



Archaeology  
Data Service

# The FAIR and CARE Principles

*Dr Holly Wright, Archaeology Data Service, University of York, UK*

ADS Data Stewardship Winter School  
15 November, 2022

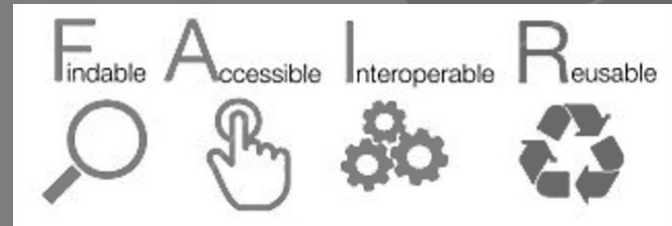


UNIVERSITY  
*of York*

In 2016, the **'FAIR Guiding Principles for scientific data management and stewardship'** were published in Scientific Data. The authors intended to provide guidelines to improve the **F**indability, **A**ccessibility, **I**nteroperability, and **R**euse of digital assets. The principles emphasise machine-actionability (i.e., the capacity of computational systems to find, access, interoperate, and reuse data with little or no human intervention) because humans increasingly rely on computational support to deal with data as a result of the increase in volume, complexity, and creation speed of data.

**GOFAIR:** <https://www.go-fair.org/fair-principles/>

# What are the FAIR Guiding Principles?



# FINDABLE

- F1. (Meta)data are assigned a globally unique and persistent identifier
- F2. Data are described with rich metadata (defined by R1)
- F3. Metadata clearly and explicitly include the identifier of the data they describe
- F4. (Meta)data are registered or indexed in a searchable resource




# FINDABLE

F1. (Meta)data are assigned a globally unique and persistent identifier

Digital Object Identifier (DOIs)





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## Palaeochannels of the Trent Catchment

York Archaeological Trust, 2017. <https://doi.org/10.5284/1043773>. [How to cite using this DOI](#)

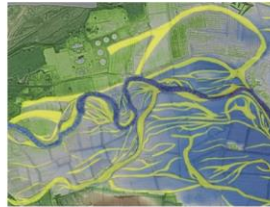
**Introduction**

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The Mapping the Palaeochannels of the Trent Catchment project commissioned by Historic England, aimed to enhance the record of palaeochannels within the Trent Catchment, creating a database comparable to that created by the Trent Valley Geoarchaeology project for Derbyshire (Baker 2003), and to further improve the database by including the analysis of lidar and other remote-sensing techniques. The pilot phase of the project within Nottinghamshire had the aim of assessing the feasibility of using multiple data sources to compile a comprehensive database of the palaeochannel record of the Trent Valley and major tributaries and to establish a more focussed methodology to complete the analysis of the entire Trent catchment. The initial report (Malone and Stein 2015) focussed on the Trent Valley and its tributaries within Nottinghamshire. Stage 2 expands the methodology to the entirety of the Trent catchment.

The combination of methods applied has proven very effective in producing a record of palaeochannel features for the Trent catchment. The combination of the lidar record of landforms with air photographic record of vegetation difference has allowed a much fuller understanding of the pattern of extinct channels across the gravel terraces and valley floor, and pilot survey greatly has increased the number of such features recorded in comparison to previous studies. The current study has increased the number of mapped channels from 1698 in Phase 1 to 7110 in total. Historic mapping provides additional information on channel migration (and more significant man-made diversions) within the last 200 years. Other remote sensing techniques (e.g multi-spectral thermal imaging) were examined at the pilot stage and, although promising, were not taken further owing to difficulty of data acquisition and lack of comprehensive coverage.

The project has succeeded in increasing considerably our knowledge of the palaeochannel resource of both the Trent valley itself, and of the wider catchment and has allowed the identification of a number of potential avenues for further research. The density and complexity of the palaeochannel record within the core Trent valley (the Middle and Lower Trent) means that this has produced the most coherent and complete record, however, significant numbers of previously unrecorded channel features were also identified within the wider tributary system and across the different landscape zones from the upper Trent and tributaries to the tidal regime of the Humberhead levels.

**Primary contact**

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York  
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England

[Send e-mail enquiry](#)

**Resource identifiers**

**ADS Collection:** 2791  
**DOI:** <https://doi.org/10.5284/1043773>  
[How to cite using this DOI](#)



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# FINDABLE

F1. (Meta)data are assigned a globally unique and persistent identifier

Digital Object Identifier (DOIs)



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## Palaeochannels of the Trent Catchment

York Archaeological Trust, 2017. <https://doi.org/10.5284/1043773>. How to cite using this DOI

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Introduction  
The Mapping the Palaeochannels of the Trent Catchment project commissioned by Historic England, aimed to enhance the record of palaeochannels within the Trent Catchment, creating a database comparable to that created by the Trent Valley Geoarchaeology project for Derbyshire (Baker 2003), and to further

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**Digital Object Identifiers**

Digital Object Identifiers (DOIs) are persistent identifiers which can be used to consistently and accurately reference digital objects and/or content. The DOIs provide a way for the ADS resources to be cited in a similar fashion to traditional scholarly materials. More information on DOIs at the ADS can be found on our [help page](#).

**Citing this DOI**

The updated Crossref DOI Display guidelines recommend that DOIs should be displayed in the following format:

<https://doi.org/10.5284/1043773>

**Sample Citation for this DOI**

York Archaeological Trust (2017) *Palaeochannels of the Trent Catchment* [data-set]. York: Archaeology Data Service [distributor] <https://doi.org/10.5284/1043773>

**Resource identifiers**

ADS Collection: 2791  
DOI: <https://doi.org/10.5284/1043773>  
How to cite using this DOI

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MOVE CLOSE


A map of the Trent Catchment area, showing the current river network in blue and the reconstructed palaeochannels in yellow. The map is overlaid on a green landscape with some buildings and trees.

