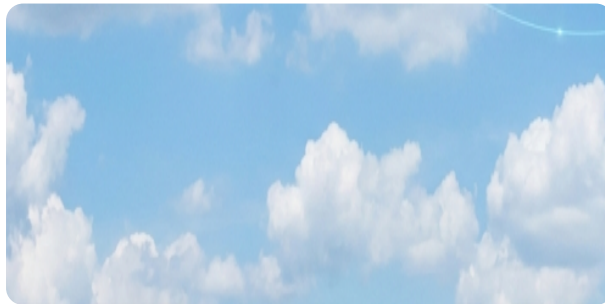




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# DESIGNING AND DEVELOPING CLOUD ARCHITECTURE - CLIENT SIDE DELIVERY ASSURANCE

GCloud Service Description Document

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# DESIGNING AND DEVELOPING CLOUD ARCHITECTURE - CLIENT-SIDE DELIVERY ASSURANCE

## 1.1 Short Service Description

Cloud can revolutionise business agility and reduce costs but has delivery challenges and risk. PA assure your AWS, Azure and GCP solution architecture design including key components; DevOps pipeline, microservices, platform landing zones, AI/ML integration, FinOps, and API security. Our assurance reviews architecture governance, risks and issues providing mitigating actions.

## 1.2 Key Service Features

1. Evaluating solutions: selecting vendors and products (SaaS, IaaS, PaaS)
2. Design review: proving designs are on-track, buildable, meet requirements
3. On-going supplier management: monitoring delivery and conformance to requirements
4. Risk management: identifying, recommending and implementing mitigating actions
5. Consulting: SMEs delivering targeted, pragmatic and actionable advice
6. Assurance: PA's IT assurance frameworks applied to cloud migrations
7. Cost optimisation: ensure IT spend supports your business case
8. Strategic partnerships: insight into AWS, Azure and GCP capabilities
9. Benefits realisation: helping manage cloud suppliers and validating outcomes
10. Experience: skills-based; certified and experienced cloud architects

## 1.3 Key Service Benefits

1. Proven approach: using PA's established IT delivery assurance capability
2. Tailored: assuring cloud-based solutions for business and enterprise architecture
3. Delivering higher quality solutions for data, technology and integration
4. Confidence: understanding delivery status through project monitoring and controls
5. Improved outcomes: supporting project management estimating, planning and leadership
6. Risk resolution: managing risks before they become issues
7. Hands-on: deploying experts with extensive cloud architecture delivery experience
8. Independence: delivering the right solutions through our vendor-neutral approach
9. Expertise: drawing on a pool of 300+ architects
10. Experience: extending an awarding-winning cloud delivery portfolio across industries

## 1.4 Service Definition

Organisations seeking to make the transition from on premise IT to cloud need to understand the benefits and challenges of cloud technology. While platform as a service (PaaS), software as a service (SaaS) and infrastructure as a service (IaaS) products can provide benefits such as pay-as-you-go pricing and service elasticity, cloud technology also introduces potential challenges in terms of security, integration and control. We can assure at any part of the project lifecycle set-up or initiation, whilst in-flight during development or post-delivery.

Moreover, while organisations can reduce some of the barriers to delivery with cloud computing, many of the common risks associated with IT projects remain – for example concerning vendor and product selection, understanding of requirements, control of scope and effective engagement of business users – and can be more complex to manage when the solution incorporates additional cloud services. PA's Designing and Developing Cloud Architecture – Client-side Delivery Assurance service brings our experience and knowledge into your organisation to provide you with confidence and peace of mind.

IT assurance –  
providing you with  
confidence that your IT  
programme will deliver



Our IT assurance service provides independent assurance and validation to answer the question: "Will my programme deliver my business outcomes?" – and identifies the pragmatic actions to get it on track.

**Our IT assurance brings:**

- Extensive, relevant expertise and experience of delivery so that issues are rapidly identified
- A proven, evidence-based methodology that addresses all IT programme areas
- A style which is bold and collaborative – a 'critical friend'.

Our assurance service can focus on any or all programme components...

