



Zensar's Service Definition Document for GCP Services

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1 Introduction

Zensar Technologies is an established Google Cloud partner with accredited capabilities that align to UK Public Sector cloud adoption priorities. Our officially recognised Google Cloud competencies include:

- **Google Cloud Analytics Expertise**
- **Data Warehouse Modernisation Expertise**
- **Industry Expertise - Retail & Wholesale** (highly transferable to government domains such as supply chain optimisation, demand planning, citizen-facing data services and public distribution systems)

These certifications validate Zensar's experience in designing, modernising and securing large-scale cloud-native platforms on Google Cloud Platform (GCP).

Across public sector transformations, Zensar emphasises:

- **Security-first architecture** aligned with UK Government and NCSC principles.
- **Scalable cloud foundations** optimised for cost, efficiency and resilience.
- **Analytics-led decision making** using BigQuery, Dataflow, Vertex AI, GKE
- **Operational excellence** through automated pipelines, monitoring and FinOps

2 Service Overview

The following services are included in this unified G-Cloud service definition.

2.1 Data Platform Modernisation with BigQuery & Dataflow - Detailed Description

This service modernises existing data platforms—legacy databases, on-premise warehouses, Hadoop clusters and data integration pipelines—onto Google Cloud's analytics ecosystem.

Zensar conducts a full discovery of the as-is landscape, covering ingestion processes, ETL pipelines, data models, lineage, quality frameworks, storage systems and cost baselines. Based on findings, we design target architecture using services such as **BigQuery, Dataflow, Dataproc, Data Fusion and Pub/Sub**.

We build modern ingestion frameworks, re-platform ETL workflows, optimise SQL/ELT scripts and enable batch + streaming use cases. Security controls, data governance, metadata management and FinOps guardrails are integrated into the design.

The result is a cloud-native, scalable, cost-optimised and compliant analytics environment with faster time-to-insight, improved reliability and reduced operational complexity.

2.2 Legacy System Migration (Mainframe & Data Warehouse) to GCP - Detailed Description

This service enables government organisations to migrate mainframe, mid-range and legacy warehouse systems to GCP through a structured and risk-managed approach.

We conduct application, batch and data dependency discovery; code analysis (COBOL, PL/SQL, proprietary ETLs); schema mapping; interface inventory; and assessment for re-platforming or refactoring. Zensar evaluates migration pathways such as re-host, re-platform, re-architect, decompose or retire.

We design the future-state architecture on GCP using services like **BigQuery, Cloud Storage, GKE, Compute Engine, Cloud Composer and Dataflow**. Migration waves are planned to minimise disruption, including dual-running, data reconciliation, integrity checks, rollback plans and controlled cutovers.

This reduces technical debt, removes licensing constraints, increases agility and creates a scalable cloud-ready platform for future digital transformation.

2.3 GCP Adoption & Migration Consulting - Detailed Description

This advisory service guides public sector organisations through structured cloud adoption, ensuring readiness, compliance and long-term sustainability.

Zensar conducts cloud maturity assessments, skills analysis, governance gap assessments, security posture checks and organisation readiness evaluations. We design **Cloud Operating Models (COMs), Target Operating Models (TOMs)**, migration roadmaps, landing patterns and architecture frameworks aligned to government security, data sovereignty and sustainability requirements.

This service includes building business cases, TCO/ROI modelling, identifying reusable patterns and establishing best practices in architecture, governance, compliance and FinOps. Stakeholder engagement, change management and capability uplift are embedded throughout.

This accelerates secure and compliant cloud adoption with clarity, control and predictable outcomes.

2.4 Secure GCP Landing Zone Design & Implementation - Detailed Description

This service delivers a secure, scalable and compliant landing zone on Google Cloud tailored to public sector environments.

Zensar designs and implements multi-project architectures with separation of duties, identity federation organisational policies, network perimeters and encryption frameworks. We configure compliant IAM structures, custom roles, firewall rules, VPC architecture, routing, DNS and Private Service Connect.

Security controls include **CMEK, VPC Service Controls, Security Command Centre (SCC), Cloud Armor, Cloud KMS** and logging/monitoring via **Cloud Operations**.

All components are deployed using **Infrastructure-as-Code (Terraform)** with automated CI/CD promotion workflows. Documentation, runbooks and operational handover ensure long-term sustainability.

This provides a trusted foundation for hosting sensitive systems and critical citizen services.

2.5 AI & Machine Learning Enablement on GCP - Detailed Description

This service accelerates AI/ML adoption using Google Cloud's Vertex AI platform and Responsible AI principles.

Zensar identifies high-value government use cases—demand forecasting, fraud detection, citizen engagement, anomaly detection, welfare optimisation and operational insights. Data readiness assessments, feasibility evaluations and model selection frameworks are conducted.

We build end-to-end MLOps pipelines using **Vertex AI Pipelines, Feature Store, Model Registry, Experiments and Model Monitoring**, ensuring repeatability and governance. Models undergo performance testing, drift detection, fairness checks, explainability (XAI) analysis and validation.

