

# The FAIR and CARE Data Principles

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11th to 15th November 2024 ADS Training School in Data Stewardship



### Introduction

#### **Overview:**

- FAIR: Technical accessibility and usability of data
- CARE: Ethical stewardship and community respect

### **Purpose:**

- Explore how FAIR and CARE complement each other
- Understand their relevance to archaeology and heritage studies



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 Findability, Accessibility, Interoperability, and Reuse of digital assets. The principles emphasise machine-actionability.

GOFAIR: https://www.go-fair.org/fair-principles/



### The FAIR Principles



### **Findable**

Easy to find by both humans and computer systems



### **Accessible**

Long term storage, easily accessed and/or downloadable, well defined license and conditions



### Interoperable

Ready to be combined with other datasets by both humans and computer systems



### Reusable

Ready to be used for future research



### The FAIR Principles

#### You want to:

- **Find** data, documents, images, etc.
- Access and download the information
- **Combine** data from different sources
- Know how to **reuse** and public what you found

#### You want your peers to:

- Be able to **find** your work
- Be able to **understand** your work
- Be able to **build upon** your work
- Be able to cite and credit your work



- 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



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

Digital Object Identifier (DOIs)



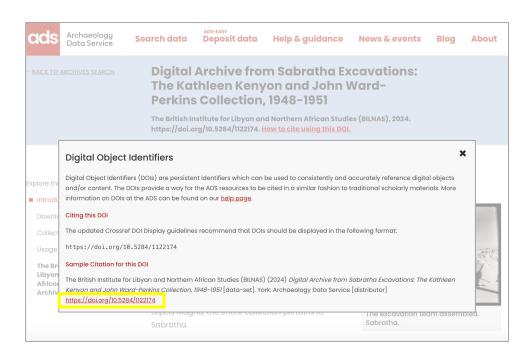




F1. (Meta)data are assigned a globally unique and persistent identifier

Digital Object Identifier (DOIs)



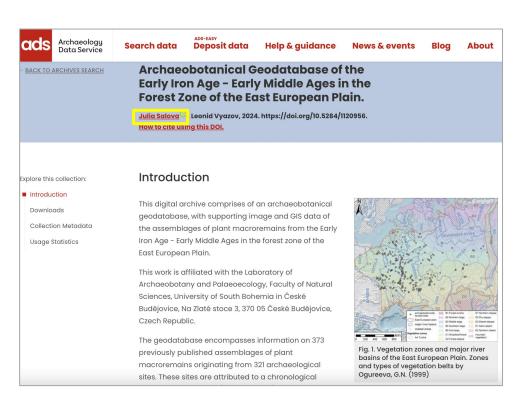




F1. (Meta)data are assigned a globally unique and persistent identifier

**ORCID IDs** 



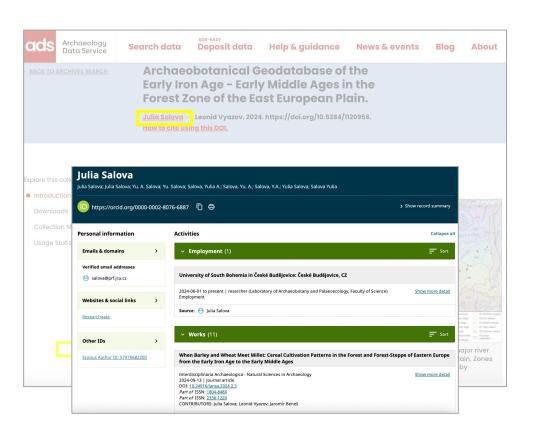




F1. (Meta)data are assigned a globally unique and persistent identifier

**ORCID IDs** 







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

Collection-level metadata



#### **ADS Checklist for Depositing Form**

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

Please complete this form as fully as possible with details of your collection. This data will form the basis of an entry about your collection in the ADS Catalogue, and underpins the computerised searching process that allows users to discover and retrieve information again.

Please ensure that all data submitted is GDPR compliant. If you have any questions regarding this, please contact us.

☐ Early DOI? Please note that all information submitted in this form is final once the DOI is created. Any changes after that point will require a new DOI.