- **Business case:** how robust is your business case? Are costs, benefits and plans achievable?
- **Programme:** how effective is your programme management and governance?
- **Solution:** how robust is your technical solution – including vision, requirements, architecture, design, testing and implementation?
- **Code:** what is the quality of the code being written?
- **Partners:** how effective are your commercial terms? Are suppliers working together?
- **Delivery:** are you on target, and is the risk profile acceptable?
- **Business readiness:** how informed, engaged and ready is your business to accept the new solution?

...and caters for programmes at any stage in their lifecycle:

- **Programme set-up:** are the right organisation, vision, processes, governance and controls in place? Is your programme set up for success? Are your objectives clear and achievable?
- **Programme in flight:** to what extent is your programme delivering to its objectives and plan? What risks and challenges exist and what mitigating actions are necessary to help ensure a successful outcome?
- **Post-programme:** what are the lessons learned from the programme/project and what processes are in place to ensure benefits are being tracked and managed well?

We will place our architects alongside you to provide advice on the appropriateness of cloud services for your organisation, objectively guide you in identifying and evaluating cloud products for your business, review cloud solution architectures, and oversee cloud project delivery to ensure the solution meets your requirements and sustainable benefits are realised. Combining our established IT delivery assurance capability with our hands-on cloud expertise allows us to surface risks and issues early and help you and your supplier resolve them before they become costly problems. We will ensure cloud solutions remain aligned with your business and architectural requirements, validate project outcomes and conformance to specified frameworks and standards, and give you confidence in delivery through effective project monitoring and controls. Our deep understanding of the challenges associated with cloud projects, including AI-driven architectures and the journey from IaaS to PaaS to SaaS, enables us to support your organisation in improving cloud maturity.

## 1.5 Why PA Consulting Group (PA)?

### A trusted partner for cloud, AI, and digital technologies

PA Consulting Group (PA) is a leading technology and innovation consultancy and one of the UK government's most trusted advisors, combining strategy, delivery assurance and deep engineering to turn complex ambition into assured outcomes. We bring end-to-end capability



across cloud architecture, data and AI, cyber, and advanced technology R&D, backed by a track record of scaling innovation in the public and private sectors.

Our UK work is anchored by secure, standards-led delivery. PA maintains ISO/IEC 27001 certification across global operations, demonstrating disciplined information security and operational control, and applies UK government good practice (GDS, NCSC CAF) across cloud and digital programmes.

We combine consultancy with real engineering. At our Global Innovation & Technology Centre (Cambridge), 300+ scientists, designers and engineers operate extensive labs and studios to prototype and industrialise solutions, bridging physical and digital from concept to production.

### 1.5.1 Why PA for cloud, data and AI

- **Hyperscaler alliances without vendor lock-in.** PA is Premier Tier with **Google Cloud** (13+ years; 150+ certifications; specialisations in infrastructure, data analytics, app dev and security) and holds deep **AWS** and **Microsoft** credentials, accelerating secure data foundations and generative AI at scale while keeping advice independent and outcome-led.
- **Responsible AI you can trust.** Our Responsible AI framework, governance toolkits, and risk policy make AI adoption transparent, auditable, and compliant, embedding lifecycle controls, model documentation, and human-in-the-loop safeguards aligned to evolving regulation.
- **Impact beyond pilots.** We help organisations become *intelligent enterprises*, using data and agentic AI to create and protect value, with pragmatic roadmaps from use-case selection to scaled operations.
- **Proof through delivery.** Our client stories span enterprise data platforms, IoT and analytics (e.g., Rentokil Initial), and product innovation at scale (e.g., Unilever) where PA has put data and AI at the heart of continuous, market-leading improvement.

### 1.5.2 Cloud capability (assess, design, build, assure, run)

PA applies an assured cloud delivery approach to complex government and regulated environments, blending client-side delivery assurance, multi-cloud architecture, and resilient operations:

- **Strategy & readiness.** Maturity assessments, target operating models for hybrid/multi-cloud, and cost/benefit modelling; proportionate GDS compliance and ISO 27001 controls embedded upfront.
- **Design & architecture.** Secure, well-architected patterns across Azure, AWS, and Google Cloud; data platforms, identity and access, and cross-domain solutions for sensitive estates.
- **Build & deploy.** Cloud-native engineering, DevSecOps (CALMR), CI/CD, infrastructure-as-code; automated testing and quality assurance to accelerate safe release.
- **Migration & modernisation.** Legacy transformation, platform reviews, and workload migration tuned to resilience and cost; pragmatic FinOps to keep spend predictable and efficient.
- **Operate & optimise.** Observability, incident management, performance tuning, backup/restore, and change management, maintaining business continuity and reducing total cost.
- **Client-side delivery assurance.** Forward-looking, risk-based assurance that keeps complex programmes on track, covering governance, architecture, testing, migration, service readiness and cutover. See our *IT Delivery Assurance* service.

