# G-Cloud 15
# Service Definition

# Data and AI Cloud Support Service Definition

# Cloudwick Technologies UK
# Lot 3 Cloud Support

## Introduction

### Company Overview

Cloudwick has led the modernisation of Enterprise Data and Analytics with Open Source and Cloud Solutions, for over 15 years that provide greater scale, flexibility and data modelling solutions that deliver stability, flexibility and revenue competitive advantages. Working with Amazon Web Services (AWS), Cloudera, Hortonworks and Azure, Cloudwick has completed over 50 successful implementations worldwide and continues to help customers with their Data Lake and BI implementations. Cloudwick Technologies brings experienced consultants in Cloud and Open-Source Hadoop distributions with strong knowledge and experience on technologies such as AWS and its ecosystem, Spark and Kafka, seen as specialists and leaders at the forefront in the design, deployment and implementation with Global Enterprises. The value we bring is the quality of the engagement, which is the combination of the processes, subject matter experts and technologies to effectively and efficiently deliver successful production level platforms and environments.

### Value Proposition

Cloudwick's Big Data consulting service provides the following value proposition:

- A solution-based approach designed to address the challenges of Public Sector organisations.
- Experienced consultants bringing together the varied and extensive experience of working within the public sector.
- Agile approach to the delivery of the solution/use case.
- Cost-effective and collaborative approach towards solutions delivery.

### Accreditations

Cloudwick has developed an advanced ecosystem in the last 15 years of its operations:

**Amazon Web Services**: Data Analytics Consulting and ISV, DevOps, Migrations and Machine Learning Competency Partner, Public Sector Partner

**Snowflake:** Certified Integration Partner

**Matillion:** Certified Integration Partner

### What the Service Provides

Cloudwick brings extensive experience in working with Big Data, which is characterised by its huge volume, high velocity and varied variety, following compliances such as GDPR among others. This service brings together the value proposition for assisting the public sector in:

- Providing solution for secure migration of data from the current systems through Amorphic Data Platform
- Transforming and making data available for consumption by different sections within the organisation and for various use cases
- Helping the organisation to enable data governance for their data sources- allowing to control who gets access to the data and who does not.
- Enabling the public sector organisations to adopt Machine Learning and AI technology to effectively produce insights which can help reduce overall costs in different service areas such as social care, security, drug abuse, resident well-being etc.

### Overview of G-Cloud Service Consulting

Cloudwick's consulting service is an integrated and well-established approach to building stable, secure and scalable platforms and it is a balanced mix of people, processes and systems to deliver production-ready environments.

| People | Processes | Systems |
|---|---|---|
| • Visionaries and Advisors<br>• Subject Matter Experts<br>• Implementation Specialists | • Planning and Onboarding<br>• Solution Design, Agile Delivery and Implementation<br>• Post Implementation Support and Maintenance | • Use Case Discovery, Business Impact and transformation plans<br>• Scrum tools (Jira, Confluence)<br>• Managed support tools and ticketing support systems |
| **Knowledge Creation**<br>Technology Roadmaps, Reference Solution Architectures, Runbooks, Open Source GitHub Contributions | | |

Cloudwick has helped organisations in setting up their Big Data platforms on following experts on the following technologies:

1) Amazon Web Services (AWS)
2) Hadoop (CDH, CDP)
3) Microsoft Azure
4) Databricks Spark

Cloudwick has a team of certified; AWS Professional Solution Architects, Databricks and Hortonworks administrators and developers.

**Development**

Cloudwick has helped organisations in the development of their use cases on the Cloud frameworks. This service enables customers to migrate existing data sources and develop use cases on the AWS or Azure frameworks.
Cloudwick helps a customer define use cases, develop strategy, create an implementation roadmap, and execute and manage support for the applications and use cases. We have developed batch and real-time applications and use cases for our customers, which utilise the components from AWS and Azure to perform functions such as ingestion, cataloguing, and metadata management.

**DevOps**

Cloudwick has experts who have helped organisations with setting up their continuous integration function, performing automation and creating a route to live. Cloudwick can perform these functions using multiple different tools on the Hadoop, AWS and Azure frameworks.