# FINDABLE

F1. (Meta)data are assigned a globally unique and persistent identifier

## ORCID IDs

ORCID



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### The Rural Settlement of Roman Britain: an online resource

Martyn Allen, Nathan Blick, Tom Brindle, Tim Evans, Michael Fulford, Neil Holbrook, Lisa Lodwick, Julian D Richards, Alex Smith, 2015. (updated 2018) <https://doi.org/10.5284/1033449>. How to cite using this DOI

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#### Introduction

This resource brings together the excavated evidence for the rural settlement of Roman Britain with the over-arching aim to inform a comprehensive reassessment of the countryside of Roman Britain. It includes both traditionally published reports and 'grey literature' reports from developer-funded excavations since 1990.

The project arose from pilot projects undertaken by Cotswold Archaeology<sup>1</sup> and funded by Historic England and it began in 2012. It is funded by grants from the Leverhulme Trust to the Universities of Reading and York (ADS)<sup>2</sup> and from Historic England to Cotswold Archaeology.<sup>3</sup>

This final phase (December 2016) publishes the complete settlement evidence from Roman England and Wales, together with the related finds, environmental and burial data. These are produced alongside a series of integrative studies on rural settlement, economy, and people and ritual, published by the Society for the Promotion of Roman Studies as Britannia Monographs. The first volume, on rural settlement, has now been published, while the two remaining volumes will be released in 2017 and 2018.



# FINDABLE

F1. (Meta)data are assigned a globally unique and persistent identifier

ORCID IDs

ORCID

The image shows two overlapping web pages. The background page is the ADS Archaeology Data Service website, featuring a blue header with the ADS logo and navigation links. The main content area displays the title 'The Rural Settlement of Roman Britain: an online resource' by Martyn Allen, Nathan Blick, Tom Brindle, Tim Evans, Michael Fulford, Neil Holbrook, Lisa Lodwick, Julian D Richards, Alex Smith, 2015. (updated 2018) with a DOI link. The foreground page is an ORCID iD profile for Tim N.L. Evans, showing his ORCID iD, other IDs, countries, and a list of works. The profile also includes a section for 'Linked Data for the Historic Environment' with details about a 2022-07 journal article in Internet Archaeology.

ads ARCHAEOLOGY DATA SERVICE

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The Rural Settlement of Roman Britain: an online resource  
Martyn Allen, Nathan Blick, Tom Brindle, Tim Evans, Michael Fulford, Neil Holbrook, Lisa Lodwick, Julian D Richards, Alex Smith, 2015. (updated 2018) <https://doi.org/10.5284/1036449>. How to cite using this DOI

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Introduction  
This resource brings together the excavated evidence for the rural settlement of Roman Britain with the over-arching aim to inform a comprehensive reassessment of the countryside of Roman Britain. It includes both traditionally published reports and 'grey literature' reports from developer-funded excavations since 1990.

ORCID Connecting research and researchers

Is this you? [Sign in to start editing](#)

Published name  
**Tim N.L. Evans**

Name  
Tim Evans

Activities  
Works (13) Sort

Linked Data for the Historic Environment  
Internet Archaeology  
2022-07 | Journal article  
DOI: [10.11141/ia.59.7](https://doi.org/10.11141/ia.59.7)  
Part of ISSN: [1363-5387](https://doi.org/10.11141/ia.59.7)  
CONTRIBUTORS: Tim N.L. Evans  
Source: Tim N.L. Evans

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With the inclusion of the Welsh settlement data in 2015 to complement that from England, we now have some 3600 records of rural sites, accounting for c. 2500 individual settlements, the vast majority of which were reported on since the implementation of PPG 16 in 1990. However the project has reached back and includes some sites published as early as 1808. Each site is described with bibliographic entries, as well as information on chronology, settlement type, morphological form and associated material culture



# FINDABLE

## F2. Data are described with rich metadata (defined by R1)

### Dublin Core Metadata Element Set




#### Collection-level metadata for data deposited with the ADS

<b>10. Languages</b>	The languages used within your collection.	
Enter languages used within collection.		
<b>11. Identifiers (optional)</b>	Associated identifiers specific to the collection, these may be specific to your institution, or related to other regional and national referencing systems (e.g. ADS Tracking ID, OASIS ID, HER/SMR IDs, sitecodes, museum accession codes, etc.).	
Enter identifiers and ID's and separate them with a comma. Example: ADS Tracking ID: 1007000, etc.		
<b>12. Project Dates</b>	The dates that the collection was created. Data creation and fieldwork dates may cover the same period and the fieldwork date may not be relevant to all collections.	
<b>Data Creation Dates:</b>	<input type="text" value="Start"/> <small>Select or enter a creation start date.</small> <input type="text" value="End"/> <small>Select or enter a creation end date.</small>	
<b>Fieldwork Dates:</b>	<input type="text" value="Start"/> <small>Select or enter a fieldwork start date.</small> <input type="text" value="End"/> <small>Select or enter a fieldwork end date.</small>	
<b>13. Subject Keywords</b>	Suggest keywords for the subject content of the collection. For example: event, evidence, object, maritime, monument, etc. If possible, please use and indicate the thesauri which you are following. (See <a href="http://www.heritagedata.org/blog/vocabularies-provided/">http://www.heritagedata.org/blog/vocabularies-provided/</a> for list of available vocabularies)	
<b>Keyword/thesauri:</b>	Enter keywords.	Enter thesaurus.
<b>14. Dates/Period</b>	Appropriate period keywords for your collection and a date range.	
<b>Period Keywords:</b>	Period keywords.	
<b>Date Range (Gregorian BC/AD system):</b>	Date Range.	
<b>15. Location</b>	Please give the current location or locations and contemporary name(s) of the country, region, county, town or village, and grid references covered by the data collection where applicable. If names or administrative units were different during the time period covered by the collection, please record them separately.	
<b>Country:</b>	Enter collection country.	
<b>County:</b>	Enter collection county.	
<b>District:</b>	Enter collection district.	
<b>Parish:</b>	Enter collection parish.	
<b>Place:</b>	Enter collection place.	
<b>Coordinates</b>	Choose a coordinate type.	
<b>Northing/Latitude:</b>	Enter collection northing/latitude.	
<b>Easting/Longitude:</b>	Enter collection easting/longitude.	

