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## **Digital Continuity Guidance:**

# **Use of the Information Asset Register in ICT Services Procurement and Contract Management**

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**DRAFT**  
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**DISCLAIMER:** This Guidance is currently in development and is provided as a guide to areas for consideration for parties wishing to include obligations relating to the Information Asset Register within their procurement and/or contractual arrangements.

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## 1 The Information Asset Register in ICT Services Procurement and Contracts

### 1.1 Why has an Information Asset Register for ICT Services Contracts been introduced?

Most public sector information is created digitally. This information is a core, publicly funded asset and we have an obligation to manage it well. Part of this management must be to make sure that it remains fit for purpose, over time and through change. This is called maintaining Digital Continuity. Being able to use digital information for as long as we need to enables us to deliver outstanding public services and take informed decisions. It ensures we can be accountable, operate legally and transparently, and work effectively and efficiently. It underpins information assurance and is at the heart of operational efficiency.

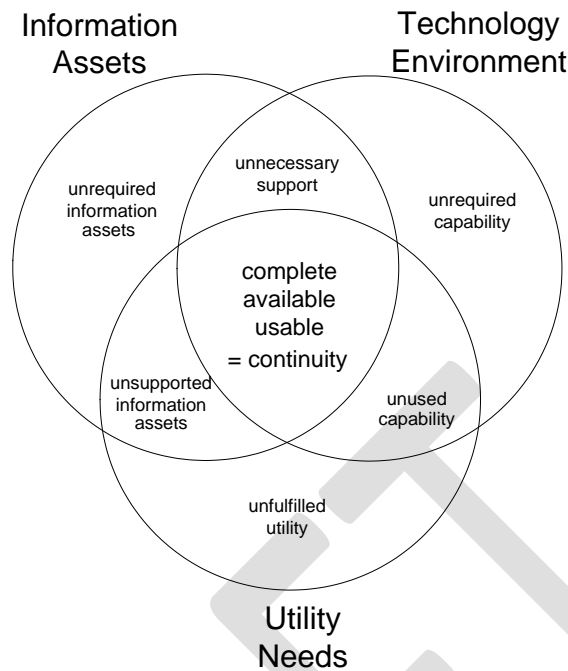
The National Archives is leading a cross-Government initiative designed to enable Government and wider public sector bodies to use their digital information for as long as it is needed. The Digital Continuity Project will deliver guidance along with a commercial framework of technology and services which can assist organisations in the management of their Digital Continuity. Please follow this link for further information on the project: [www.nationalarchives.gov.uk/digitalcontinuity](http://www.nationalarchives.gov.uk/digitalcontinuity)

Digital Continuity happens when you align your information assets and your technical environment with your business needs and maintain this alignment through periods of change. An Information Asset Register is critical to your organisation's ability to maintain digital continuity and that is why Version 2.3 of the ICT Services model Agreement now includes provision for developing and implementing an Information Asset Register (IAR) within your contractual relationships.

### 1.2 How does an Information Asset Register for an ICT Services Contract support Digital Continuity?

For an organisation to ensure that it has continuity of its digital information assets, it must first know what digital information assets it has and the nature of the technical environment that supports them. It must also understand the value of that information to the business and define the utility required from individual information assets i.e. how does the organisation need to be able to interact with and use the information asset in order to carry out its business.

The diagram below illustrates how Information Assets, Technology Environment (hardware/software Assets), and Utility (business need) required by the organisation need to be aligned in order to achieve Digital Continuity. The diagram also illustrates how a change to in any one area could have an effect or impact on the others and therefore on the continuity of information.



In order to assert control over these relationships and maximise Digital Continuity, the Information Assets, Technology Environment, and the Utility need to be documented and actively managed through changes. Incorporating an Information Asset Register into the contract for ICT Services is a vital way of achieving this.

Although the ICT Services model Agreement has provision for the maintenance of a 'register of Assets', and the ability to define Utility requirements exists in the Service Description, prior to model Agreement version 2.3 there was no explicit provision for the need to manage a register of *Information Assets*.

Version 2.3 of the ICT Services model Agreement now includes such a provision and this guidance is intended to assist contracting organisations in developing and implementing an Information Asset Register (IAR) within their contractual relationships in order to support their Digital Continuity.

This will ensure that ICT Services provided under the contract support the use of the Information Assets as needed by the business at the time of contracting, and that changes that arise during the contract period are assessed for impact on the Utility of those Information Assets.

