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# OUTCOMES FROM FAIR DATA MANAGEMENT IN HUMANITIES RESEARCH

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# About me

Research engineer and system developer

- Centre for Digital Humanities, Gothenburg University
- Joint faculties of Humanities and Theology, Associated to the Humanities Laboratory, Lund University
- HumLab, Umeå University
- Member of the Pelagios Commons committee 2018, <http://common.pelagios.org>

# Projects in History and Archaeology

- Regnum Francorum Online
- Digital Atlas of the Roman Empire
- Monastica – a dynamic library and research tool
- Key to Uppåkra – an online archaeology laboratory and digital catalogue of finds
- Diabas – North Germanic geolexical database and atlas
- Digital Pausanias: Migrations and Transformations
- Mapping the Cult of Saints (pilot study)



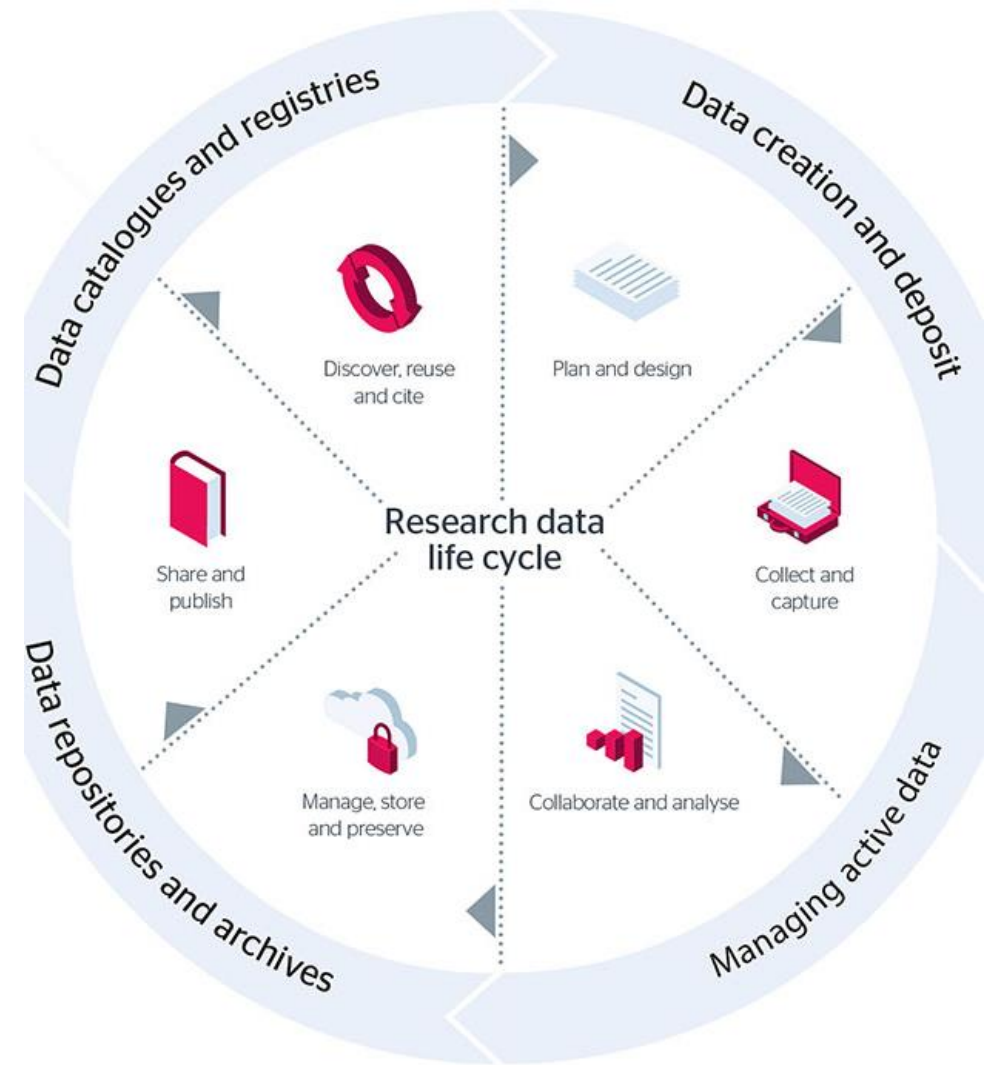
# Characteristics of the projects

- Publication on the internet of big datasets, both as human readable and machine readable data, and with an open license
- Spatio-temporal analysis and visualization
- Collaboration between researchers on a digital platform
- Export of own data for use and reuse by others
- Import of external data produced by others to enrich the analysis of own data
- Presence on the internet enables online services and tools on the material
- Cultural heritage material, that could not have been produced by GLAM



