SCHEDULE A

FRAMEWORK AGREEMENT SPECIFICATION

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A healthcare output and content management system concerns the provision of hardware and software solutions and services that enable an NHS organisation to manage its output and data silos typically present within its best of breed clinical systems and other support systems. The system can be composed of several modular components which all work together to create a coherent platform for managing output and healthcare content to enrich hospitals' existing investments in systems, such as, Electronic Patient Record (EPR) systems and Patient Administration Systems (PAS).

At a high-level, the solution must provide:

- User friendly, simple and clean single source access portal which presents data (stored and managed content) from all hospital clinical systems.
- Ability to store electronically-generated healthcare content
- Ability to manage healthcare content throughout its lifecycle, providing auditable information and appropriate security.
- Ability to capture and route new information from analogue and digital sources, including the provision of e-forms.
- Enterprise based software licences to view, access, capture and route information
- Ability to integrate with scanning and archiving solutions
- Ability to integrate hardware (output device / MFD) with clinical systems.
- Training and professional services for implementation and maintenance
- Software and hardware maintenance
- Appropriate hardware to facilitate transition to digital patient records and a digital enterprise

Total solution

Bidders must offer a solution that encompasses all of the modular elements described below. These elements may be called-off and established individually to enable NHS organisations to adopt this technology with minimal impact to its patient services and available funding. Call-off contracts will include a road map of total or partial adoption. There is no obligation under this agreement for NHS organisations to commit to purchase all available modules. However, for the avoidance of doubt, this framework cannot be utilised to award a managed print/hardware service with no intention to ever adopt other modules provisioned in this framework. The purpose of this is to not distort the already well-established hardware market, which many other framework agreements already service.

Core viewer and access to content application

This module will offer:

- Provision of a content viewer which integrates with a Patient Administration System or Electronic Patient Record in order to receive the current patient context and display available content for that patient
- Provision of a viewer able to offer a variety of context and user-appropriate views, including options for zero-footprint (does not require installation of software and does

not cache data on the viewing device) / device independent viewers on mobile platforms.
- Search of content across multiple repositories from a single interface
- Provision of a viewer which offers the same user interface and experience across multiple devices
- Provision of a viewer which is able to offer a variety of ways for content to be indexed for viewing, including an ability to mimic medical records and display chronologically.
- Provision of a viewer that can display multiple documents at the same time in a single window
- Provision of a viewer that allows the user to view all of the associated information (index values, notes, related documents, revisions, document history) about a document with the image itself
- The ability to search and sort documents based on user defined indexes such as patient name, patient number, address, facility, document number, and document type and provide robust search and sort capability based on keys, text strings and keywords
- The ability to integrate with authorities' active directory or LDAP for shared authentication
- The ability to control and track the modification of documents through multiple revisions and track document history. The solution should track the number of revisions associated with a specific document and should allow for the inclusion of comments
- The ability to edit content if errors have been identified, such as patient notes in wrong patient file
- The ability to integrate between third party clinical systems and applications and the solution's repositories, using open interfaces.
- The ability to manage DICOM and non DICOM content in a single layer
- For DICOM medical imaging content, the ability to provide prefetching of comparison studies to make them available to the selected viewing system(s)
- The ability to set up a security hierarchy to access information and assign security at varying levels including but not limited to users, document types, storage locations

Storing and managing content

This module will offer:

- A storage abstraction layer, able to integrate multiple types of storage including Storage Area Network (SAN), Network Attached Storage (NAS) and cloud.
- The ability to present the different storage formats back to content consuming applications as a single source.
- Compliance with DICOM standard.
- Compatibility with a range of storage types, object-based storage devices and private cloud / public cloud storage services and be, as far as possible, vendor-neutral in this regard
- The ability to offer metadata management, to include synchronisation with a master patient index to keep all items synchronised for patient demographics and identifiers.
- The ability to normalise medical imaging content for storage, such as moving / mapping of DICOM private tags.
- Information lifecycle management capabilities, including manual delete, automatic retention and purging.

- Full auditing of access and changes.

Intelligent capture and indexation solution

This module will offer:

- Provision of intelligent document capture software which works with hardware to capture a variety of data and media for presentation within the core viewing application
- User configuration of scanning settings across a range of parameters, including but not limited to resolution, page size, orientation, brightness and threshold detection
- The ability to scan batches locally and upload batches to the server at a time the user specifies
- Automated alerts to a user of data errors including but not limited to missing pages, mismatched patient identifiers.
- The ability to classify and index documents into an electronic patient record through a variety of intelligent capture techniques
- Automatic indexing of documents based on, for example, an accompanying text file that contains delimited or tagged index information about the documents
- The ability to import any file, regardless of type, within one capture process
- The ability to read scanned paper
- The ability to read digital documents
- The ability to auto-import camera images and media files directly from a connected device.
- Data and text extraction capabilities for scanned image documents and automatic processing of documents directly into the system, preferably without requiring 3rd party applications, incorporating OCR (optical character recognition), ICR (intelligent character recognition) and OMR (optical mark recognition).
- The ability to index and order documents to facilitate maximum clinical utility.