# FINDABLE

F2. Data are described with rich metadata (defined by R1)

Dublin Core Metadata Element Set



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### The Staffordshire Hoard: an Anglo-Saxon Treasure

Barbican Research Associates, 2017. (updated 2019) <https://doi.org/10.5284/1041576>. How to cite using this DOI

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Historic England



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Director

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Resource identifiers

ADS Collection: 2457

DOI:<https://doi.org/10.5284/1041576>

#### The Staffordshire Hoard: an Anglo-Saxon Treasure



Data CC-BY-SA by OpenStreetMap

Location	World region	British Isles and Ireland
	British Isles country	England
	English region	West Midlands
	County	Staffordshire
	District	Lichfield
	Parish	Hammerwich
Place		Semi Bungalow Farm
	TGN	World, Europe, United Kingdom, England, Staffordshire, Hammerwich [7449577]
Grid reference	OSGB	406200 306400
Grid reference	Latitude longitude bounding box	52.656472 -1.9101942 -1.9037569 52.653387
	Archaeological Sciences (England)	X-RAY FLUORESCENCE SPECTROMETRY
	Archaeological Sciences (England)	GOLD
	Archaeological Sciences (England)	COPPER ALLOY
	Archaeological Sciences (England)	X-RAY DIFFRACTION

# FINDABLE

F2. Data are described with rich metadata (defined by R1)

Rich qualitative and technical metadata for all digital objects

Templates provided to ensure consistency

Data Type	Preferred File Format	Accepted File Format	Metadata Template Download Type	Example
<a href="#">Collection-level Metadata</a>			<a href="#">Microsoft Word Open Office Document</a>	
<a href="#">3D Models, Visualisation, and Virtual Reality</a>	Virtual Reality Modelling Language .vrmf Wavefront OBJ File .obj (+ .mtl + jpg textures)	Adobe Portable Document Format (3D) .pdf This is accepted for dissemination purposes only, it is not suitable for preservation of 3D data. STL .stl	<a href="#">Microsoft Excel Open Office Spreadsheet</a>	
<a href="#">Audio</a>	Broadcast Wave Format .bwt Waveform Audio .wav	Advanced Audio Coding .aac Audio Interchange File .aif Flac .flac MPEG3 .mp3	<a href="#">Microsoft Excel Open Office Spreadsheet</a> .xslx	



ARCHAEOLOGY  
DATA SERVICE

Example of completed metadata sheet for database files deposited with the ADS

File Name	Title	Description	Creator (if more than one individual/organisation, add on a new row)			Copyright holder (if more than one individual/organisation, add on a new row)			Period of Creation	
			First Name	Last Name	Organisation	First Name	Last Name	Organisation	Start Date	End Date
Database1.mdb	Finds database for the discoveries at York Minster.	[database description]	Shaznay	Lewis		Shaznay	Lewis		10/11/2017	01/12/2018
Contexts1.odt	Contexts for the excavations at York Minster.		Melanie	Blatt	All Saints Associates Appleton Excavations			AS Consultants Appleton Excavations	01/09/2017	30/08/2018

Software used	Software version	Language	Entity relationship diagram file name(s)	Supporting documentation file name(s)
Microsoft Access	2013	English	ERDiagram_for_Database1.jpg	Abbreviations_for_Database1.pdf
Apache OpenOffice	4.1.5	English	ERDiagram_for_Contexts1.tif	Abbreviations_for_Contexts1.docx

# FINDABLE

F2. Data are described with rich metadata (defined by R1)

All metadata is displayed alongside data, with technical metadata downloadable in open formats.

## Downloads

[Reports](#) | [Images](#) | [CAD \(Vector graphics\)](#) | [Spreadsheets](#) | [GIS](#) | [Harris Matrices](#)

### Spreadsheets

Spreadsheet metadata	<a href="#">CSV</a>	9 Kb
Spreadsheet conventions	<a href="#">PDF</a>	111 Kb

Please also consult the [MOLA Conventions](#), [Attribute Definitions](#), and [Validation Tables \(Crossrail\)](#) where required.