### 1.5.3 AI, ML and data (from strategy to scale)

- **Strategy & governance.** AI blueprints, operating models, and policy; enterprise data governance; regulatory readiness; centre-of-excellence setup and change adoption.
- **Engineering & MLOps.** Data platforms on Azure/AWS/GCP, pipelines and feature stores; robust ML lifecycle with monitoring, drift detection and auditability.

- **Generative & agentic AI.** Secure integration of LLMs (including Copilot) into workflows for measurable productivity and quality gains, using guardrails, system cards and ROI framing.
- **Responsible AI.** Lifecycle controls and assurance tooling to manage bias, security and transparency.

### 1.5.3.1 Quantum and emerging technologies

PA's applied physics and quantum engineering teams help clients unlock near-term value, combining quantum techniques with classical systems for decision support, advanced sensing and secure communications:

- **Decision support & optimisation.** Hybrid quantum/classical algorithms to accelerate complex planning, routing and resource allocation where speed and quality of decisions matter.
- **Quantum sensing & RF.** Novel quantum radio and Rydberg-based sensing to enhance spectrum use, detection sensitivity and resilience in contested environments.
- **Commercialisation insight.** Advisory at the “whole-stack” level, hardware, supply chain, interfaces, and ethics, to move from lab to market within national strategies.

These capabilities are industrialised at our Cambridge centre, turning concepts into robust prototypes and pre-production systems across sectors like defence, energy and transport.

### 1.5.4 Cyber security and digital trust

Digital trust is central to PA's approach. We design security into architecture, operations and culture, aligning to NCSC CAF and GovAssure, and delivering testing, red-team, SOC design and OT/IoT security:

- **Transformation & architecture.** Secure-by-design patterns, cloud security, identity, and cross-domain data protection (including NCSC-approved Oakdoor data diode products).
- **Assurance & regulation.** CAF/GovAssure alignment and pragmatic remediation plans for government organisations.
- **Testing & resilience.** CREST-aligned penetration testing, red-teaming, incident readiness, and operational resilience.

## 1.5.5 What PA will bring

### Ideation & Strategy

- Cloud strategy and advisory services
- Cloud readiness assessments
- Cost/benefit and ROI modelling
- Security and compliance by design.
- AI/ML and data strategy (blueprints, operating model, governance) with Responsible AI policy and guardrails.
- Quantum opportunity framing and whole-stack commercialisation roadmaps.

### Design & Architecture

- Bespoke enterprise and cloud architectures
- Integration with existing IT infrastructures
- Hybrid/multi-cloud design
- Continuity and disaster recovery
- Data platforms and MLOps patterns
- Security, privacy and resilience embedded by design in technical designs
- User-centred-design
- Secure cross-domain solutions and high-side/low-side integration where required.

### Development & Deployment

- Cloud-native engineering
- Containerisation, microservices and serverless
- DevSecOps (CALMR) with CI/CD and automated testing
- Generative AI and Copilot enablement with measurable productivity outcomes and run-controls.

### Implementation & Migration

- Data migration and legacy modernisation
- Vendor selection and management
- Infrastructure-as-code with progressive, low-risk cutover.

### Operations & Management

- Observability, incident management, SIEM/SOC design
- Performance optimisation and cost management (FinOps)
- Backup/restore
- User training and change adoption.

### Innovation & Scaling

- Scalable cloud infrastructure to support growth
- AI/ML implementation and scaling
- IoT integration
- Ongoing innovation sprints and R&D, supported by our Cambridge engineering labs for rapid prototyping and pre-production.



### 1.5.6 PA is fully equipped to manage any challenges or requirements you may present

Across strategy, design, build and run, PA blends independent advice with hands-on engineering, operating to ISO 27001 and UK government standards, and backed by hyperscaler partnership depth. Whether the brief is modernising a sensitive cloud estate, industrialising AI responsibly, or de-risking a quantum-adjacent programme, we bring the multidisciplinary team to get from idea to reality, safely, quickly, and at scale.