1. Project Name	The name (and any alternatives) for the collection being deposited. This name should be meaningful as it will form part of the discover metadata for your collection. This will also be the title which appea in the collections interface and under which the deposit licence is signed.
Gatehouse Project, P	Ontefract Castle: Community Archaeology Project
2. Introduction	A brief summary (200-500 words) of the main aims and objectives of

This collection comprises project data (site reports, finds reports, school workshop resources, images, spreadsheets, 3D models, video and site records) from a community focused archaeological investigation at Pontefract Castle undertaken by DigVentures between October 2019 and August 2020.

The archaeological excavation took place over three phases:

- i. Three weeks of hand and machine excavation by a team of professional archaeologists.
- ii. A two-week programme of excavation, recording and finds processing involving members of the local community.
- iii. A three-week targeted investigation to excavate the full stratigraphic sequence within the previously identified drawbridge pit. This phase of work comprised hand excavation of sealed deposits exclusively within the drawbridge pit and was completed by a team of professional archaeologists.

The overarching aim of the archaeological excavation was to define and characterise the physical extent of the site through a scheme of non-intrusive and intrusive investigations combined with an integrated public engagement programme at its core. This approach enabled the collection of baseline data to facilitate its future management, research, presentation and enjoyment. The goal of this work was to fully record, analyse and report all archaeological remains within the area of interest ('preservation by record'); to place the results of this work in the public domain by publishing the results; and to inform how the Gatehouse might be presented to the public. This overarching aim was sub-divided into four aims.

im 1: Identify the physical extent and character of the archaeological remains on the site with



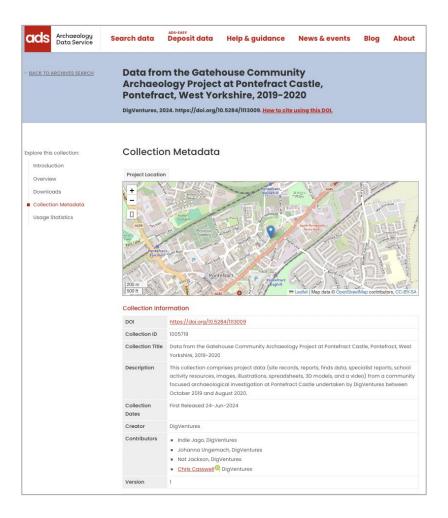
For General Enquiries and Issues Relating to ADS-easy Email: help@archaeologydataservice.ac.uk For Costings or Information on Depositing Data: Email: collections@archaeologydataservice.ac.uk



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

Dublin Core Metadata Element Set



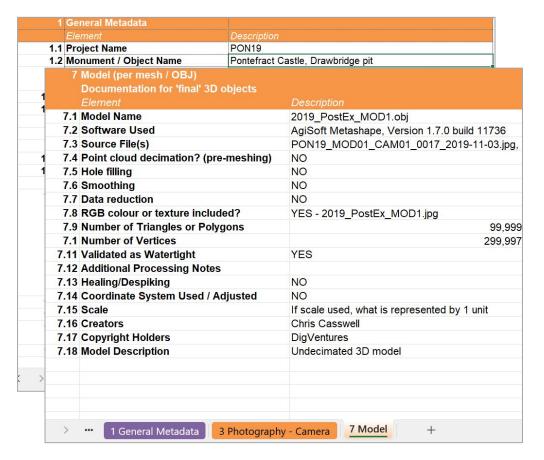




F2. Data are described with rich metadata (defined by R1)

Rich qualitative and technical metadata for all digital objects.

Templates provided to ensure consistency.