Bibliography	<a href="#">CSV</a>	3 Kb
Building Material data	<a href="#">CSV</a>	3 Kb
Botany data	<a href="#">CSV</a>	1 Kb
Context register	<a href="#">CSV</a>	7 Kb
Tobacco Pipe data	<a href="#">CSV</a>	1 Kb
Deposit Survival form	<a href="#">CSV</a>	1 Kb
Deposit Survival form - Periods	<a href="#">CSV</a>	1 Kb
Ecofact Inventory	<a href="#">CSV</a>	1 Kb
Finds Inventory	<a href="#">CSV</a>	4 Kb
Index of Archaeological Association	<a href="#">CSV</a>	36 Kb
Image register	<a href="#">CSV</a>	94 Kb
Image register - concordance	<a href="#">CSV</a>	5 Kb
Plan register	<a href="#">CSV</a>	1 Kb
Pottery data	<a href="#">CSV</a>	1 Kb
Section register	<a href="#">CSV</a>	1 Kb
Timber Drawing register	<a href="#">CSV</a>	1 Kb
Building Recording Drawing register	<a href="#">CSV</a>	1 Kb

# FINDABLE

F3. Metadata clearly and explicitly include the identifier of the data they describe

Persistent identifiers displayed, alongside data, within each archive interface.

Additional identifiers that link to external repositories, agencies or resources (physical and digital).

The screenshot shows the Archaeology Data Service (ADS) website. The header includes the ADS logo and navigation links: HOME, SEARCH, DEPOSIT, RESEARCH, ADVICE, ABOUT, HELP, and LOGIN. Below the header, a breadcrumb trail reads: Library Home > Browse Series > Series > Report (in Series). The main content area displays metadata for a report by Grosso, I., (2008), titled 'Assessment of an Archaeological Excavation at 551 Old Kent Road, London Borough of Southwark'. The metadata includes: Title, Series, Downloads (with a 'Download' button), DOI (highlighted with a red circle), and Publication Type. A map on the right shows the location of the excavation site in Southwark, London.

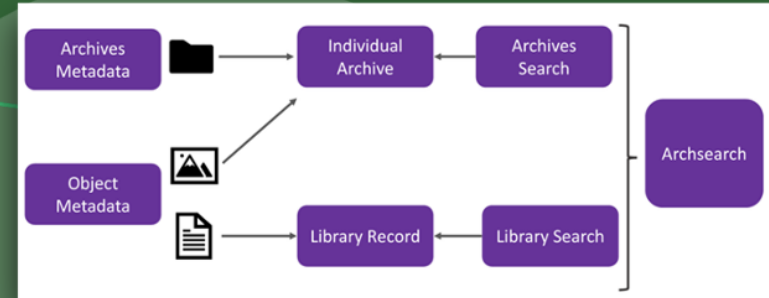
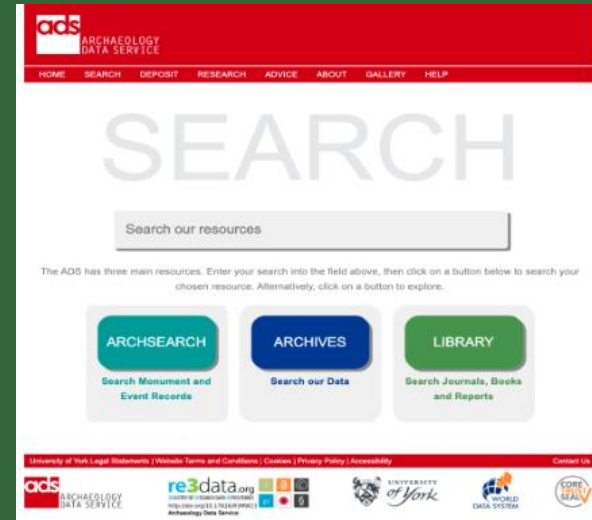
Field	Value
Title	Assessment of an Archaeological Excavation at 551 Old Kent Road, London Borough of Southwark
Series	Pre-Construct Archaeology Ltd (London) unpublished report series
Downloads	preconatf-38300_1.pdf (3 MB) [Download]
DOI	<a href="https://doi.org/10.5284/1016952">https://doi.org/10.5284/1016952</a>
Publication Type	Report (in Series)

Identifiers	HER event no.	MWA3866
	HER event no.	MWA4233
	HER event no.	MWA387
	HER event no.	MWA302
	Museum accession ID	1/2020
	Other	Worcestershire Archaeology Project Number - P4801
Related information	Other	HE Project Number - HE7725
	Associated Collection	Physical Archive held at Warwickshire Museum, Warwickshire Museums Accession Number 1/2020 (K Hartley excavations only)
	Associated Publication	Evans, J. and Hurst, D, 2019 Mancetter-Hartshill Roman pottery kilns excavation archive (1960-84): creation of a digital archive resource – audit and updated project design, Worcestershire Archaeology
	Associated Publication	Hartley, K F, 1973 The kilns at Mancetter and Hartshill, Warwickshire, in A Detsicas (ed), Current research in Romano-British coarse pottery, CBA Res Rep 10, 143-7 <a href="https://doi.org/10.5284/1000332">https://doi.org/10.5284/1000332</a>
	Associated Publication	Hartley, K, Tomber, R, and Webster, P, 2006 A mortaria bibliography for Roman Britain <a href="https://doi.org/10.5284/1000098">https://doi.org/10.5284/1000098</a>
	Associated Publication	Swan, V G, 1984 The pottery kilns of Roman Britain, RCHM Supp Ser, 5