Cloudwick has performed the DevOps function using different open-source tools including the below:

1. Infrastructure Monitoring: Nagios, AWS CloudWatch etc.
2. Configuration Management: Ansible, AWS Config and OpsWorks etc.
3. Continuous integration and delivery using Jenkins, AWS CodePipeline, AWS CodeBuild etc.

**Managed Services**

Companies are looking to deliver new services or capabilities that take advantage of modern architectures including Hadoop, Spark, Kafka and NoSQL stores. These include:

- Consolidating disparate data sets to a data lake to enable exploration or advance analytics
- Migrating legacy application to new technologies supporting IoT or NoSQL stores
- Developing new products for the marketplace that integrate complex data sets
- Leveraging cloud infrastructure for scale or cost optimization

But there are a number of challenges our clients typically face such as:

- Lack of available resources
- Lack of expertise in modern architectures and technologies
- Need to support existing products and services

Cloudwick has helped its customers received the following benefits from our managed support offering:

- Certified experts in big data platform administration and operations
- Industry best practices to maintain stability and optimize platforms
- Service level commitments which include credits for incident response time
- Ability to provide long-term support commitments for customers (up to 36 months)
- Flexible set of service offerings that can adapt based on business needs.
- Range of competencies:
    - Managed Support
    - DevOps
    - Architecture and Engineering
    - AI and Machine Learning

**Amazon Web Services (AWS)**

Cloudwick is one of the leading advanced technology partners with Big Data and Machine Learning competencies on AWS and has:

- Over 100 technical and professional AWS certifications
- One of the largest team of certified Spark developers, data scientists, cloud infrastructure and data engineers
    - Proven success transforming global enterprises data and analytics infrastructures and applications

**AWS Data Lake QuickStart:** The Cloudwick Data Lake Quickstart Package is the fastest way to analyze and visualize your large data sets in three days. Cloudwick consultants will work remotely with customers to set up an AWS account, provide guidance to upload pre-determined business data to Amazon S3, define tables in AWS Athena, perform ad-hoc queries, visualize the data in AWS QuickSight and provide a runbook for the activities performed.

**AWS Migrate:** Leading global enterprises work with Cloudwick to migrate legacy Teradata,

Netezza, Greenplum, MySQL, SQL Server and Oracle data warehouses to AWS to reduce costs and increase business intelligence capabilities, enabling them to enter new markets and gain a competitive advantage. Cloudwick has a proven three-phase approach to assessing, engineering and transforming traditional data warehouse and business intelligence platforms to the cloud.

Cloudwick follows a 3-phase approach for performing the Data Centre to Cloud transformation:

**Phase 1:** Cloudwick will analyse the existing on-premises EDW environment, gather the requirements for AWS Redshift-based solution and provide an assessment document covering SWOT and gap analysis, cloud adoption strategy, migration strategy, target architecture, cost optimization and best practices.

**Phase 2**: Cloudwick will set up the Redshift cluster in AWS, conduct POC and data modelling, migrate data to Redshift, define ETL and ELT, implement security best practices, conduct pilot to production, apply cost and performance optimizations, and define DevOps strategies.

**Phase 3:** Cloudwick will manage the Redshift cluster and AWS DevOps infrastructure for ETL, data pipeline, jobs and workload performance. Cloudwick will also define SLAs, provide Service Desk operations, monitor the environment, add new features, and optimize for cost

**AWS Managed Data Lake:**

Data Lake Managed Services on AWS solution provides a complete turnkey solution for building, operating, monitoring and managing Hadoop, Cassandra, and Spark clusters on AWS. You will enjoy reduced risk, lower and more predictable costs, and higher success rates. With our expertise, customers derive more value and confidence to capitalize on their investment
Following is a list of AWS Infrastructure services provided by Cloudwick.