Electronic forms solution

This module will offer:

- An electronic form management system which is able to integrate with hospital systems.
- The ability to launch from and integrate with a range of patient administration systems and/or electronic patient record systems.
- Support for mobile device data entry from a range of mobile devices and clients
- Document level scanning for frequently referenced document/form types
- The ability to validate data against a range of external sources
- Simple update of data in an external system or systems from an electronic form
- The ability to receive master patient index data from an HL7 (Health Level 7 International) source and pre-populate forms with demographics and to synchronise with a master patient index.
- Security integrated to lightweight directory access protocol (LDAP).
- The ability to export completed forms electronically as finished documents in standard formats such as PDF or TIFF from the electronic forms solution to a content management or other solution.
- Compliance with GS1 standards, in support of the national Scan4Safety programme.

Output management solution (including hardware)

This module will offer:

- Provision of hardware as a service to facilitate migration from a paper-based environment to a digital environment, including scanners, multi-functional devices and printers that are capable of being fully integrated to all modular elements, including the core viewer, e-forms, capture and indexation and storage.
- Hardware that is capable of self-management in terms of maintenance and consumable replenishment without human intervention.
- The capability to provide an audit function.
- The ability to offer geographical asset management allowing end users or support desks to have a visual representation of a complete hardware environment from multiple geographical locations down to specific devices and their locations.
- The ability to provide information in real time on service requests, output volumes and consumable requests.
- Hardware that has the ability to incorporate machine-readable data such as 2D barcodes which allows patient ID matching, quality and safety checks to be performed (to comply with GS1 standards, in support of the national Scan4Safety programme).
- The ability to provide a "closed loop" to warn scanning user about classification and indexing exceptions (such as missing pages or presence of documents for more than one patient).
- Hardware that enables a Healthcare Information and Management Systems Society (HIMSS) compliant point of care capture solution. Preference will be given to a solution that enables an NHS organisation to achieve Stage 7 in the HIMMS maturity model.
- Hardware that enables bi-directional integration with all common Healthcare EPR systems for Acute, Community and Mental Health NHS Organisations.
- Full continuity of operations during network outages.
- The ability to provide an output management service via both traditional on-site infrastructure and via a cloud-based infrastructure.
- The ability to produce RFID output such as RFID asset tags
- A consistent and holistic approach to security – including but not limited to; secure hardware and solution access, network security, document security, secure remote management, hard disk security, encrypted and signed firmware, secure boot technology, and continuous verification that ensures the firmware has not been compromised during operation.
- A roadmap of continuous improvement to reduce paper dependency over the life of the contract.

Standards

All products supplied in connection with the Framework Agreement must be CE certified under the relevant directive.

The Supplier must operate a defined quality management system for the design, development, manufacture, service, installation and distribution of its healthcare output and content management system to the standard of EN ISO 9001:2008 or operate a system to

an equivalent level. Details of this quality management system will be made available to NHS organisations on request.

The Supplier must operate a defined quality management system for its servicing and technical support services. Details of this quality management system will be made available to NHS organisations on request.

The Supplier must follow a defined and documented software quality accreditation process to a level at least equivalent to that of IS EN ISO 9001:2008 (or an equivalent recognised standard).

The Supplier must operate a defined and documented information system security management system to a level at least equivalent to that of IS EN ISO 27001:2013 (or an equivalent recognised standard).

The Supplier's system implementation must follow a defined and documented project methodology (for example PRINCE2).

The Supplier must hold (or commit to obtain, prior to commencement of the Framework Agreement if awarded) Cyber Security Essentials Plus accreditation.

The Supplier must be registered with the Information Commissioners Office as a Data Processer throughout the life of the Framework Agreement and the period of all Contracts called off from the Framework Agreement.

The following technology and interface standards should be supported where applicable:

- DICOM
- HL7
- GS1, in support of the national Scan4Safety programme.
- Clinical Document Architecture (CDA)
- Continuity of Care Document (CCD)
- Structured Product Labelling (SPL)
- Clinical Context Object Workgroup (CCOW)
- Scanner profiles such as TWAIN
- Integrating the Healthcare Enterprise
- Security integration to Active Directory / LDAP

Technical and Professional Ability - Relevant experience and contract examples

- Due to the potential risks to business-critical hospital systems that would arise from a solution that is unproven in a live healthcare environment, Suppliers must be able to demonstrate experience of implementing the entirety of this specification. At least one example in Section 6.1 of SCHEDULE C - PREREQUISITES must be a contract that includes all of the modular elements described above. The description of the contract must include specific financial, operational and clinical benefits that have been delivered.