# FINDABLE

F4. (Meta)data are registered or indexed in a searchable resource

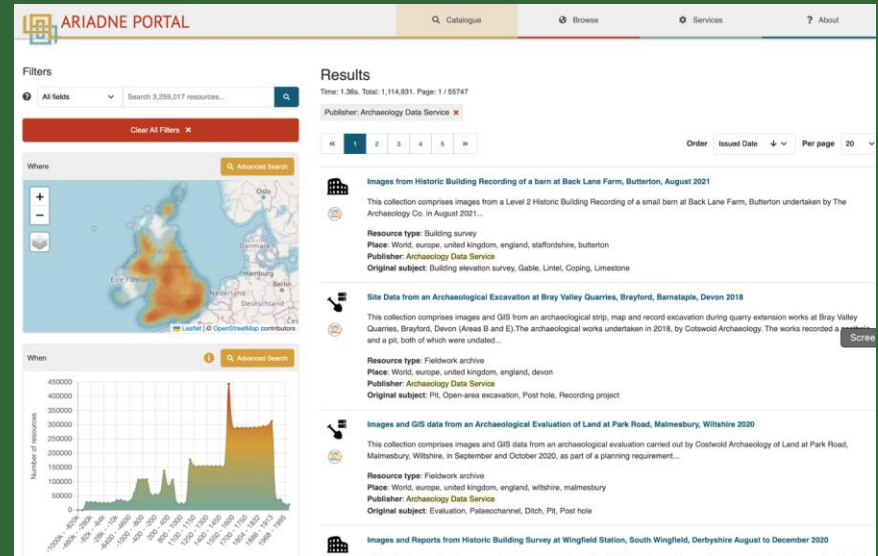
ADS datasets are findable through ADS's own indexes and catalogues, **but** data will only be as findable as the quality of the metadata provided.



# FINDABLE

F4. (Meta)data are reADS collections are also available through external catalogues and resources, including:

- ARIADNE Portal
- Heritage Gateway
- DataCite
- The Keepers Registry
- Natural Environment Research Council (NERC) data discovery portal
- Marine Environmental Data and Information Network (MEDIN) data portal
- Europeana



# ACCESSABLE



**A1. (Meta)data are retrievable by their identifier using a standardised communications protocol**

**A1.1 The protocol is open, free, and universally implementable**

**A1.2 The protocol allows for an authentication and authorisation procedure, where necessary**

**A2. Metadata are accessible, even when the data are no longer available**



## ACCESSABLE

A1. (Meta)data are retrievable by their identifier using a standardised communications protocol.

A1.1 The protocol is open, free, and universally implementable

- HTTPS protocol used to ensure free and open access to resources and to facilitate data retrieval.
- In rare instances, where discrete data objects are too large to support easy exchange using HTTPS, the ADS makes data available 'on request' using free and open exchange services.

A1.2 The protocol allows for an authentication and authorisation procedure, where necessary

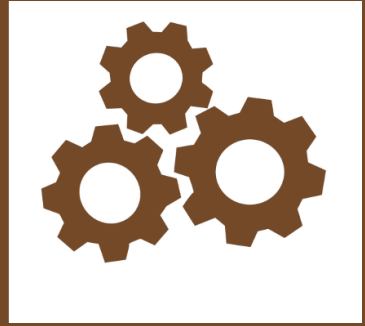
- Use of HTTPS provides authentication of the ADS website, and ensures the protection of the privacy and integrity of disseminated data.

## ACCESSABLE

A2. Metadata are accessible, even when the data are no longer available

- All datasets and metadata are maintained in perpetuity.
- Maintain a Appraisal and Deaccession Policy which outlines current practice for datasets removed from the archives holdings. In such instances the ADS is committed to supporting identifiers (DOIs), maintaining resource discovery metadata, and updating current information on resources.

# INTEROPERABLE



- I1. (Meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation.
- I2. (Meta)data use vocabularies that follow FAIR principles
- I3. (Meta)data include qualified references to other (meta)data

## INTEROPERABLE

11. (Meta)data use a formal, accessible, shared, and broadly applicable language for knowledge representation

- Resource discovery metadata is made available using a qualified Dublin Core in RDF/XML through the ADS Linked Data repository.
- External services can consume and disseminate metadata.

## INTEROPERABLE

### 12. (Meta)data use vocabularies that follow FAIR principles

Use a variety of sustainable, open vocabularies to qualitatively classify and identify resources and datasets, including:

- Heritage Data vocabularies,
- Library of Congress Subject Headings (LCSH)
- Marine Environmental Data and Information Network (MEDIN)
- Getty Thesaurus of Geographic Names (TGN)

Utilises recognised technical vocabularies to denote and categorise preservation activities

- PREservation Metadata: Implementation Strategies (PREMIS)
- Getty metadata types

## INTEROPERABLE

### 13. (Meta)data include qualified references to other (meta)data

The ADS supports the qualified referencing with and between publications, datasets and resources. Where available the repository uses sustainable referencing, e.g. DOIs.

Identifiers	HER event no.	MWA3866
	HER event no.	MWA4233
	HER event no.	MWA387
	HER event no.	MWA302
	Museum accession ID	1/2020
	Other	Worcestershire Archaeology Project Number - P4801
Related Information	Other	HE Project Number - HE7725
	Associated Collection	Physical Archive held at Warwickshire Museum, Warwickshire Museums Accession Number 1/2020 (K Hartley excavations only)
	Associated Publication	Evans, J, and Hurst, D, 2019 Mancetter-Hartshill Roman pottery kilns excavation archive (1960-84): creation of a digital archive resource – audit and updated project design, Worcestershire Archaeology
	Associated Publication	Hartley, K F, 1973 The kilns at Mancetter and Hartshill, Warwickshire, in A Detsicas (ed), Current research in Romano-British coarse pottery, CBA Res Rep 10, 143-7 <a href="https://doi.org/10.5284/1000332">https://doi.org/10.5284/1000332</a>
	Associated Publication	Hartley, K, Tomber, R, and Webster, P, 2006 A mortaria bibliography for Roman Britain <a href="https://doi.org/10.5284/1000098">https://doi.org/10.5284/1000098</a>
	Associated Publication	Swan, V G, 1984 The pottery kilns of Roman Britain, RCHM Supp Ser, 5

