWatch	Python, SQL, JSON	Monitoring, sustainability analytics, KPI dashboards	Grafana Labs, Microsoft, Amazon
6	Terraform, Ansible, Pulumi, Chef	HCL, YAML, Python	Infrastructure-as-code, policy-as-code, automation	HashiCorp, Red Hat, Pulumi, Chef
7	Power BI, Tableau, Qlik	DAX, SQL, Python	ESG reporting, analytics, dashboarding	Microsoft, Tableau, Qlik

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