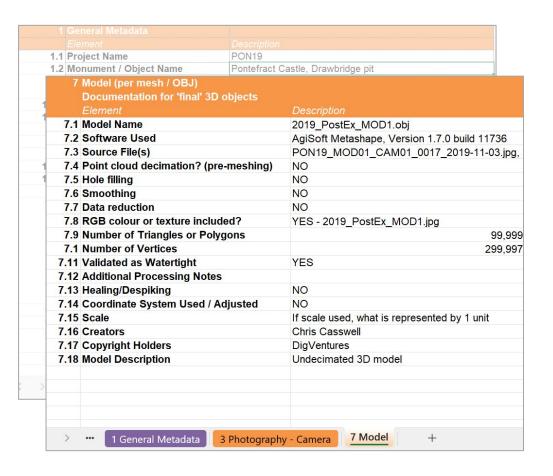




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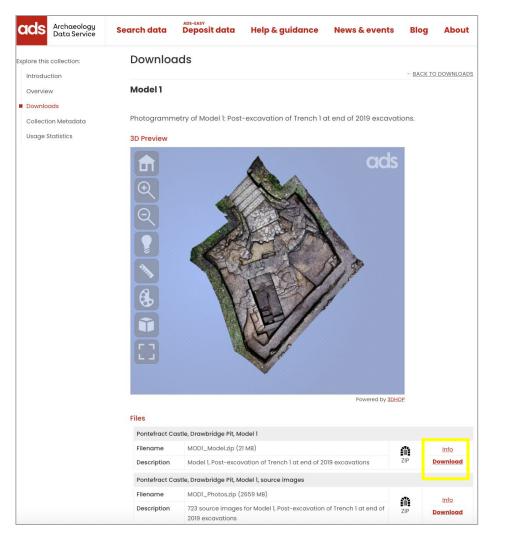
Templates provided to ensure consistency.





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

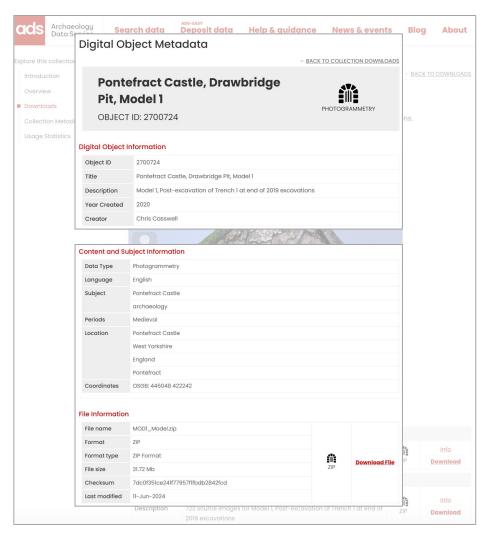
All metadata is displayed alongside data, with technical metadata downloadable in open formats.





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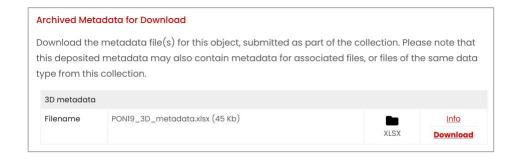




F3. Metadata clearly and explicitly include the identifier of the data they describe

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

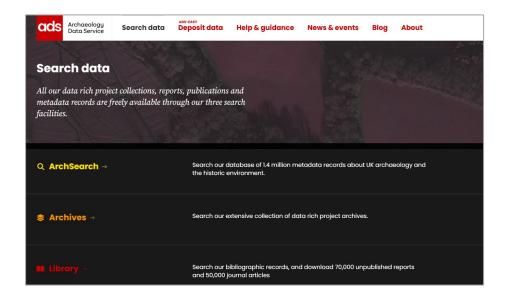
Additional identifiers that link to external repositories, agencies or resources (physical and digital).





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.

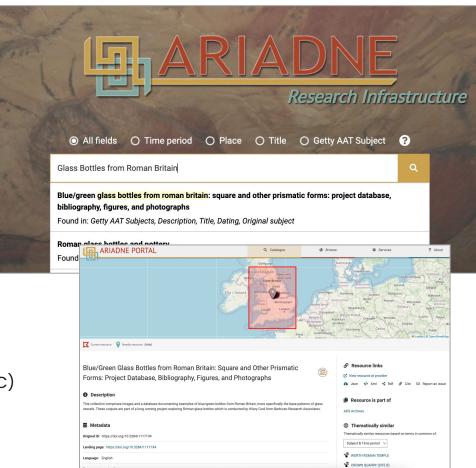




F4. (Meta)data are registered or indexed in a searchable resource

ADS collections are also available through external catalogues:

- 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





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# Accessible

- Al. (Meta)data are retrievable by their identifier using a standardised communications protocol
- A2. Metadata are accessible, even when the data are no longer available



### **Accessable**

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

- A1.1 The protocol is open, free, and universally implementable
  - HTTPS (Hypertext Transfer Protocol Secure)
  - Other exchange services 'on request'.
- A1.2 The protocol allows for an authentication and authorisation procedure, where necessary
  - SSL/TLS Encryption and Authentication

25 https://archaeologydataservice.ac.uk



### Accessable

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

- Datasets and metadata maintained in perpetuity.
- If datasets are removed from the archives holdings, ADS is committed to supporting identifiers (DOIs), maintaining resource discovery metadata, and updating current information on resources.



