Framework Schedule 1 (Specification)

This Schedule sets out what the Authority and our Buyers want.

The Supplier must only provide Deliverables for the Service Provisions set out in this Specification.

For all Service Provisions and/or Deliverables, the Supplier must help Buyers comply with any specific applicable Standards. The Deliverables and any Standards set out below may be refined (to the extent permitted and set out in the Call Off Contract Order Form) by a Buyer during a Further Competition Procedure and, to a limited extent, in the Statement of Work under a Call-Off Contract.

In this Schedule, the following words and phrases shall have the following meanings:

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| **“Agile delivery model”** | means those agile delivery models set out in Paragraph 8.4 of this Framework Schedule 1 (Specification); |
| **“Alpha”** | means the alpha phase of agile delivery described in the Service Manual; |
| **“Beta”** | means the beta phase of agile development described in the Service Manual; |
| **“Deliverable Increment”** | means an incremented output provided as part of the Services prior to a final set of accepted Deliverables; |
| **“Discovery”** | means the discovery phase of agile delivery described in the Service Manual; |
| **“Government”** | the government of the United Kingdom (including the Northern Ireland Assembly and Executive Committee, the Scottish Government and the National Assembly for Wales), including government ministers and government departments and other bodies, persons, commissions or agencies from time to time carrying out functions on its behalf |
| **“Government Digital and Data”** | meaning given in paragraph 10.1 of this Framework Schedule 1 (Specification); |
| **“GDS”** | means the Government Digital Service; |
| **“Live”** | means the live phase of agile development described in the Service Manual; |
| **“Open Standards Principles”** | means the Cabinet Offices’ Open Standards principles:  Read more about [Open Standards Principles](https://www.gov.uk/government/publications/open-standards-principles/open-standards-principles) |
| **“Order Form”** | a completed Order Form Template (or equivalent information issued by the Buyer) used to create a Call-Off Contract; |
| **“Profession Capability Framework”** | means the GDS Government Digital and Data Profession Capability Framework:  Read more about the [Government Digital and Data Profession Capability Framework](https://ddat-capability-framework.service.gov.uk/) |
| **“Retirement”** | means the retirement phase of agile development described in the Service Manual; |
| **“Service Manual”** | Means the GDS Service Manual:  Read more about the [Service Manual](https://www.gov.uk/service-manual/service-standard) |
| **“Service Provision”** | one or more of the service provisions set out in Paragraph 1.1 of  Framework Schedule 1 (Specification); |
| **“Service Standard”** | means the Service Standard section of the Service Manual:  Read more about the [Service Standard in the Service Manual](https://www.gov.uk/service-manual/service-standard) |
| **“Technology Code of Practice”** | means the GDS Technology Code of Practice:  Read more about [The Technology Code of Practice](https://www.gov.uk/guidance/the-technology-code-of-practice) |

# Introduction

* 1. Suppliers under this Framework Contract are required to provide the following **Mandatory** **Service Provisions**:
     1. **DevOps Services** support for ongoing live services;
     2. **Digital Definition Services** either separately or combined GDS/NHS Standards Discovery (as extended as per Paragraph ~~4.3~~ 4.2 of this Framework Schedule 1 (Specification) below, to support successful migration from discovery phase) and /or Alpha phases.
     3. **Build and Transition Services** either separately combining GDS/NHS Standards Beta phase and/or Retirement phases (including transition to Live). It is anticipated that Live will be covered by an appropriate competition for DevOps Services.
     4. **End-to-End Development Services** with the ability to combine the full set of GDS/NHS Standards agile phases of Discovery through to Live.
     5. **Data Management (and similar) Services** primarily targeted at building, enhancing and maintaining data assets, migrating data from one system to another and analysis and reporting from such data assets.
  2. Suppliers are required to be able to work using agile evolving methodologies (for example Scrum, Kanban, Spotify) with varying Accountability Models, as described in Paragraph 8.4 of this Framework Schedule 1 (Specification).
  3. The maximum Call-Off Initial Period for all mandatory Service Provisions shall be 3 years with a possible Call-Off Optional Extension Period of one further year plus one further year (3+1+1).