# Traditional Data management

- **Static publishing** - static datasets on servers with metadata although compiled in data catalogues and registers
- Lack of well managed data in the Humanities
- *Would make an enormous difference if data wouldn't get lost*





# Sources of Humanities data

- Cultural heritage data (e.g. manuscripts and texts, artefacts)
- Open governmental data (e.g. administrative data, geographic data)
- Research data made available by others
- Own data collection



# What does it take to make a digital resource in terms of data management?





# New approach to data management and publication

- Interactive visualizations to explore and analyse big datasets that allow both close and distant reading
- Collaborative platform for data management, analysis and visualization
- Linked Open Data approach to publish own data and to reuse data from others
- Human readable and machine actionable interfaces
- Best practice is established, cf. Cultural heritage data in Sweden, the Pelagios Commons network





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# Digital platforms that builds on LOD and semantic web technologies

Series of examples



# Monastica Interface

## Monastica – a dynamic library and research tool

EARLY MONASTICISM AND CLASSICAL PAIDEIA | CENTRE FOR THEOLOGY AND RELIGIOUS STUDIES | LUND UNIVERSITY



Sources   **References**   Bible   Names   Places   Info

Group by  Manuscripts  AP Editions  Other Editions

- Arabic
- Armenian
- Coptic
- English translations
- Ethiopic
- French translations
- Georgian
- Greek
  - APx-Greek\*
  - Athens\_504-Guy
  - BHG-1444e-Guy\*
  - DS-Clugnet
  - DS-Dahlan
  - G-PG65\*
    - Prolog
    - Alpha
    - Beta
    - Gamma
    - Delta
    - Epsilon

Home   Overview   Search   Text   Structure   Visualise   Maps

Sources :: AP Editions :: G-PG65

Variants   Series   Related

Strasb\_4225 (58)   No series   None

| Type      | Text  | Variants/Series   |
|-----------|---|---|
| Paragraph | G-PG65 Antonius.1<br>p. 76  |   |
| Segment   | <p>Antonius.1 [grc]</p> <p>Ὁ ἅγιος ἀββᾶς Ἀντωνῖος, καθεζόμενος ποτε ἐν τῇ ἐρήμῳ, ἐν ἀκηδία γέγονε καὶ πολλὴ σκοτώσει λογισμῶν· καὶ ἔλεγε πρὸς τὸν Θεόν· Κύριε, θέλω σωθῆναι, καὶ οὐκ ἐῴσι με οἱ λογισμοί· τί ποιῶ ἐν τῇ θλίψει μου; πῶς σωθῶ; Καὶ μικρὸν διαναστάς ἐπὶ τὰ ἔξω, θεωρεῖ τινὰ ὁ Ἀντωνῖος ὡς ἑαυτὸν, καθεζόμενον καὶ ἐργαζόμενον, εἶτα ἀνιστάμενον ἀπὸ τοῦ ἔργου καὶ προσεχόμενον, καὶ πάλιν καθεζόμενον καὶ τὴν σειράν πλέκοντα, εἶτα πάλιν εἰς προσευχὴν ἀνιστάμενον· ἦν δὲ ἄγγελος Κυρίου, ἀποσταλαῖς πρὸς διόρθωσιν καὶ ἀσφάλειαν Ἀντωνίου. Καὶ ἤκουσε τοῦ ἀγγέλου λέγοντος· Οὕτως ποιεῖ, καὶ σώζη. Ὁ δὲ τοῦτο ἀκούσας, πολλὴν χαρὰν ἔσχε καὶ θάρσος, καὶ οὕτως ποιῶν ἐσιώζετο.</p> | <p>= Strasb_4225 VIII.149</p> <p>كان القديس مار انطونوس جالس مرة في البرية فقاتله الضجر جدا واطلمت افكاره فجع الى الله وقال "يا رب اريد ان اخلص فما تركني الافكار. فماذا اصنع بشدتي هذه؟ وكيف اتجو؟" وانه قام فمشى قليلا خارج من القلية فابصر انسان يشبهه جالس يعمل ظفيرة. ثم انه قام من العمل فصلى. وهو كان ملاك الله بعث لتقويم وتحفظ انطونس. وسع الملاك يقول له "كما ارايتني اعمل كذلك فاصل وانت تخلص." فلما سمعه انطونينوس فرح كثيرا ووثق. وكذلك كان يفعل وخلص.</p> |
| Paragraph | G-PG65 Antonius.3<br>p. 76  |   |
| Segment   | Antonius.3 [grc]  | = Strasb_4225 VIII.47   |