### ADS DEACCESSION AND DATA DISPOSAL POLICY

Olivia Foster, Tim Evans, Katie Green

August 2023

archaeologydataservice.ac.



# Interoperable

- II. (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

II. (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.



# Heritage Data Linked Data Vocabularies for Cultural Heritage

### 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.
- Utilises recognised technical vocabularies to denote and categorise preservation activities







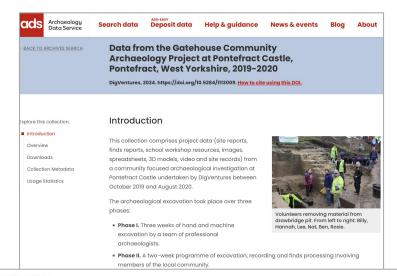




### Interoperable

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.



#### Relationships

#### Related Resources

This collection has 4 related resources.

#### This collection 'Is Derived From':

Gatehouse Project, Pontefract Castle (OASIS ID: digventul-347513)

#### This collection 'Is Supplemented By':

Jago, I. and Forster, M. 2023 Archaeological Excavations and Social Impact at Pontefract Castle (data paper), Internet Archaeology 61. (DOI: https://doi.org/10.11141/ia.61.9)

Jackson, N., Casswell, C. and Forster, M. 2023 A Medieval Drawbridge Pit and the Stories it Tells Us, Excavations at Pontefract Castle, 2019–2020, Internet Archaeology 61. (OASIS ID: https://doi.org/10.11141/ia.61.4)

Wilkins, B., Casswell, C., Eno, M., Harris, J, Pina-Dacier, M., Tatton, H. and Ungemach, J. 2021 Social Impact Archaeology: Pontefract Castle and the Gatehouse Project, Internet Archaeology 57. (DOI: <a href="https://doi.org/10.11141/ia.57.18">https://doi.org/10.11141/ia.57.18</a>)



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



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 (collection interface and metadata records)
- Creative Commons Attribution 4.0 licence (CC-BY 4.0) or other licences on request.

Cite As	DigVentures (2024) Data from the Gatehouse Community Archaeology Project at Pontefract Castle, Pontefract, West Yorkshire, 2019-2020 [data-set]. York: Archaeology Data Service [distributor] https://doi.org/10.5284/1113009
Copyright	Data copyright © DigVentures unless otherwise stated.
Licence	This work is licensed under a <u>Creative Commons Attribution 4.0 International License</u> .
Primary Contact	DigVentures 27-33 Bethnal Green Road Shoreditch London El 6LA Email: hello@digventures.com
Metadata Contact	ADS: help@archaeologydataservice.ac.uk



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

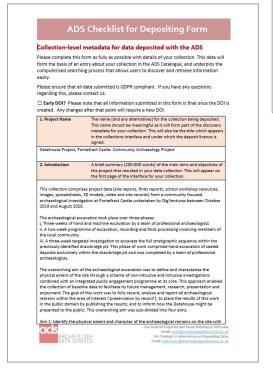
- R1.2. (Meta)data are associated with detailed provenance
  - Provide detailed provenance metadata for all data. At a collection level this is expressed in the archive interface and discovery metadata, at file level within the technical metadata disseminated alongside the data.



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.





#### Archived Metadata for Download

Download the metadata file(s) for this object, submitted as part of the collection. Please note that this deposited metadata may also contain metadata for associated files, or files of the same data type from this collection.