# Scope of Services

* 1. The scope of this Framework Contract includes all GDS/ NHS Standards life-cycle phases (Discovery, Alpha, Beta, Live and Retirement), as well as ongoing data collection, processing, management, distribution and reporting.
  2. The types of digital service which the Services will be delivered include:
* Mass scale public facing technologies such as applications built on Apple IOS and Google Android and/or deployed via the web;
* User authentication services providing the means to provide secure access to personal and, possibly sensitive, data. This can include public, as well as wider health system, access to such data;
* Secure storage, dissemination and transmission of health and social care data across the national health and social care system. This includes but is not limited to, electronic referral services, care records of one form or another, prescription and similar services;
* Enhancements to cyber security systems across the health and social care system;
* Secure capture, cleaning, processing, storage, linkage, dissemination, analysis and reporting, for both Primary (Clinical) and Secondary care purposes, of large amounts of data collected from across the health and social care system;
* An increasing focus on solutions which allow for interoperability between systems and across the care pathway (e.g. linking GPs, pharmacies, hospitals and social care services);
* Services which draw on data to identify those who should be screened; and
* Implementation and deployment of artificial intelligence tooling in alignment with the AI and Digital Regulations Service.
  1. Whilst many of the above digital services have been operating for some time there is currently a considerable amount of activity transforming them into more granular “app” based solutions running on cloud provisions such as Amazon Web Services (AWS) and Microsoft Azure (amongst others).
  2. Most of these solutions are underpinned by open source products (such as those distributed under the Apache label) and there is considerable effort underway to increase access to a wider technical community.
  3. Annex 1 of this Framework Schedule 1 (Specification) includes a list of technologies currently in use.
  4. Annexes 1 and 2 of Framework Schedule 1 (Specification) may be refreshed on the two-year anniversary of the Framework Start Date and, thereafter, once per year by CCS, in consultation with the Buyer and Suppliers.
  5. Deliverables will not commence any Retirement under any Call-Off Contracts without the prior written agreement of the Buyer obtained by Variation.

1. **Service Provision 1: DevOps Services**
   1. The Supplier will be required to offer a combination of:

* A fixed size core team, who will largely provide ongoing minor enhancements, maintenance and operational support (unless a small service this will exclude 1st tier help desk); plus
* An agreed flexible capacity to accommodate peaks in demand (e.g. correction of a significant bug) or to cover slightly more significant enhancements.
  1. While agreed upon at the Call-Off Contract level, Suppliers are required to rotate staff between operations, maintenance and enhancement.
  2. A form of a continuously refined and prioritised backlog item list (or equivalent methodology) shall be used to evidence capture and delivery of enhancements.
  3. Suppliers should be prepared to refresh Statements of Works for the core team at a frequency determined by the Buyer;

# Service Provision 2: Digital Definition Services

* 1. To provide a comprehensive technical pack in support of:
* the Buyer creating and evolving the business case for investment;
* Contributing to the pack to be issued to procure the build (Beta phase and beyond);
* Optionally supporting bid clarifications, technical evaluation and related activities; and
* Providing technical continuity into the build.
  1. In addition to the typical deliverables and activities performed under the GDS/ NHS Standards definition of Discovery**,** to support successful migration to the Alpha stages, supplier support may include activities including:
* Updated scope of the programme/ project in terms of targeted users, stakeholders, business areas, organisational users, etc.;
* Technical requirement specifications (user, functional and non-functional) – including high level acceptance testing, and associated evaluation criteria;
* A list of technical constraints (i.e. the confines under which the project will have to operate);
* Prioritised business requirements – forming the initial backlog item list (or equivalent);
* Pre-procurement activities and Deliverables;
* Quantified make or buy analysis (where there may be opportunities to buy and/ or adapt an existing product);
* A list of applicable technologies;
* A technical road map covering the duration of the expected build and transition to live;
* Technology gap assessments (for feeding into Alpha activities);
* Technical continuity and updates to requirements, output to inform business cases, etc. arising out of Alphas;
* A high level plan covering the duration of the build and transition to live;
* A detailed plan of activities ideally covering the first 3 months of the build;
* Target operating models (to provide the basis for a supplier to estimate the costs for retirement and transition).
  1. Specific activities documented under Paragraph ~~4.3~~ 4.2 of this Framework Schedule 1 (Specification) may be managed or conducted by the Buyer or one or more of their appointed Subcontractors.
  2. This Service Provision also includes, at the Buyer discretion during the call off, GDS/ NHS Standards Alpha phase type activity such as:
* Building and testing prototypes;
* Demonstrating one or more options are technically possible;
* Identifying problems (technical spikes) and how to solve them;
* Estimating costs; and
* Refining risks for a future build (or buy)
  1. Alpha is combined with Discovery on the basis that both are required to provide a robust basis for obtaining a competitive quote for the purposes of Beta and beyond (or a buy, if determined out of this Service Provision)