### 1.3 What is the ICT Services Information Asset Register?

The Information Asset Register (IAR) is a register which clearly identifies all of the Information Assets within the contractor's solution. The IAR is designed to ensure that the impact on the Information Assets of any changes in the Technology Environment or Utility can be understood and that any change in the ability of the Information Asset to support the Utility needs is recognised and addressed.

In order that the IAR can serve this purpose, the Information Assets themselves must be defined and details of the relevant technical aspects of each Information Asset, e.g. file types, recorded. Then, in the contract Service Description, the services must be mapped to the Information Assets that relate to the delivery of that service in order to deliver the Utility (business outcomes) required.

The IAR must be initially created by the Authority prior to procurement and is updated or refined during the contract negotiations.

Once the ICT Services Contract is in place, the IAR is referenced from, but not included in, the contract, and is maintained by the Contactor.

The IAR is referenced from the Contract by:

- Including it as one of the Registers that the Contractor is obliged to maintain.
- Defining the requirements for the IAR within the Service Description.
- Specifying which Information Assets support and relate to each of the services within the Service Description.

Through the active management of the IAR in the ICT Services contract, the Information Assets become true configuration items and the organisation is able to effectively manage and maintain Digital Continuity, reducing risks as the technology and the organisation itself changes.

Please see Annex A for example IAR entries.

#### 1.4 Why do we need the IAR in ICT Services Procurement and Contracts?

The purpose of the Information Asset Register (IAR) in an ICT Services contract is to ensure that the contracting authority continues to have appropriate access to, and Utility from, its Information Assets for the duration of the services contract.

Whilst the IAR places obligations on the contractor to ensure that their system supports the required Utility at the start of the contract and to maintain that level of Utility for the duration of the contract, it is not intended to be an onerous obligation but rather one which protects both the authority and the contractor from unintentional degradation of Utility from its information. Such an event is termed a loss of *Digital Continuity*.

In understanding the value of the IAR it is important to understand two key concepts:

- **Utility of information** describes the outcomes that an organisation needs from its Information Assets in order to carry out its business. Utility might be limited to an organisation that needs its employees only to be able to see and read information on a screen. However it may extend to an organisation that needs to interact, update, change and compute complex technical data or may require that information maintain certain characteristics e.g. authenticity, context, resolution, availability etc.
- **Digital Continuity** is the organisation's ability to have the level of Utility it requires from its Information Assets for as long as it needs to in order to carry out its business. A loss of Continuity is a reduction in Utility that results in the organisation being unable to perform its business to the extent desired. In the extreme this would be a complete inability to access the information. This loss of Continuity results from changes in the Information Assets, Technology Environment and Utility needs over time.

In complex ICT environments where Information Assets continue to age, data volumes double every few years and technology changes at a faster rate than ever

before, the key to avoiding business failures through loss in Digital Continuity is to manage technical and organisational change with an explicit understanding of the impacts on:

- the organisation's Information Assets
- what the business needs from those Information Assets (Utility)

Establishing the IAR enables the Authority and the Contractor to maintain an understanding of the information holdings and their required Utility in order that the impact of technical or other changes may be assessed and mitigations agreed where necessary.

The IAR described in this guidance is that required to facilitate procurement and to manage change in an ICT Services contract. It may however, form a sub-set of the Authority's more comprehensive organisational IAR if the Authority wishes to maintain additional information. e.g. other Information Assets, information value, disposal schedules etc.

Further guidance relating to an organisational Information Asset Register is in development; please see The National Archives' web site:

<http://www.nationalarchives.gov.uk/electronicrecords/digitalcontinuity/guidance-on-digital-continuity.htm>

## 1.5 What are the benefits from using an IAR in ICT Services Procurement and Contracts?

The following benefits for both the Contractor and the Authority, can be derived from using the IAR during procurement and management of ICT Services:

- Clear definition of the Information Assets that a new Contractor will be expected to support in relation to delivering the service, leading to clarity and understanding between both parties on the service provision
- Appropriate service design that fully meets Utility requirements for information and that takes into account any legacy technology issues
- Early identification of potential Digital Continuity issues during procurement, leading to agreement on issue resolutions during solution design phase rather than relying on post-contract change control – more economic and lower technical risk
- Greater ability to identify/eliminate redundant data, leading to cost / process savings
- Greater ability to identify redundant licensing, leading to cost / process savings
- Greater ability to identify uneconomic sub-systems, leading to cost / process savings by identifying alternative file formats / licensing options
- Reduced risk of inadvertent Digital Continuity issues being introduced by change through the life of the agreement
- Once the IAR exists it can be used to in subsequent procurements / due diligence exercises

## 2 Outcome of using the IAR in ICT Services Procurement and Contracts

The role of an IAR during ICT Services Procurement is to clearly define the Information Assets that the Contractor will be expected to manage as part of its service.