## 1.6 A Genuine commitment to Social Value

At PA, we believe in the power of ingenuity to create a positive human future. Central to this ambition is our commitment to developing high-quality opportunities that enable individuals to acquire leading-edge skills, all within an environment that supports personal wellbeing and growth. We invest in our people through comprehensive training and development, ensuring they are fully prepared to tackle our clients' most complex challenges and advance their own careers.

We recognise that diversity drives innovation. Therefore, our recruitment practices are inclusive, welcoming individuals from all backgrounds. Every member of our team is empowered to reach their full potential through inclusive policies, processes, and a culture that is continuously improved using robust data.

We are passionate about creating genuine opportunities for those facing significant barriers to employment. Since 2023, our Digital Apprenticeship Programme has offered a Digital and Technology Solutions Degree through the University of Roehampton or Northumbria University. Our apprentices typically include first-generation professionals, college leavers, and individuals from ethnic minority backgrounds, many living in deprived areas. Additionally, we offer summer internships for undergraduates entering their final year, hosted at both our central London office and the Global Innovation and Technology Centre in Cambridge.

Economic responsibility is integral to our purpose. PA is accredited as a Living Wage employer, and where relevant, we ensure that our suppliers and subcontractors are paid at least the minimum living wage. We are also a signatory to the Prompt Payment Code, demonstrating our commitment to fair and responsible payments to suppliers.

Our carbon reduction targets have been validated by the Science Based Targets initiative (SBTi). We have a published carbon reduction plan and are committed to achieving carbon net zero by 2040, in alignment with PPN 06/21 criteria for UK public sector contracts exceeding £5 million. In 2024, we achieved a silver EcoVadis rating, reflecting our ongoing progress in sustainability.

We are dedicated to delivering targeted social value and will collaborate with you to determine the most effective approach for you, ensuring our efforts have the greatest possible impact.

## 1.7 Security Clearance

PA are fully compliant with industry best practices for information security, which includes compliance with the UK MOD Industry Personnel Security Assurance (IPSA) standard, against which we are independently audited every three years. PA also has multiple sites with FSC (previously List X) where our dedicated in-house Security Vetting team are based. This allows PA to achieve security vetting of its employees in a time effective manner ensuring the correct processes are always followed (In accordance with the Security Policy Framework/GS007). As a matter of standard process, PA puts all its eligible employees through the Baseline Personnel Security Standard (BPSS), set out by the Cabinet Office. Those employees working on, or planning to work on, government projects are automatically put forward for SC clearance which are processed via UK-SV (formally the Defence Business Services – National Security Vetting). PA also process DV vetting through the UK-SV and other agencies, these are generally client sponsored.

PA currently have a large pool of cleared individuals (80% of UK Staff). Should a resource be identified where clearance is needed, the PA Security Vetting team will then process the individual through the relevant clearance procedure. The team will also be able to validate all existing clearances held by PA employees when requested.

## 1.8 Next Steps

This service is intended to help customers develop and deliver successful outcomes regardless of the life cycle stage they are at. PA prides itself on working with clients and helping them to deliver outcomes whilst also providing them the ability to 'stand on their own' so that they can move their solutions forward without future involvement. Please contact us on [GCloudFramework@paconsulting.com](mailto:GCloudFramework@paconsulting.com) to discuss your needs further.



## About PA.

We believe in the power of ingenuity to build a positive human future.

As strategies, technologies, and innovation collide, we create opportunity from complexity.

Our diverse teams of experts combine innovative thinking and breakthrough technologies to progress further, faster. Our clients adapt and transform, and together we achieve enduring results.

We are over 4,000 strategists, innovators, designers, consultants, digital experts, scientists, engineers, and technologists. And we have deep expertise in consumer and manufacturing, defence and security, energy and utilities, financial services, government and public services, health and life sciences, and transport.

Our teams operate globally from offices across the UK, Ireland, US, Nordics, and Netherlands.

## PA. Bringing Ingenuity to Life.

Discover more at [paconsulting.com](https://paconsulting.com) and connect with PA on [LinkedIn](#) and [X](#).

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