Responsible AI frameworks aligned to UK Government AI Principles are integrated, including bias mitigation, human-in-the-loop controls, auditability and risk scoring.

This delivers trustworthy, production-ready AI models with strong control, compliance and performance.

2.6 GCP Cost Optimisation & FinOps Governance - Detailed Description

This service establishes effective FinOps governance across cloud estates to maximise value from public funds.

Zensar baselines current spend, identifies waste, analyses utilisation and designs cost-efficient architectures. We implement chargeback/showback models, tagging frameworks, commitment optimisation (CUDs) and automated policies for budget enforcement.

Dashboards for cost transparency, trend analysis, anomaly detection and forecasting are created using **BigQuery, Looker, Cloud Billing Export** and FinOps tooling integrations.

We design and operationalise FinOps functions including processes, RACI charts, role definitions, stakeholder workflows, KPIs and governance forums.

This results in sustained cloud cost reduction, predictable budgeting and alignment to Public Value principles.

2.7 Cloud-Native Application Development using GCP Kubernetes (GKE)-Detailed Description

This service accelerates the development of cloud-native applications using containers, Kubernetes, microservices and DevSecOps.

Zensar designs GKE clusters with autoscaling, node pools, service mesh integration and secure ingress patterns. We build CI/CD pipelines using **Cloud Build, GitHub Actions, GitLab CI** or Jenkins, incorporating security scanning, artefact signing, SAST/DAST and SBOM generation.

Applications are containerised, decomposed (where required) and modernised with 12-Factor App principles. Observability is implemented using **Cloud Logging, Cloud Monitoring, OpenTelemetry, tracing** and SRE practices.

Workloads are secured using policies (OPA/Gatekeeper), least-privilege access, binary authorisation and compliance baselines.

This delivers scalable, portable, resilient digital services with rapid deployment cycles and strong governance.

3 Reference Architecture & Components

This section provides a consolidated architecture view representing common foundational elements across Zensar's GCP offerings. Each service plugs into this architecture differently but benefits from the shared ecosystem.

3.1 Reference Architecture Overview

A typical multi-service public sector architecture includes:

Compute & Application Layer

- Google Kubernetes Engine (GKE)
- Cloud Run & Cloud Functions
- Compute Engine for specialised workloads.
- Microservices, APIs, service mesh (Anthos/ASM)

Data & Analytics Layer

- BigQuery (core analytics platform)
- Dataflow (stream/batch processing)
- Dataproc (Hadoop/Spark modernisation)
- Data Fusion (managed integration pipelines)
- Pub/Sub (messaging & streaming ingestion)

AI & ML Layer

- Vertex AI Workbench, Training, Experiments
- Feature Store
- Model Registry
- Vertex AI Pipelines (MLOps)

Security & Governance

- Identity & Access Management (IAM)
- VPC Service Controls
- Organisation Policies
- Key Management Service (CMEK)
- Cloud Armor, Cloud IDS
- SCC (Security Command Centre)
- Zero-Trust Networking (BeyondCorp principles)

Cloud Foundation

- Landing Zone blueprint
- Infrastructure-as-Code (Terraform / Cloud Deployment Manager)
- Shared VPC design
- Private Service Connect

- Logging & Monitoring (Cloud Operations Suite)

FinOps & Operations

- Cost management dashboards
- Committed Use Discounts optimisation.
- Budgeting and alerts
- Observability: logging, metrics, tracing
- Automated remediation scripts
- SRE frameworks

3.2 Interoperability & Integration

Across all seven services, integration is supported with:

- On-premise sources (databases, mainframes, ERP systems)
- Public sector identity systems (Azure AD/Entra ID, Okta, AD FS)
- Third-party data tools and APIs
- Industry-standard CI/CD platforms (Cloud Build, GitHub, GitLab, Jenkins)

4 Features & Benefits

Below is the combined capability set that spans your full G-Cloud portfolio. These can be included in the catalogue or reused in service definition PDFs.

4.1 Features

Cloud Modernisation & Migration

- Full data platform assessment and future-state architecture
- Automated ETL conversion and pipeline modernisation
- Mainframe re-platforming and workload re-hosting
- As-is architecture discovery and dependency mapping.

Secure Landing Zone & Governance

- Multi-project architecture with guardrails
- IAM and conditional access configuration
- Network design with PSC, firewall tiers, VPN/Interconnect
- CIS benchmark alignment
- Encryption and key lifecycle management

AI/ML Enablement

- Responsible AI governance frameworks
- Model lifecycle management with MLOps
- Bias, drift, fairness and explainability testing
- ML feature stores and reusable model components

Cloud-Native Development

- GKE cluster design and SRE practices
- Horizontal/vertical autoscaling and resilience patterns

- DevSecOps pipelines and secure artefact supply chain
- API gateways and service mesh adoption

FinOps & Sustainability

- Cost transparency and showback/chargeback
- Rightsizing, autoscaling, resource scheduling
- Carbon-intensity insights (GreenOps)
- Budget forecasting and anomaly detection