During the procurement negotiations this detailed understanding will enable bidding suppliers to be active in ensuring that potential issues are identified, issue resolutions agreed and that the overall proposed solution is appropriate and proportionate to the Authority's needs.

### 2.1 Issue identification

The IAR will clearly identify all of the pre-existing Information Assets for which the new service provider will take responsibility. This will enable a dialogue with bidding contractors to identify any existing or potential Digital Continuity issues. During negotiation, solutions to any issues can be agreed pre-contract avoiding the potential for unforeseen and possibly costly change mid-term.

**Example 1:** The Information Asset Register details a Patient Records database running on Oracle Database version 10.2.0. Oracle has issued notice that support for this version will be phased out starting from July 2010. For a 5 year services contract this is obviously going to become an issue. The bidding contractors will be asked to identify such issues and propose solutions.

### 2.2 Appropriate design

The Requirements Specification at the start of procurement can be used in conjunction with the IAR to clearly define the Utility requirement for each Information Asset i.e. the outcomes which that Information Asset must support (which will then form the contract Service Description). This will enable the bidding contractors to design an appropriate solution that satisfies the needs of the contracting authority whilst not being over-specified. For example:

**Example 2:** In considering the solution to the Patient Records database above, the bidding contractor will need to understand the required Utility in order to design the most appropriate solution. Where the required Utility is to continue to create and maintain Patient Records, then an upgrade to a supported version of Oracle might be the best solution. However, if the required Utility is to just view the details within the database for reference purpose, then the bidding contractor may propose that the details are archived to a PDF format and stored in the EDRMS, thus eliminating database licence, server and maintenance costs.

### 2.3 Continuity through change

The role of the IAR through the term of the ICT Services contract is to act as a configuration item to be assessed at times of change in order to prevent inadvertent loss of Utility or Digital Continuity. The contractor is required to understand the consequences of Technology Environment or Utility change in relation to the Information Assets (either through an Operational Change Procedure or through a

contract Change Procedure) and to make the Authority aware of these consequences.

**Note:** *The Digital Continuity Project is, at the time of writing (August 2009), in discussions with OGC regarding how the management of the IAR should be incorporated into the ITIL processes.*

**Example 3:** As the Contractor, I would like to migrate large amounts of video data to off-line storage as a cost saving and environmental measure. The IAR show that the video files are required on an 'immediate access' basis. However the cost savings of the move could be significant and could be shared between the Contractor and the Authority. The contractor should enter discussions with the authority to explore the possibilities of lowering the retrieval time requirement in order that cost savings could be realised.

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### 3 How to use the IAR into an ICT Services Procurement

In order that the procurement negotiations can benefit from the inclusion of an IAR, it must be integrated into the Requirements Specification (Service Description) and then used during the procurement negotiations.

#### 3.1 The IAR within the Service Description

The requirements specification used during the procurement negotiations for ICT services, and which subsequently becomes Schedule 2 Service Description of the contract, is designed to detail the business outcomes that the contracting authority requires the service provider to deliver.

These business outcomes should be related to the Information Assets in order that the required Utility of the Information assets is clearly defined.

The creation of the IAR and its association with the Services Description creates a clear, baseline requirement which not only allows for the design of an appropriate system but also provides a valuable baseline against which future change can be assessed.

**Example 5:** “The System should allow the departmental staff to locate, re-size and store scanned document images from the Document Archive (IA number DA003).”

In referring to the Information Asset Register, it can be seen that Information Asset DA008 includes TIFF and vendor specific RAW images. With this knowledge, the bidding contractor can ensure that the appropriate software is included in their solution. They may even suggest that licence cost could be reduced if the vendor specific RAW images were migrated to an open standard format; a point for negotiation.

**Example 6:** “The System should allow the departmental staff to locate and view scanned document images from the Document Archive (IA number DA003) and from the Image Ingest Store (IA number DA011).”

In this example, notwithstanding the need to locate the scanned documents, it is clear that ‘view only’ capability is required and that only viewing applications need exist on the solution.