1. **Service Provision 3: Build and Transition Services**
   1. Covers the GDS/ NHS Standards phases from Beta through to transition to Live (including Retirement as applicable).
   2. The Supplier will be required to provide the technical input necessary to enhance, update and maintain such artefacts as requested by the Buyer as part of the scope of this Service Provision.
   3. There shall be individual Statements of Work for at least, but not limited to, the following:

* **Private Beta** - Developing the solution to a point where it can be user tested by “friendly” users;
* **Public Beta** - Rolling out the solution to a wider audience of end users; and
* **Retirement and Transition to Live** - Focus is to be on data migration, technical documentation and training, etc.

# Service Provision 4: End-to-End Development Services

* 1. This Service Provision is intended for cases where either:
* the programme/ project size is such that the value for money benefits of combining definition with build outweigh the benefits of robustly competing for build and transition having completed a robust digital definition; or
* the Buyer has a relatively complete digital definition and specification via other routes and is able to proceed quickly, with reasonable risk, into the build.
  1. The scope covers Discovery through to transition to Live (and possibly Retirement of any existing solution).
  2. Suppliers will be required to validate, update, maintain and enhance the types of artefact described under Digital Definition (Service Provision 2) which may include but not limited to:
* scope;
* requirements;
* constraints;
* technologies;
* road map;
* business case;
* plans;
* user needs;
* backlog.

# Service Provision 5: Data Management (and similar) Services

* 1. Covers digital skills, which do not cleanly fit into the previous Service Provisions:
* Phased migration of data set logic from one platform to another;
* Reconfiguration of data sets to align with GDS/ NHS Service Standards;
* Developing discrete presentation views of datasets using web technologies;
* Creating new views of data combining and linking data which had previously not been linked;
* Creating complex digital dashboards;
* Performing data analytics to inform health decision making;
* Adding machine learning and artificial intelligence to existing solutions; and
* Filtering and compiling data to target specific audiences.
  1. Under this Service Provision, the Further Competition Procedure may be based on a roadmap of related themes leading to some form of desired overall solution or business goal.
  2. Statements of Work are likely to be structured around the themes described at Paragraph 7.2 of this Framework Schedule 1 (Specification) above, with multiple, often similar, individual pieces of work with varying degrees of complexity (e.g. individual data sets).
  3. Given that activities under this Service Provision can involve Processing of Personal Data of a confidential or sensitive nature, including special category; data protection and information governance will be a particularly strong feature of this service.

# Ways of Working (and Methodologies)

# The Supplier is expected to adopt an agile development process, starting with user needs. The methodology will be outlined in the relevant Statement of Work.

* 1. Waterfall development methodology will only be used in exceptional

circumstances, where it can be shown to better meet user needs and should be agreed in advance with the Buyer under a Statement of Work.

* 1. In some circumstances both waterfall and agile methodologies may need to be used, and this shall be agreed between the Supplier and Buyer under Statement(s) of Work.
  2. At Statement of Work level, Suppliers will be required to work under any of the following **Agile Delivery Models as agreed at call off**:
* **Sole Responsibility:** where the Supplier takes on board full responsibility to deliver the discrete Milestones, or Deliverable Increments, identified. This is most closely aligned with the “outcomes” model under other frameworks and where those outcomes may be defined through the life of the Statement of Work. The Supplier will be required to accept the full risk of delivery either for the Milestone of the Deliverable Increments as appropriate;
* **Self-Directed Teams:** where the Supplier provides discrete delivery teams to produce Deliverable Increments as commissioned by the Buyer. This model lends itself to Buyer-led agile development where the specific Deliverable Increment is agreed closer to the point of delivery but where some risk is carried by the Supplier; or
* **Rainbow Teams:** where the Supplier (or possibly more than one Supplier) provides a squad of individuals to work alongside Buyer staff. In this model individuals, whilst managed at a high level by the Supplier, may be directed at an operational level by someone from another organisation.
  1. To some extent aligned, but not exclusively so, with the above Agile Delivery Models, Suppliers will be expected to operate under one of two pricing models at Statement of Work level:

# Capped Time and Materials; or

* **Fixed Price**.