# REUSABLE



**R1. (Meta)data are richly described with a plurality of accurate and relevant attributes**

**R1.1. (Meta)data are released with a clear and accessible data usage license**

**R1.2. (Meta)data are associated with detailed provenance**

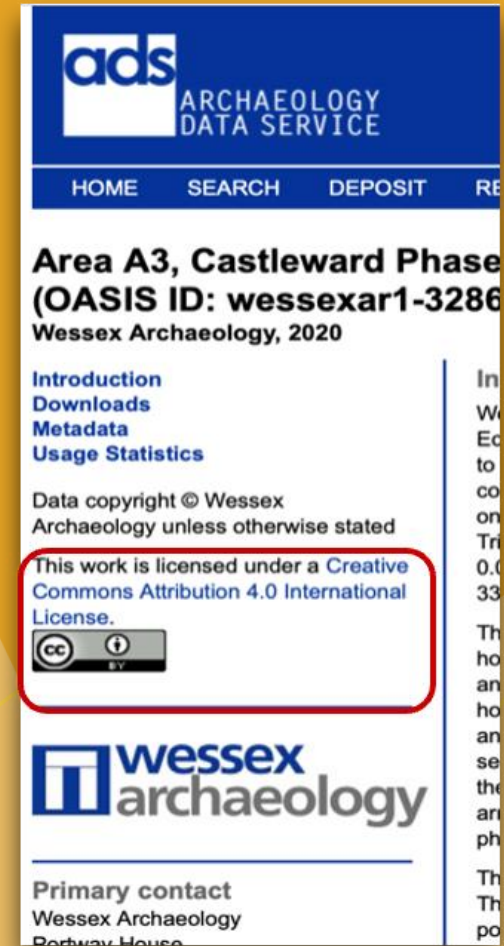
**R1.3. (Meta)data meet domain-relevant community standards**

## REUSABLE

R1. Meta(data) are richly described with a plurality of accurate and relevant attributes

R1.1. (Meta)data are released with a clear and accessible data usage license

- Clearly define the terms of access and reuse within the collection interface and within metadata records
- Creative Commons Attribution 4.0 licence (CC-BY 4.0) but data may also be disseminated under other licences on request.





# REUSABLE

R1. Meta(data) are richly described with a plurality of accurate and relevant attributes

R1.2. (Meta)data are associated with detailed provenance

- Provide detailed provenance metadata for all data. At a collection level this is expressed in the archive interface and discovery metadata, at file level within the technical metadata disseminated alongside the data.



The screenshot shows a web interface for downloading data. At the top, there's a 'Downloads' section with a horizontal menu of links: Reports, Images, CAD (Vector graphics), Spreadsheets, GIS, and Harris Matrices. Below this, the 'Spreadsheets' section is highlighted, containing a table with two rows of download options. The first row offers 'Spreadsheet metadata' in CSV format (9 Kb), and the second row offers 'Spreadsheet conventions' in PDF format (111 Kb). At the bottom of the interface, a note advises users to consult the MOLA Conventions, Attribute Definitions, and Validation Tables (Crossrail) where required.

Downloads		
<a href="#">Reports</a>   <a href="#">Images</a>   <a href="#">CAD (Vector graphics)</a>   <a href="#">Spreadsheets</a>   <a href="#">GIS</a>   <a href="#">Harris Matrices</a>		
<b>Spreadsheets</b>		
Spreadsheet metadata	CSV	9 Kb
Spreadsheet conventions	PDF	111 Kb

Please also consult the [MOLA Conventions](#), [Attribute Definitions](#), and [Validation Tables \(Crossrail\)](#) where required.

## REUSABLE

R1. Meta(data) are richly described with a plurality of accurate and relevant attributes

R1.3. (Meta)data meet domain-relevant community standards

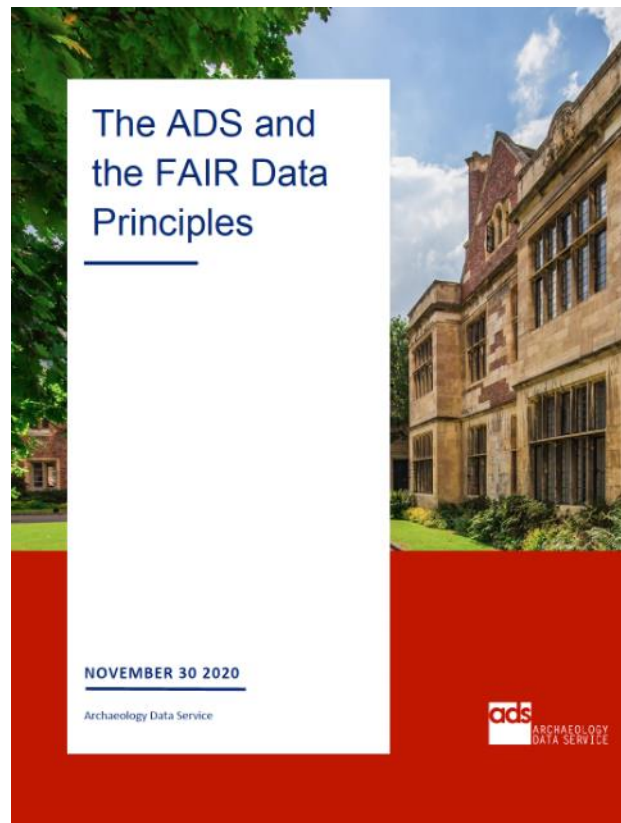
- Dublin Core metadata for collection level metadata.
- Data must be accompanied by appropriate, file specific 'technical' metadata derived from recognised community standards and standardised templates provided to ensure consistency.
- All (meta)data is accepted, preserved and disseminated in sustainable, open formats.
- Use appropriate vocabularies to qualitatively describe datasets and document preservation actions.