The association of Information Assets to service outcome requirements can be at an individual outcome level as illustrated above or, more likely, against an aggregated set of requirements. It is also possible to associate a number of different Information Assets to an individual outcome requirement or an aggregated set of requirements. The level of detail at which this association takes place is at the discretion of the contracting Authority. The chosen detail will depend on many factors including the availability of time and resource and the varying Utility needs from the Information Assets themselves.

**However, it is essential that every Information Asset is associated with at least one service outcome and that every service outcome which is dependant upon an Information Asset, clearly states as such.**

### 3.2 Procurement Negotiations

Having the IAR at the time of procurement, associated with the Authority's requirement (Service Description), will enable bidders to ensure that their solution satisfies the stated utility needs. Furthermore, at the time of procurement, the Authority should encourage bidders to:

- State compliance with the Authority's Utility requirements as defined in Schedule 2.
- Demonstrate cost effective delivery of the required Utility (i.e. ensuring the Authority does not pay for functionality or applications not required to deliver the defined Utility)
- Identify potential Digital Continuity risks or issues and propose solutions (e.g. recognising that a file type will become unsupported during the term of the contract) and agree plans to implement the proposed solutions.
- Implement open standards which will assist in the resolution of future continuity issues and minimise transition issues during future technical or contractual change.

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## 4 The IAR in the ICT Services Contract

### 4.1 Managing Change

The Contract does not contain the detail of the file types, versions or systems that relate to each Information Asset; this is the role of the IAR itself. Changes to the IAR will therefore take place under the Operational Change Procedure unless such a proposed change would require a change to the Agreement. Any change in the association of Information Assets to service outcome, as defined in Schedule 2, would therefore require a contract change.

**Example 7:**

*Question:* I would like to implement Hierarchical Storage Management (HSM) solution to improve overall performance and reduce storage costs. Do I need to raise a Contract Change?

*Answer:* Notwithstanding the caveats regarding the use of the Operational Change Procedure within Schedule 8 (Change Control Procedure), unless the change results in a change in the use of the Services then a Contract Change is not necessary. The IAR however should be updated to reflect the new location. For each Information Asset which will now reside on the HSM the HSM should be documented as (one of) that Information Asset's locations.

**Example 8:**

*Question:* My department has an Appointment Tracking database on Microsoft access. We'd now like to use the capabilities on Outlook to support this process. We will however still like to view the historic appointment information. Do I need a Contract Change?

*Answer:* Yes. The IAR will already identify the appointments as an Information Asset and the Service Description will identify that this Information Asset is required to support the Appointment Tracking process. In this circumstance, the IAR does not need to change (with the likely exception of a change to the Information Asset description). However the Service Description, in schedule 2, that describes the service outcome requirements for the Appointment Tracking process will need to change to reflect that the historical data is now only needed in a read-only capacity and that the Information Asset now requires Microsoft Outlook to support the Appointment Tracking process. This change to Schedule 2 will require a Contract Change.

### 4.2 Responsibilities

The model contract contains several clauses which detail rights or responsibilities in relation to the IAR. In summary they are as follows:

- The Contractor is obligated to ensure that the IAR is maintained.
- Any changes to the IAR should go through the Operational Change Procedure or the Contract Change Procedure.
- All changes which go through the Operational Change Procedure or the Contract Change Procedure will explicitly address the impact on the IAR.
- The Authority has the right to audit the IAR for completeness and accuracy.

## 5 Developing the Information Asset Register

### 5.1 How should you define your Information Assets?

An Information Asset (IA) is a distinctly identifiable collection of information against which compliance with Utility Requirements can be assessed and against which the impact of change can be assessed in relation to that compliance.

In order to make a clear identification of an Information Asset, and in recognition that the IAR is primarily a tool to aid the assessment of Technology Environment or Utility change, specific Information Assets are likely to be closely related to the technology that supports them (from both the physical storage and logical access and manipulation perspectives) and/or the Utility required from them.

For example, an Information Asset may be described as:

- All of the data, anywhere on the system, created and maintained by Oracle Applications.