It is the Buyer who will decide which pricing model will apply at Statement of Work level and the applicable model will be incorporated into each Statement of Work.

The Supplier shall monitor the provision of the Deliverables and notify the Buyer where it considers that the activity of the Buyer may impact the Suppliers’ (or its Subcontractors) IR35 assessment in relation to the contractors including where there is any change to the IR35 legislation or any associated national insurance legislation and regulations which may affect the Buyer.

* 1. Suppliers must be collaborative and flexible under this Framework Contract.
  2. Suppliers must establish and maintain an ongoing professional working relationship with the Buyer.
  3. Suppliers will be required to detail their arrangements and use of non-UK based Supplier Staff (including Subcontractors) whose Services are provided outside the UK and shall be priced on separate rate cards with applicable discounts (in GBP) for each applicable jurisdiction within which the Supplier Staff work. Each rate card shall be at no greater a rate than that set out in the UK Supplier’s rate card Framework Schedule 3 (Pricing).

# Technologies

* 1. The technologies currently used in the health and social care sectors and to be used in the provision of the Deliverables are extensive and varied. Using Gartner grouping, technologies include those under the headings of:
* Application Development (for example in the Cyber space);
* Business Applications (for example in the Data and Web space);
* IT Management (for example currently Data Centres, API Management);
* Operations Management (for example Agile Planning Tools, Data Integration);
* Software Infrastructure (for example Operational Database Management).
  1. Annex 1 of this Framework Schedule 1 (Specification) contains a more comprehensive list of these technologies with specific examples used within the health and social care sectors. Suppliers are required to demonstrate capabilities in a range of these areas at Framework Contract level. However, it will be as part of call off procedures that specific technologies, relevant to the digital requirement, will be specified by Buyers.
  2. The list in Annex 1 of this Framework Schedule 1 (Specification) may be reviewed and updated on an annual basis to reflect current trends within the health and social care context.

# Skills and Capabilities

* 1. Under individual Statements of Work, Suppliers will be required to provide one or more teams of individuals consisting of capabilities listed under the GDS/ NHS Standards Digital and Government Digital and Data Profession Capability Framework. The Authority reserves the right to request capabilities as required by Government, during the term of the Framework Contract Period. Suppliers will be notified accordingly in writing should the need arise.
  2. The Supplier is required to evidence any stated capability profile (for validation
  3. purposes) if requested, at any time (with reasonable notice), by CCS and/ or the Buyer.
  4. The Supplier shall ensure all roles support the Service Manual description of what you need to build a successful service.
  5. The Authority reserves the right to request additional roles as required by Government, during the term of the Framework Contract Period. Suppliers will be notified accordingly in writing should the need arise.

# Standards

* 1. The Supplier must:
* work according to the [Technology Code of Practice](https://www.gov.uk/guidance/the-technology-code-of-practice);
* work according to the Service Manual (GDS and NHS Standards); and
* understand what it means to work on one of the Discovery, Alpha, Beta, Live or Retirement phases described in the Service Manual.
  1. At call off, the Supplier must support the Buyer:
* in complying with the Service Manual;
* through successful [Service Standard assessments](https://www.gov.uk/service-manual/service-assessments);
* to develop Services based on [Open Standards Principles](https://www.gov.uk/government/publications/open-standards-principles/open-standards-principles) and accessible data protocols, to ensure they are interoperable;
* to comply with any adopted open standards that are compulsory in government: Read more about the [Open standards for government data and technology](https://www.gov.uk/government/collections/open-standards-for-government-data-and-technology)
  1. The Supplier must be accredited with the Standards set out in Annex 2 of this Framework Schedule 1 (Specification) where relevant (to the level requested by the Buyer) and with any specific Standards incorporated into the relevant Call-Off Contract and each Statement of Work.