Operational Excellence

- Observability frameworks (metrics, logs, traces)
- SLO/SLA design and error budget management
- Automated health checks and remediation
- Runbooks and operational playbooks

4.2 Benefits

Public-Sector Aligned Outcomes

- Improved transparency, auditability and governance
- Better utilisation of public funds via FinOps
- Strong security posture aligned with NCSC principles.
- More resilient digital citizen services

Technical & Business Advantages

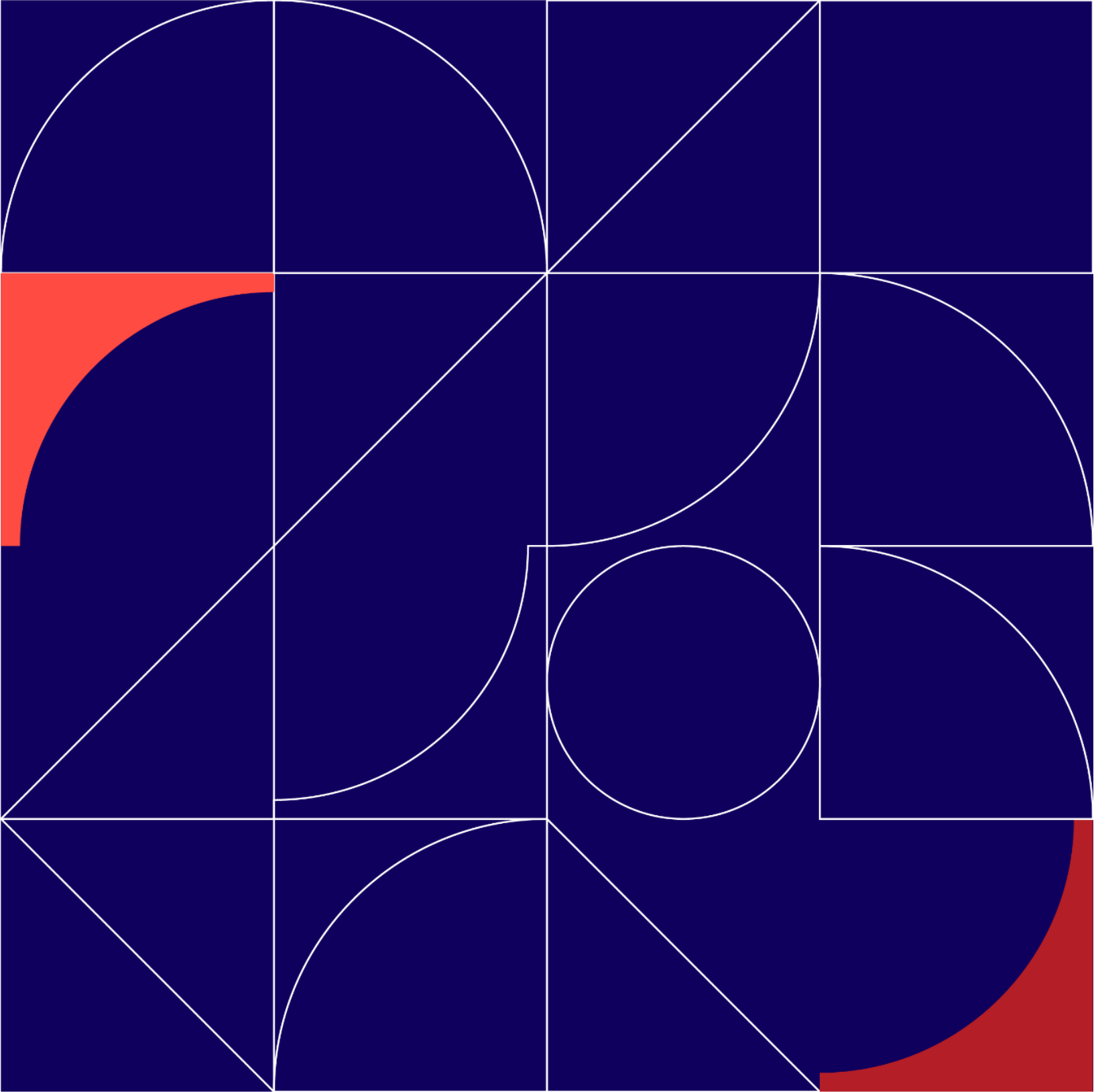
- Faster time-to-value with reusable accelerators
- Reduced cloud waste and lower TCO
- Higher application reliability with SRE practices
- Streamlined data processing and faster analytics cycles.
- Better model accuracy and trustworthiness for AI workloads

Scalability & Future-readiness

- Cloud-native architectures supporting evolving workloads.
- Modular, flexible designs to prevent vendor lock-in
- Containerised and portable applications
- Foundation for digital transformation and innovation

Operational Efficiency

- Reduced manual effort through automation.
- Consistent, repeatable deployments via IaC
- Predictable and measurable service performance
- Lower maintenance overhead with managed services



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