3D metadata			
Filename	PON19_3D_metadata.xlsx (45 Kb)		Info
		XLSX	Download

7.2 So 7.3 So 7.4 Po 7.5 Ho 7.6 Sn 7.7 Da 7.8 RO 7.9 Nu	odel Name oftware Used optrover File(s) oint cloud decimation? (pre-meshing) ole filling moothing ata reduction	2019_PostEx_MOD1.obj AgiSoft Metashape, Version 1.7.0 build 11736 PON19_MOD01_CAM01_0017_2019-11-03.jpg NO NO NO NO
7.3 So 7.4 Po 7.5 Ho 7.6 Sn 7.7 Da 7.8 RO 7.9 Nu	ource File(s) oint cloud decimation? (pre-meshing) ole filling moothing ata reduction	PON19_MOD01_CAM01_0017_2019-11-03.jpg NO NO NO
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7.5 Ho 7.6 Sn 7.7 Da 7.8 RO 7.9 Nu	ole filling moothing ata reduction	NO NO
7.6 Sn 7.7 Da 7.8 RC 7.9 Nu	moothing ata reduction	NO
7.7 Da 7.8 RC 7.9 Nu	ata reduction	
7.8 RC 7.9 Nu		NO
7.9 Nu		NO
	GB colour or texture included?	YES - 2019_PostEx_MOD1.jpg
7 1 Nu	umber of Triangles or Polygons	99,99
7.1 140	umber of Vertices	299,99
'.11 Va	alidated as Watertight	YES
.12 Ad	dditional Processing Notes	
'.13 He	ealing/Despiking	NO
.14 Co	oordinate System Used / Adjusted	NO
.15 Sc	cale	If scale used, what is represented by 1 unit
.16 Cr	reators	Chris Casswell
.17 Cc	opyright Holders	DigVentures
.18 Mc	odel Description	Undecimated 3D model



### Summary

- How to make data Findable, Accessible and Interoperable are well understood, with examples of well-implemented methodologies and technologies.
- Still a lot 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.

# What can you do?

### The FAIR Principles



### **The FAIR Principles**





Improve access to and quality of data

Findings replicability, new insights, building on research

Enhance discoverability and impact

Long-term preservation and sustainable knowledge

Opportunities in making
Archaeology and
Heritage Data FAIR

Collaboration and cross-disciplinary research

Maximise research and innovation potential

Informed, collaborative and innovative heritage science community

Citing and crediting research work

Advance Equality,
Diversity, Inclusion and
Accessibility (EDIA)

Advance heritage understanding, preservation and management



Collective Benefit	For inclusive development and innovation
Office tive benefit	For improved governance and citizen engagement
	For equitable outcomes
Authority to control	Recognising rights and interests
Authority to control	Data for governance
	Governance of data
Responsibility	For positive relationships
Responsibility	For expanding capability and capacity
	For indigenous values and worldviews
F <sub>thics</sub>	For minimising harm and maximising benefit
	For justice
	For future use



### What are the CARE Principles?

- Collective Benefit: Data should benefit the community it represents
- Authority to Control: Community control over their own data
- Responsibility: Ethical use of data to avoid harm
- Ethics: Respect for cultural values and practices



### **CARE Principles**

- Protect Indigenous and local community rights in archaeology
- Ensure ethical handling of culturally significant data

TK Labels by Local Contexts

Traditional Knowledge and Biocultural



TK Multiple Communities (TK MC)



TK Non-Verified (TK NV)



TK Family (TK F)



TK Seasonal (TK S)



TK Outreach (TK



TK Verified (TK V)



TK Attribution (TK



TK Community Use Only (TK CO)



TK Secret / Sacred (TK SS)



TK Women General (TK WG)



TK Women Restricted (TK



TK Men General (TK MG)



TK Men Restricted (TK



TK Non-Commercial (TK



TK Commercial



TK Community Voice (TK CV)



TK Culturally Sensitive (TK CS)



### **CARE Principles**

TK and BK labels in use:

E Reo Noku - My Language





### Challenges in making Heritage Data FAIR/CARE



Complex datasets and diverse data types



Resources and technical limitations



Heterogeneity can hinder interoperability



**Cultural sensitivities** 



### **FAIR and CARE: Complementary frameworks**





### FAIR and CARE: Complementary frameworks





## Thank you!

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