# Code of conduct

* 1. The Supplier must support the Buyer according to the Civil Service conduct and guidance: Read more about the [Civil Service Code](https://assets.publishing.service.gov.uk/media/5a7f254ded915d74e33f49d5/HSRs.pdf)

# Collaboration Requirements

* 1. The Deliverables supplied under the Call-Off Contract and each Statement of Work may require the Supplier to work in collaboration with other suppliers of the Buyer. In the event that the Deliverables do require such collaboration, the Supplier shall comply with the following:
     + - work proactively with (a) the Buyer, (b) the incumbent Suppliers, and (c) each of the other suppliers and contractors of the Buyer, in a spirit of trust and mutual confidence;
       - cooperate with the Buyer’s other suppliers and contractors of other goods and/ or services to enable and ensure efficient Delivery;
       - assist in sharing information with the Buyer’s other suppliers and contractors for the purposes of facilitating provision of the Deliverables;
       - provide all additional cooperation and assistance as is reasonably required by the Buyer to ensure the continuous delivery of the Deliverables and other services under the Call-Off Contract; and
       - ensure that the Supplier’s Subcontractors provide all cooperation and assistance as required by the Buyer pursuant to the Call-Off Contract.
  2. Interoperability of Health Information Systems and Services
     1. Interoperability requires health information systems to work together within and across organisational boundaries and health and social care settings in order to advance the effective delivery of healthcare and wellbeing for individuals and communities.
     2. To achieve this, the Supplier must perform all required activities in relation to ensuring interoperability between technology developed under each Statement of Work and other applicable technologies as instructed by the Buyer. All required activities may include but are not limited to the following:
* supporting service queries, requests, incident resolution;
* other development, test, assurance and operation activities; and
* knowledge sharing and skillset transfer between teams (including Buyer teams and other suppliers.

# Our social value priorities

* 1. Within the context of social value, these are our priorities in this procurement:
  2. Tackling economic inequality
     1. Create new businesses, new jobs and new skills
* Activities that, in the delivery of the contract:
* Create opportunities for entrepreneurship and help new, small organisations to grow, supporting economic growth and business creation.
* Create employment opportunities particularly for those who face barriers to employment and/or who are located in deprived areas.
* Create employment and training opportunities, particularly for people in industries with known skills shortages or in high growth sectors.
* Support educational attainment relevant to the contract, including training schemes that address skills gaps and result in recognised qualifications.
* Influence staff, suppliers, customers and communities through the delivery of the contract to support employment and skills opportunities in high growth sectors.
  + 1. Increase supply chain resilience and capacity

Activities that:

* Create a diverse supply chain to deliver the contract including new businesses and entrepreneurs, start-ups, SMEs, VCSEs and mutuals.
* Support innovation and disruptive technologies throughout the supply chain to deliver lower cost and/ or higher quality goods and services.
* Support the development of scalable and future-proofed new methods to modernise delivery and increase productivity.
* Demonstrate collaboration throughout the supply chain, and a fair and responsible approach to working with supply chain partners in delivery of the contract.
* Demonstrate action to identify and manage cyber security risks in the delivery of the contract including in the supply chain.
* Influence staff, suppliers, customers and communities through the delivery of the contract to support resilience and capacity in the supply chain.
  1. Fighting climate change
     1. Effective stewardship of the environment

Activities that:

* Deliver additional environmental benefits in the performance of the contract including working towards net zero greenhouse gas emissions.
* Influence staff, suppliers, customers and communities through the delivery of the contract to support environmental protection and improvement.
  1. Equal opportunity
     1. Reduce the disability employment gap

Activities that:

* Demonstrate action to increase the representation of disabled people in the contract workforce.
* Support disabled people in developing new skills relevant to the contract, including through training schemes that result in recognised qualifications.
* Influence staff, suppliers, customers and communities through the delivery of the contract to support disabled people.
  + 1. Tackle workforce inequality

Activities that:

* Demonstrate action to identify and tackle inequality in employment, skills and pay in the contract workforce.
* Support in-work progression to help people, including those from disadvantaged or minority groups, to move into higher paid work by developing new skills relevant to the contract.
* Demonstrate action to identify and manage the risks of modern slavery in the delivery of the contract, including in the supply chain.
  1. Wellbeing
     1. Improve health and wellbeing