| AWS Administration (IaaS) | Data Pipeline Development | Data Management and Analytics |
|---|---|---|
| Deployments:<br>● Hadoop on AWS<br>● AWS Native Services<br>● CI/CD Setup<br>● Managed Services<br>● Design and integration of Hybrid strategies.<br>● Platform/Pipeline Automation | **AWS Workshop**<br>Big Data Development:<br>● Kafka, Spark, EMR, Hive, HBase, Scala, PySpark<br>● ETL/ELT & Data Quality<br><br>Streaming Tools, Data Ingestion, Security & further tools:<br>● Kinesis, Kinesis Streams, Database Management Services<br>● Hadoop-NiFi, Hue, Hive, HBase | ● Data Wrangling, Data Lineage<br>● Data Governance (Cataloguing and Metadata Management) with AWS Stack using Glue Catalog, Lambda, Elasticsearch, Kibana<br>● Machine Learning with with Spark<br>● Visualisation/BI using Jupyter/Zeppelin<br>● BI using Looker Data Platform |

Cloudwick powers the industry's first "Open Analytics Workshop," an engaging, interactive event focused on understanding how machine learning, deep learning, and graph-based systems will transform your business. We educate enterprises on industry-leading techniques and compare current methods, as well as the use of emerging open source and commercial tools. This interactive workshop includes use cases, presentations, and demonstrations that will help apply these methodologies to transform your business.

In this workshop, we will discuss the latest, most advanced analytics concepts, technologies and use cases. By navigating through the rapidly emerging and evolving techniques of machine learning, deep learning, statistics and graph, we'll demonstrate the wide range of cutting-edge techniques and technologies available to help you to build value-driven solutions for addressing your business opportunities and challenges. The workshop is conducted in an open format, with industry-leading practitioners engaging in discussion, lecture and lab. A 60-minute curation call prior to the workshop is required to identify your goals and objectives.

**Data Backup, Data Restoration and Disaster Recovery**

**Backup & restore**

Cloudwick follows the best practices for backing up and restoring customers' data. Although the services within AWS are highly available and provide a level of backup, Cloudwick implements a multi-region strategy when it comes to critical applications. This means that the customers can back up and archive their data following the best practices on AWS.

**Data processing & storage location**

Cloudwick, when processing customer's data, always does that within the customer's environment, which is their virtual private network (VPN). Cloudwick ensures, with its processes, that it follows the GDPR guidelines, customer-specific guidelines based on the NCSC cloud security principles, and customer data. Cloudwick follows the practice of making sure the customer's data is secure while in transit or at rest. The storage location on the AWS platform can be any RDBMS database, a data warehouse or AWS S3 (Simple Storage Service) storage.

**Data restoration/service migration**

Cloudwick, with its fail-safe architectures, enables customers to restore their data in case of any event leading to data loss. This is done by using multiple regions on AWS and also using internal features of the AWS S3 or the RDBMS/Data warehouse tools.

**Privacy by Design**

Cloudwick has always been sensitive about the use of personal data and processing of personal data for our customers. Cloudwick has maintained processes to understand the data it will be processing and make sure that data never transfers out of the customer's environment. Keeping GDPR and privacy by design in consideration, Cloudwick has put more controls in place for dealing with the data processing responsibilities:

- **Privacy by Design approach:** Cloudwick has devised architecture which conforms to the principles of privacy by design and made sure that security and governance are the basis of the architecture design.
- **Training for employees and customers**: Cloudwick has provided its employees with the GDPR training and has made them aware of the principles they need to follow while handling the PII data. Cloudwick has also put a programme together for its customers to educate them on different GDPR aspects.
- **Data Protection Officer**: Cloudwick has appointed a data protection officer for making sure the controls are implemented and customers' data always remains safe.

**Using the Service**

**Ordering and invoicing process:**

Customers will be expected to follow the G Cloud 15 ordering process as outlined in the Framework's

Terms and Conditions. This will ensure that the scope, timeline and technical requirements are understood, agreed and can be delivered.

Each assignment will then require a formal work order to be raised, which would define:

1. The name and contact details of the customer's representative.
2. The objective(s) of the work and the key success criteria.
3. The amount and type of resources required (number of roles and duration).
4. Start and end dates for the project.
5. The overall scope, requirements and timelines for the project.
6. Knowledge transfer and access to documents from the customer.
7. Logistics include the onsite or remote location of the project.
8. Expected deliverables, quality levels and acceptance criteria for sign-off.

Upon receipt of a work order, Cloudwick will evaluate the requirement and confirm a start date. Once Cloudwick accepts a work order, we will commence work upon receipt of a purchase order.