However if the organisation has several Oracle Applications, perhaps storing their data on different storage technologies or perhaps having different levels of Utility (i.e. one particular database may be for archival purposes and is read-only) then it may be more beneficial to break the above Information Asset into three distinct units that clearly identify the Technology Environment and Utility differences, which may be significant when assessing the impact of change. For example:

- The Oracle9i Financials database held on the Network attached storage
- The Oracle9i HR employee archive(read only) database on the dedicated server
- The Oracle10g CRM database held on the Network attached storage

For the purposes of this IAR, in order that the impact of change may be assessed, each Information Asset is required:

- To be discretely identifiable from other Information assets.
- To have known and identifiable Utility – i.e. related to a service outcome in the Service Definition
- To be physically locatable – i.e. which device or devices hold the information
- To be logically locatable – i.e. how the information is identified and retrieved by the relevant systems

For the purpose of an IAR used in conjunction with an ICT Services contract, the IAR should include all Information Assets for which the Contractor has custodial responsibility – i.e. the “Authority Data”.

### 5.2 What do I need to record in my Information Asset Register?

For use in an ICT Services contract, for each Information Asset, the IAR should include the following details:

**IA Number:** a unique identifier which can be used to cross-reference to the Authorities enterprise-wide IAR, the equipment and software asset registers and the CMDB as appropriate.

**Information Asset Name:** A normal language short-phrase descriptor.

**Information Asset Description:** A longer description which should describe the scope of this particular Information Asset. In this description it is important to define the scope not only in terms of describing the Information Asset in question, but also to reference other Information Assets which are not in the scope.

**Information Asset Location(s):** Details of the physical devices and logical locations which hold the data which makes up the Information Asset. This should be at a level of detail sufficient to identify those Information Assets affected by any change.

**Included File Types and Versions:** It is important to detail the file format types and versions as these attributes of the Information Asset are key to the identification of Digital Continuity issues when assessing Technology Environment or Utility change. A differentiation should be made between file types that are known to exist on the Information Asset and those which are supported by the contractor's solution but are not present.

**Note:** *it is likely that other technical characteristics of an Information Asset beyond file format/version may need to be recorded in the IAR. Further guidance on the definition of an Information Asset and in particular the technical information required beyond the file format is to be developed and will be available in later drafts/versions of this guidance.*

## **Annex A – Example Information Asset Register**

### **INFORMATION ASSET REGISTER (IAR)**

**Date of creation: 01 January 2009 – Version 1.0**

**Date last modified: 01 January 2010 – Version 2.0**

This document is the Information asset register as referenced in the agreement dated [date] between [Authority name] (The Authority) and [Contractor name] (The Contractor) relating to [ ].

## Information Asset example 1: Shared files

<b>Information Asset Number</b>		
<b>A24</b>		
<b>Information Asset Name</b>		
<b>Administrative Office Files</b>		
<b>Information Asset Description</b>		
<b>The digital files used and created on a day to day continuous basis by all staff.</b>		
<b>Information Asset Location(s)</b>		
<b>1) Network Attached Storage (asset no: 102)</b>		<a href="#">\\NAS2\SharedFiles\</a>
<b>File Types and Versions included:</b>		
<b>File Type</b>	<b>Format</b>	<b>Versions</b>
Word processing	Rich Text Format	V0.2, V0.4 and V0.5
	Microsoft Word	All versions 97 through 2007, not .docx
	Multimate	Version 2003 only
	WordPerfect	96 only
Presentation	Powerpoint	All versions 97 through 2007, not .pptx
Spreadsheet	Excel	All versions 97 through 2007, not .xlsx
Database	Access MDB	All versions 97 through 2007
Email / groupware	Outlook PST	All versions 97 through 2007
Raster image	JPEG	All versions, not JPEG 2000
	TIFF	All versions
	PNG	All versions
	GIF	All versions
	BMP	All versions
Page layout	PDF	All versions
	Postscript	All versions
Text	Plain	ASCII Latin & French Canadian, UTF8
	CSV	
Web	HTML	All versions
	Cascading Style Sheets (CSS)	All versions

## Information Asset example 2: Financial Accounting system

<b>Information Asset Number</b>		
A17		
<b>Information Asset Name</b>		
Financial Accounting System - archive		
<b>Information Asset Description</b>		
<p>The departmental accounting system to include:</p> <ul style="list-style-type: none"> <li>Asset register</li> <li>Bank reconciliation</li> <li>Purchase ledger</li> <li>P&amp;L account</li> <li>Balance sheet reporting</li> </ul> <p>All within Oracle Financials 10g</p>		
<b>Information Asset Location(s)</b>		
1) Dedicated Oracle DB Server, Server Asset DB09		
<b>File Types and Versions included:</b>		
<b>File Type</b>	<b>Format</b>	<b>Versions</b>
Database	Oracle	10g