Activities that:

* Demonstrate action to support the health and wellbeing, including physical and mental health, in the contract workforce.
* Influence staff, suppliers, customers and communities through the delivery of the contract to support health and wellbeing, including physical and mental health.
  + 1. Improve community integration

Activities that:

* Demonstrate collaboration with users and communities in the codesign and delivery of the contract to support strong integrated communities.
* Influence staff, suppliers, customers and communities through the delivery of the contract to support strong, integrated communities.
  1. The Buyer can identify specific social value priorities as part of each Call-Off Contract.

**ANNEX 1**

**Technology, Tools & Methods**

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| **Gartner Category (L1)** | **Gartner**  **Sub-Category**  **(L2)** | **NHS Technology Function** | **Technology Component**  **(L3)** |
| Application Development | Application Release Orchestration, Application Security Testing, Enterprise Agile Planning Tools, Multi-experience Development Platforms, Software Test Automation. | Continuous Integration & Delivery Tools | Ansible, Apache Hue, Apache Maven, AWS, Chef, Concourse CI, Gradle, jBPM, Jenkins CI, NuGet, Octopus Deploy, Puppet, TeamCity, TortoiseSVN, Travis CI, Yarn 1. |
|  |  | Testing & Quality Assurance Tools | Akamai Cloudlet, Apache JMeter, Apache Selenium, App Check, Atlassian Crucible, BlazeMeter, ELMAH (Error Logging Modules and Handlers), Gatling, GauntLT, JUnit, NeoLoad, NUnit, Optimizely, Rhino Mocks, Sahi SpecFlow, TestNG, Zed Attack Proxy. |
| Business Applications | Analytics and Business Intelligence Platforms, Cloud AI Developer Services, Data Management Solutions for Analytics, Data Science and Machine Learning Platforms, Enterprise Asset Management Software, Enterprise Video Content Management, Insight Engines, Integrated IT Portfolio Analysis Applications, Project | Data Warehousing  Enterprise Applications | Apache Spark, AWS, Grafana.  Accellion Kiteworks, CCH Tagetik, Confluence, Google Docs, Google Drive, Microsoft, Exchange Server, Microsoft Office 365, Microsoft Teams, NHSmail, Quest Email Archive Manager, Slack, Trend Micro Email Relay. |

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| **Gartner Category (L1)** | **Gartner**  **Sub-Category**  **(L2)** | **NHS Technology Function** | **Technology Component (**  **L3)** |
|  | and Portfolio Management, Web Content Management. | Geospatial  Project Management | AddressBase, Bing Maps.  Atlassian Jira, Microsoft Office 365, Target Process Project Management. |
| Customer Management | CRM, Digital Experience Platforms. | Enterprise Applications | Microsoft Dynamics 365. |
| IT  Management | Digital Experience Platforms, Enterprise Low-Code Application Platforms, Full Life Cycle API Management. | Middleware | Accellion Kiteworks, Apache Active MQ, Apache Pulsar, Apache ServiceMix, AWS, Azure API Management, IBM Websphere Application Server, IBM Websphere MQ, Mule Enterprise Service Bus (ESB), Mule ESB, Rabbit MQ, TIBCO  Managed File Transfer (MFT), TIBCO Scribe. |
|  |  | Networking | Apache Guacamole, AWS, Azure, Cisco Aggregation Services Routers (ASR), Cisco Application Centric Infrastructure (ACI), Cisco Nexus, Haproxy, OpenVPN, Shavlik, Traefik, VMware NSX. |
|  |  | Service Management | Cherwell IT Service Management, PagerDuty, VictorOps  Apache Ant, Apache Ranger,  AWS, Azure, Flyway, |