Cloudwick will operate the following invoicing process:

- **For time and material projects and assignments** – monthly invoices will be issued in arrears for payment within 30 days.
- **For fixed-price projects and assignments** - invoices will be based upon agreed staged payments associated with formal client sign-off of interim or final deliverables. Invoices are issued in arrears for payment within 30 days.
- **For managed services** – On-Boarding charges will be charged once the onboarding of the customer and initial KT to the Cloudwick team has been done by the customer and the Cloudwick team starts supporting the project. Managed Services Charges will be invoiced quarterly in the middle of each quarter with a 30 day payment period.

**Availability of Trial Service**

Due to the niche nature of these services, they are not available on a trial basis. However, Cloudwick will be open to holding a workshop if the need for the same arises.

**On-Boarding, Off-Boarding, Service Migration, Scope etc.**

**On-boarding processes/scope**

Cloudwick has established a formal method for both engaging with new customers and managing project or service delivery. The objective for each of these methods is to ensure that we are aligned with our customers and effectively deliver contracted services. Our onboarding method includes the following steps:

**Assessment:** This phase allows Cloudwick to perform a current and future state assessment to put a detailed plan of action in place, which, in our experience, has been the key to all the successful engagements of Cloudwick.
**Define**: Cloudwick produces a detailed document containing assessment details, service levels and KPIs for delivering the engagements successfully
**Align**: Cloudwick's engagement manager, lead engineer and customer align on the engagement details, discuss set the expectations
**Deploy**: Cloudwick prepares the team, and puts the necessary systems in place, like Jira for task tracking, Confluence for run-books with all the processes around it to make the engagement successful.

Cloudwick will assign an engagement manager that facilitates each of these steps as part of our initial engagement. These typically include a review of artefacts or documents and working sessions with customers. An outcome is a formal approach for how Cloudwick and customers will implement a framework or set of processes that will be used to ensure that delivery expectations are met.

**Off-boarding processes/scope**

Cloudwick understands that business continuity is essential for the customers and while it is performing the offboarding, it takes extra effort to ensure the customer's success and further pass the know-how to its customers. Cloudwick ensures that the following activities are performed as a part of the offboarding.

- Cloudwick provides Run books and other documentation that were developed by Cloudwick during the project.
- Cloudwick returns the entire customer data back, supplied during the course of the project.
- Cloudwick takes security seriously. We make sure that all details (passwords and other sensitive information) are provided to the nominated stakeholder in a secure and encrypted manner.
- Cloudwick performs Knowledge transfer and obtains a sign off from the customer. Knowledge transfer may include engaging in one or two days to answer and clarify any questions that the customer's team has or the new vendor has.

- As a part of our engagements, we always document the incident/error logs and solutions for them, and we will pass this on to the customer team or the new vendor.

**Training**

As a part of the project, Cloudwick can provide formal or informal training, which enables the customers to:

- Develop and up-skill their internal workforce, or;
- Help them in getting up-to-speed with the new tools and systems through documentation and one-day hands-on workshops etc.

**Service Management**

**Service management details**

Service management is a key component in Cloudwick's Service Delivery and Management process. It aligns the delivery of IT services with the goals of the business and ensures that when business goals change that IT can adjust accordingly in an efficient and effective manner. Service management is also responsible for maintaining the daily operational health of the IT support function.

For Cloudwick, Service management is the practice of providing oversight for contracted services to ensure service level expectations are being met. This includes capturing metrics, providing reporting and account reviews, and ensuring that we have open and regular communication with the customers and/or partners.

**Service constraints**

Cloudwick understands that each engagement is different and has its own set of challenges and solutions. Cloudwick does not take a 'One solution fits all approach' and hence, the service constraints for the engagements will be covered by the customers during the onboarding stage. Constraints could include:

- Access to Customer's systems and processes.
- Access to documentation for the systems that will be key to the success of the service.