## SUMMARY

- How to make data **Findable**, **Accessible** and **Interoperable** are well understood, with examples of well-implemented methodologies and technologies
- Still lots of work to do on **Reusable**: Can measure quantitative reuse with web stats, but how to measure qualitative reuse is the next frontier
- FAIR makes each element of equal importance
- FAIR principles are just a useful lens for understanding your own situation with regard to current best practice

## ADS FAIR Audit

- Determined we should do an audit that would result in internally and externally-facing reports
- Internal report for ADS staff to inform our strategic planning process using the RDA FAIR Data Maturity Model tool, so that our progress can be measured over time
- External report for users/depositors to show how data deposited with ADS is FAIR data



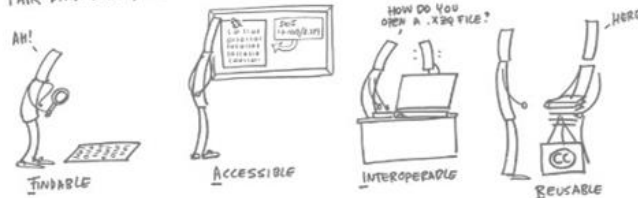
## The ADS and the FAIR Data Principles

The ADS is an advocate for FAIR and the FAIR principles for data stewardship. As such the ADS recognise that while preservation and dissemination of data remain of core importance, stewardship should also include demonstratable quantitative and qualitative evidence for data reuse. The ADS is actively investigating how the datasets it curates can be fully compliant with the FAIR principles and is working within [SSHOC](#), [ARIADNEplus](#) and [E-RIHS](#) to promote this.

**As a result when you deposit your datasets with the ADS,  
you can be confident that your data becomes FAIR data.**

[What is FAIR Data?](#)

FAIR DATA PRINCIPLES



(after Bezjak et al. 2018.)







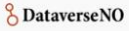

ACCREDITATION

STRATEGY +  
STANDARDS

METADATA  
SERVICES

<https://archaeologydataservice.ac.uk/about/adsFAIR.xhtml>

## Collaboration with FAIRsFAIR and testing the F-UJI Tool

Pilot Repository	Certification	Subject Areas	Repository Representatives
	CoreTrustSeal WDS Regular Member	Earth and Environmental Science	Uwe Schindler Michael Diepenbroek
	CoreTrustSeal	Cultural Heritage	Yuri Carrer Cristiana Bettella GianLuca Drago Giulio Turetta
	CoreTrustSeal	Multiple disciplines	Mikaela Lawrence Dominic Hogan Cynthia Love
	CoreTrustSeal WDS Regular Member	Earth System Science	Andrej Fast Amandine Kaiser Hannes Thiemann
	CoreTrustSeal	Multiple disciplines	Philipp Conzett (Uit/DataverseNO) Gustavo Durand (Harvard/Dataverse) Julian Gautier (Harvard/Dataverse)
	-	Multiple disciplines	Laura Huis in 't Veld Marion Wittenberg Paul Boon



F-UJI is a service based on REST, piloting a programmatic assessment of the FAIRness of research datasets



## A1.1 The protocol is open, free, and universally implementable

### External Qualitative Assessment

- The ADS uses the HTTPS protocol for the sharing of resources and transfer of datasets. This is widely supported, open, and freely available.
- The repository utilises open and free file-sharing services where files or datasets are too large for easy exchange using HTTPS. Typically the ADS utilises the open and free University of York DropOff Service to share data when this is necessary.

### Internal Qualitative Recommendation

*Recommendation A1.1:* A clear policy of sharing large files and datasets using more open services.

### F-UJI Automated Assessment

Result	Comments	Next Step
Score: 1.0-1.0 of 1	OK	

## 12. (Meta)data use vocabularies that follow FAIR principles

### External Qualitative Assessment

The ADS uses a variety of sustainable, open vocabularies to qualitatively classify and identify resources and datasets, including:

- Heritage Data vocabularies, including those provided by the Forum on Information Standards in Heritage (FISH), Historic England (HE), Historic Environment Scotland (HES), and the Royal Commission on Ancient & Historical Monuments of Wales (RCAHMW)
- Library of Congress Subject Headings (LCSH)
- Marine Environmental Data and Information Network (MEDIN)
- Getty Thesaurus of Geographic Names (TGN)
- The ADS also utilises recognised technical vocabularies to denote and categorise preservation activities
- PREservation Metadata: Implementation Strategies (PREMIS)
- Getty metadata types



## I2. (Meta)data use vocabularies that follow FAIR principles

### Internal Qualitative Recommendation

- *Recommendation I2.1:* An investigation of FAIRness of vocabularies used by the ADS. Where there are issues, raise awareness of FAIR with creators/communities, and ideally to leverage increased FAIRness.
- *Recommendation I2.2:* Consider a more wholesale and consistent implementation of these thesauri at an object level.
- *Recommendation I2.3:* Request clearer documentation from depositors where data makes use of controlled vocabularies (for example, in a database). Currently, this is not directly requested, but would mean we could highlight FAIRness of data. Active encouragement of use of controlled vocabularies within Guides to Good Practice/Guidelines for Depositors.