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| **Gartner Category (L1)** | **Gartner**  **Sub-Category**  **(L2)** | **NHS Technology Function** | **Technology Component**  **(L3)** |
|  |  |  | Instana, Micro Focus, ZENworks, ScaleArc, Veeam Backup & Replication, VMware  vRealise Automation, |
| IT Services | Application Testing Services, Cloud Access Security Brokers, Cloud AI Developer Services, Content Services Platforms, CRM, Network Services. | Anti-Virus, Vulnerability Mgt & Monitoring | Anchore,  AWS, Azure, Black Duck, Clair, Imperva, Incapsula, Nessus, OSSEC, Palo Alto, Networks Prisma, Privitar Publisher, Snyk, Trend Micro, Anti Spam, Twistlock Wallix Bastion. |
|  |  | Cloud Orchestration | AWS, BeanStalk, Azure, Cloud Foundry. |
|  |  | Encryption | AWS, Azure, HashiCorp Vault. |
|  |  | Remote Access Service | Bomgar, IUVO  clin-ePost, VisionApp Remote Desktop. |
| Software Infrastructure | Access Management, Application Performance Monitoring, Cloud Management Platforms, Data and Analytics Service, Data Integration Tools, Data Management Solutions for Analytics, Data Quality Tools, Digital Experience Platforms, Enterprise Architecture Tools, Enterprise  Information Archiving, Full Life | Architecture Tools  Business Process Management  Discovery/Search  Frameworks, Languages, & Libraries | Collibra, Hibernate ORM, Ontoserver, Orbus iServer, SAP Power Designer, Sparx Systems Enterprise Architect.  Drools.  Apache Lucene, Apache SOLR, Azure, Funnelback, Lucidsearch Fusion.  .NET Core, .NET  Framework, Angular, Apache, Bootstrap, Cache MUMPS, |

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| **Gartner Category (L1)** | **Gartner**  **Sub-Category (L2)** | **NHS Technology Function** | **Technology Component (L3)** |
|  | Cycle API Management, Metadata Management Solutions, Robotic Process Automation, Secure Web Gateways, Software Asset Management Tools, Unified Endpoint Management Tools. |  | Cucumber, ECMAScript, Flask, GO, Hibernate ORM, Jasmine.js,  Java 2 Enterprise,  Java 2 Standard Edition, Java JRE, Java SE, Jinja, jQuery, Microsoft, mlFlow, Mustache.JS, Next.js, Node.js, Open Rasta, PHP, Python, Quartz, R, React.js, Redux Javascript Library, Ruby, Scala, Schematron, SQLAlchemy, Symfony, Vue.js, XStream. |
|  | Identity & Access  Management | AWS, Azure, Cisco Identity Service, Engine (ISE), Entrust CA, Entrust Security Manager, FreeIPA, Keycloak, Microsoft, Open IG (Identity Gateway), OpenAM, OpenDJ, OpenIDM, OpenLDAP, Oracle Directory Service Enterprise, Pleasant Password Server, Wallix Access Manager (TBC). |
|  | Non-Relational Databases | AWS, Azure, Event Store, Intersystems Cache, Neo4j, Redis, RethinkDB, Riak, Stardog. |

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| **Gartner Category (L1)** | **Gartner**  **Sub-Category**  **(L2)** | **NHS Technology Function** | **Technology Component**  **(L3)** |
|  |  | Performance & Availability Monitoring | Atlassian OpsGenie, AWS, CloudWatch, Azure, Cisco AppDynamics, Datadog, Dynatrace, Elasticsearch, Nagios Core, New Relic One, Outcold Log Collector, Pingdom, Prometheus, Sensu Go, Sentry, SonarQube, Splunk, Splunk Cloud, Splunk Enterprise, SQL Sentry, Status Cake, UptimeRobot, Zabbix. |
| Relational Databases | AWS, Azure, Microsoft, MySQL, Oracle Database, Oracle Directory Service Enterprise, PostgreSQL. |
| Server Technology | Apache, AWS, Azure, Bootstrap CSS, Cookiebot, Drupal 7, Green Unicorn, Javascript, JBoss Community (Wildfly), Microsoft SharePoint, Nginx, Tornado Web, uWSGI, VMware ESXi, Wagtail CMS, Wordpress. |
| Server/Desktop OS | Alpine Linux, CentOS, FileMaker Pro Server, HP-UX 11i, Microsoft Windows, Red Hat Enterprise Linux  (RHEL), Scientific |