**Service Levels**

Cloudwick works with customers to define service level targets for systems under management. These typically include a response and resolution targets similar to the table below:

**Service Level Agreement**

Cloudwick will provide customers with a Service Level Agreement (SLA) for Response time and Resolution targets. Below are some of the basic definitions and some response times and resolution targets:

Response time is defined as the period, in continuous hours, between the receipt of a technical services request and the time of an initial response by Cloudwick services personnel, via email, for the hours of coverage defined in the selected service tier:

| Category | Support Hours | Performance Target | Response & Update Target |
|---|---|---|---|
| Severity 1 (P1)* | 24/7/365 | 8 business hours | 1 hour |
| Severity 2 (P2) | 09:00-17:30 | 1 business day | 4 hours |
| Severity 3 (P3)** | 09:30-17:30 | 3 business days | 12 hours |
| Severity 4 (P4)** | 09:30-17:30 | 30 business days | 24 hours |

* Severity 1 support requires you to have dedicated resources available to work on the issue on an ongoing basis during your contractual hours.

** Non-production environments are covered up to P3 and P4 with the following support hours 08:00 -18:00 (GMT) Monday to Friday excluding UK bank holidays except where a security incident is raised.

Resolution time is defined as the period, in continuous hours, between the receipt of a technical services request and the time needed to correct or remediate the issue, which includes the use of a temporary workaround. Resolution time will be monitored and reported, but failure to meet the target does not result in a service credit being issued to the client. For any service tier, the use of continuous hours only relates to a Priority 1 (P1) incident which is in scope for extended coverage.

| Priority | Production | Non - production | Status Update |
|---|---|---|---|
| Severity 1 (P1)* | 8 business hours | N/A | 1 hour |
| Severity 2 (P2) | 1 business day | N/A | 4 hours |
| Severity 3 (P3)** | 3 business days | 3 business days | N/A |
| Severity 4 (P4)** | 30 business days | 30 business days | N/A |

* Severity 1 support requires you to have dedicated resources available to work on the issue on an ongoing basis during your contractual hours.

** Non-production environments are covered up to P3 and P4 with the following support hours 09:00 -17:30 (GMT) Monday to Friday excluding UK bank holidays except where a security incident is raised.

Cloudwick is responsible for setting the priority of an incident based on the following definitions and may revise the priority level according to the actual impact of a reported issue after an initial investigation based on the following definitions:

**Urgent (P1)** – The managed platform is down or a primary component of the service is inoperative. Client users are unable to reasonably perform their normal functions and the inability to use the platform as intended has a critical effect on User's operations. This condition is typically characterized by complete cluster failure and requires prompt correction.

**High (P2)** – The managed platform is still usable by Client but is partially inoperative or a primary component of the service(s) is exhibiting intermittent errors. The situation is causing a high impact on portions of the Client's business operations and no procedural workaround exists that can be implemented by Cloudwick or the Client.

**Medium (P3)** – The platform is usable by the Client, with little or limited impact on the function of the system. This condition is not critical and does not severely restrict the overall operations. The problem usually involves partial, non-critical loss of use of the service(s).

**Low (P4)** - General usage questions, documentation errors, cosmetic or formatting errors, product enhancement suggestions. There is no impact on the Client's business or the

performance or functionality of the platform.

**Financial Recompense Model for not Meeting Service Levels**

Cloudwick services will be measured in compliance with the G-Cloud framework terms and conditions and the specific service level agreements as drafted in the statement of work.

Cloudwick will provide a Project Engagement manager who will help bridge the gap between customers and Cloudwick.

Following responsibilities that Cloudwick will expect from the customer:

1. Customers will provide access to the necessary systems and applications.
2. Manage the customer personnel and responsibilities for this project.
3. Administer the Change Control mechanism with the Cloudwick Project Engagement Manager.
4. Participate in project status meetings
5. Provide stakeholders/users required to undertake the User Acceptance Testing.
6. Ensure customer staff is made available for any meetings, interviews, document reviews and presentations within the proposed timescale.
7. Review and approve the milestone achievements

**Technical Requirements and Client-Side Requirements**

N/A

**Termination Process**

Cloudwick would expect a bi-lateral, 1-3 month termination period, which means that either party can choose to terminate the contract. The customer or Cloudwick would comply with the governance arrangements set out in the G-Cloud Framework Agreement and Call-off Contract. Other reasons for termination, such as performance, breach of contract, default on payment, etc. would be expected to be dealt with as set out by the G-Cloud framework agreement and Call-off Contract.