## I2. (Meta)data use vocabularies that follow FAIR principles

### F-UJI Automated Assessment

Result	Comments	Next Step
Score: 0.0-0.0 of 1	Whereas the service seems to use controlled vocabularies such as <a href="http://purl.org/heritagedata">http://purl.org/heritagedata</a> it seems not be used in the metadata detected by F-UJI.	Rec.: Use vocabularies in schema.org as discussed here: <a href="https://github.com/ESIPFed/science-on-schema.org/issues/27">https://github.com/ESIPFed/science-on-schema.org/issues/27</a>

debug message	count
NO vocabulary namespace match is found	500
Vocabulary namespace (s) specified but no match is found in LOD reference list	500

## 12. (Meta)data use vocabularies that follow FAIR principles

### Discussion

- ADS makes extensive use of a number of controlled vocabularies within its metadata, but could take a more critical approach to the vocabularies themselves in terms of FAIRness.
- UK Heritage thesauri certainly meets most of the requirements for FAIR, but other vocabularies, and linkages to other persistent identifiers could be considered.

## Overview of the FAIR landscape, including larger European and international alignments

During SSHOC, ADS was actively involved as Deputy Coordinator of ARIADNEplus and Chair of the SEADDA COST Action. These relationships were used to contextualise the archaeology case study by synthesising recent, proximal work undertaken in collaboration with ADS that is highly relevant:

- Comprehensive international survey of repository practices (holding archaeological data) undertaken by Geser (2021) for ARIADNEplus
- Special issue authored by SEADDA Working Group 1: Stewardship of Archaeological Data, and its survey on *Digital Archiving in Archaeology: The State of the Art* (Richards et al. 2021)



The advent of ubiquitous computing has created a golden age for archaeological researchers and participating publics, but the price is a digital resource that is now in jeopardy. The archaeological record, in digital form, is at risk not simply from obsolescence and media failure, but the domain is also unable to fully participate in Open Data. Without swift and informed

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 Holly Wright  
 Archaeology Data Service

Screen

## ARIADNEplus Survey

### (Meta)data identifiers

Survey question: Are deposited data assigned globally unique and persistent identifiers (e.g. DOI, Handle, URN or other)?

All 60 respondents answered it, 29 said “Yes”, 11 “No”, and 20 selected the additional option “Not yet”.

The screenshot shows the top of a research article page. At the top is a dark blue navigation bar with links for 'Home', 'Issue Contents', and 'All Issues'. Below this is a light blue header section containing the article title 'Data Management Policies and Practices of Digital Archaeological Repositories' and the authors' names 'Guntram Geser, Julian D. Richards, Flavia Massara and Holly Wright'. A pink citation bar follows, stating 'Cite this as: Geser, G., Richards, J.D., Massara, F. and Wright, H. 2022 Data Management Policies and Practices of Digital Archaeological Repositories, *Internet Archaeology* 59. <https://doi.org/10.11141/ia.59.2>'. The main content area has a white background. On the left, under the heading 'Summary', is a paragraph describing the article's purpose: to collect and analyse information about current policies and practices of digital archaeological repositories in Europe and beyond, under the auspices of the European project ARIADNEplus and the COST Action SEADDA. On the right, under the heading 'Corresponding author:', are the names and affiliations of the authors: Julian D. Richards (Archaeology Data Service, UK), Guntram Geser (Salzburg Research Institute, Austria), Flavia Massara (Central Institute for the Union Catalogue of Italian Libraries, Italy), and Holly Wright (Archaeology Data Service, UK). A 'Screenshot' button is visible on the far right edge of the image.

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### Data Management Policies and Practices of Digital Archaeological Repositories

Guntram Geser, Julian D. Richards, Flavia Massara and Holly Wright

Cite this as: Geser, G., Richards, J.D., Massara, F. and Wright, H. 2022 Data Management Policies and Practices of Digital Archaeological Repositories, *Internet Archaeology* 59. <https://doi.org/10.11141/ia.59.2>

#### Summary

This article presents the results of a survey of data management policies and practices of digital archaeological repositories in Europe and beyond. The survey was carried out in 2021 under the auspices of the European project ARIADNEplus and the COST Action SEADDA. Its main purpose was to collect and analyse information about current policies that determine access to and reuse of data held by digital archaeological repositories, and to investigate the guidance and support needed to make these repositories and data FAIR (Findable, Accessible, Interoperable and Reusable).

These policies comprise the regulations of heritage and research authorities/agencies, councils and other institutions at different levels (European, national/regional, local) as well as the repository rules governing deposition, access to, and reuse of archaeological data. The repositories are operated both by heritage sector institutions and by the research and higher education sector.

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Screenshot

## What are the CARE Principles?

**Collective Benefit:** Data ecosystems shall be designed and function in ways that enable Indigenous Peoples to derive benefit from the data.

**Authority to Control:** Indigenous Peoples' rights and interests in Indigenous data must be recognised and their authority to control such data be empowered. Indigenous data governance enables Indigenous Peoples and governing bodies to determine how Indigenous Peoples, as well as Indigenous lands, territories, resources, knowledges and geographical indicators, are represented and identified within data.

**Responsibility:** Those working with Indigenous data have a responsibility to share how those data are used to support Indigenous Peoples' self-determination and collective benefit. Accountability requires meaningful and openly available evidence of these efforts and the benefits accruing to Indigenous Peoples.

**Ethics:** Indigenous Peoples' rights and wellbeing should be the primary concern at all stages of the data life cycle and across the data ecosystem.

## What are the CARE Principles?



<https://www.gida-global.org/care>



Archaeology  
Data Service

# Thank You!

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