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| **Gartner Category (L1)** | **Gartner**  **Sub-Category**  **(L2)** | **NHS Technology Function** | **Technology Component**  **(L3)** |
|  |  |  | Linux, Ubuntu 12,  Ubuntu 14, Ubuntu  16, Ubuntu 18,  Ubuntu 19, Windows 10X. |
| Serverless | AWS, Azure. |
| Source Code Management | Apache, AWS, Azure, Coveralls, GitHub, GitLab, Microsoft,, Nexus, R Studio, ReSharper, Sonatype Nexus, TeamCity, TortoiseGit. |
| Storage | AWS, Azure, Cobbler, Docker, Google Cloud, HashiCorp Terraform, HashiCorp Vagrant, Helm, Kubernetes, LXD System Container Manager, Oracle VM VirtualBox, Packer, Rancher, VMware ESXi, VMware on  AWS. |
| Virtualisation & Containerisation | CXAir, Eclipse Business Intelligence and Reporting Tools (BIRT), Highcharts, Highmaps,  Kibana, Logstash, Microsoft, Oracle |

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| **Gartner Category (L1)** | **Gartner**  **Sub-Category**  **(L2)** | **NHS Technology Function** | **Technology Component**  **(L3)** |
|  |  |  | Business Intelligence Enterprise Edition, SAS Enterprise Guide, SmartLogic, Semaphore, Splunk,  Tableau. |
| Visualisation Tools | Adobe Analytics, Google Analytics,  Hotjar, Matomo. |
| Web Analytics | Adobe Analytics, Google Analytics,  Hotjar, Matomo, |

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**ANNEX 2**

**Standards**

The Supplier shall be required to comply with the following Standards where relevant (Paragraph 11.3 of this Schedule) and where a Standard is accessed via a URL, the version of the Standard set out on that web page shall be the version of the Standard that shall apply to a Call-Off Contract or Statement of Work upon execution of the same:

|  |  |
| --- | --- |
| **1.** | **General** |
| **1.1** | ~~ISO 9000; ISO 9001:2015 Quality Management~~ |
| **2.** | **IG and Security** |
| **2.1** | 10 Steps to Cyber Security’ guidance:  Read more about [10 Steps to Cyber Security guidance](https://www.ncsc.gov.uk/collection/10-steps) |
| **2.2** | ~~BS ISO 22301:2012 Societal security – Business Continuity management systems – Requirements~~ |
| **2.3** | BS ISO 27001:2013 Information and Data Security |
| **3.** | **Development and System Design Services** |
| **3.1** | ~~BS ISO/IEC 12207:2017 Systems and software engineering.~~ |
| **3.2** | ~~BS 8878:2010 Web accessibility. Code of Practice.~~ |
| **3.3** | Open Standards: "Open Standards Principles 2018: For software interoperability, data and document formats in government IT specifications": Read more about [Open standards principles](https://www.gov.uk/government/publications/open-standards-principles/open-standards-principles)  and any supplementary or replacement government guidance. |
| **3.4** | Adopted Open Standards as detailed on the Standards Hub:  Read more about [Open standards for government](https://www.gov.uk/government/publications/open-standards-for-government) |
| **3.5** | Web Content Accessibility Guidelines (WCAG) 2.0 to level AA; or WCAG 2.2, (as updated pursuant to the Public Sector Bodies (Websites and Mobile Applications) Accessibility Regulations 2018). |

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| **4.** | **Government DHSC and NHS Standards** |
| **4.1** | NHS Service Standards (and references therein):  Read more about [NHS service standard](https://service-manual.nhs.uk/standards-and-technology/service-standard) |
| **4.2** | The NHS digital, data and technology standards and clinical information standards:  Read more about as set out in this link and associated pages (as updated from time to time): [NHS Digital](https://digital.nhs.uk/about-nhs-digital/corporate-information-and-documents) |
| **4.3** | The Technology and Code of Practise is a set of criteria to help government design, buy and technology:  Read more about [The Technology Code of Practice](https://www.gov.uk/guidance/the-technology-code-of-practice) |
| **4.4** | The Service Standards helps teams to create and run great public services:  Read more about [Service Standards](https://www.gov.uk/service-manual/service-standard) |
| **5.** | **Buyer Standards** |
| **5.1** | Such other standards and requirements as notified by the Buyer to the Supplier (including successor standards and requirements). |