# Digital Atlas of the Roman Empire (DARE)

The screenshot displays the Digital Atlas of the Roman Empire (DARE) interface. On the left is a topographic map of Sicily with various Roman sites marked. On the right is a metadata panel for the site of Siracusa.

**Navigation:** Home Legend Layer Search Places Map

**Page Title:** Digital Atlas of the Roman Empire  
Imperium :: Visited places :: Siracusa

### Siracusa

Information about the ancient place attested as Syracusae/Syrakousai, located at Siracusa

|                    |  |
|--------------------|--|
| id                 | 16570  |
| URI                | <a href="http://dare.ht.lu.se/places/16570">dare.ht.lu.se/places/16570</a> |
| spatial coverage   | Siracusa   |
| LAU-2 Code         | 089017   |
| LAU-2              | Comune Siracusa  |
| NUTS-3             | Provincia Siracusa   |
| country (ISO 3166) | IT   |
| historical name(s) | Syracusae/Syrakousai   |
| place type         | city → Display all   |
| temporal coverage  |  |
| start date         | -750   |
| end date           | 640  |

*Additional metadata and related external resources*

|          |  |
|----------|--|
| TPPlace  | 1511   |
| geonames | 2523083  |
| name:de  | Syrakus  |
| name:en  | Syracuse   |
| name:en  | Syracuse   |
| name:fr  | Syracuse   |
| name:grc | Συράκουσαι   |
| PECS     | <a href="#">syracuse</a><br><a href="#">syracuse</a> |
| pleiades | 462503   |

© Digital Atlas of the Roman Empire  
16.43850, 36.68652



# DARE: RDF/XML

```
- <dcterms:description xml:lang="en">  
  Information about the ancient place attested as Syracusae/Syrakousai, located at Siracusa  
</dcterms:description>  
<gn:officialName>Siracusa</gn:officialName>  
<gn:historicalName xml:lang="la">Syracusae</gn:historicalName>  
<gn:historicalName xml:lang="la">Syrakousai</gn:historicalName>  
<dcterms:subject rdf:datatype="xsd:string">city</dcterms:subject>  
<dcterms:temporal>-750/640</dcterms:temporal>  
- <geo:location>  
  <geo:lat rdf:datatype="xsd:float">37.05963</geo:lat>  
  <geo:long rdf:datatype="xsd:float">15.29382</geo:long>  
</geo:location>  
<dare:precision rdf:datatype="xsd:integer">200</dare:precision>  
<gn:countryCode rdf:datatype="xsd:string">IT</gn:countryCode>  
<dare:LAU-2_Code rdf:datatype="xsd:string">089017</dare:LAU-2_Code>  
<dare:LAU-2 rdf:datatype="xsd:string">Siracusa</dare:LAU-2>  
<dare:NUTS-3 rdf:datatype="xsd:string">Siracusa</dare:NUTS-3>  
<skos:exactMatch rdf:resource="http://pleiades.stoa.org/places/462503#this"/>  
<skos:closeMatch rdf:resource="http://sws.geonames.org/2523083"/>
```



# DARE Embedded Content

Home Legend Layer Search Places Map Topo

Digital Atlas of the Roman Empire

Imperium :: Serra Orlando, Aidone

Perseus digital library: The Princeton Encyclopedia of Classical Sites (PECS)

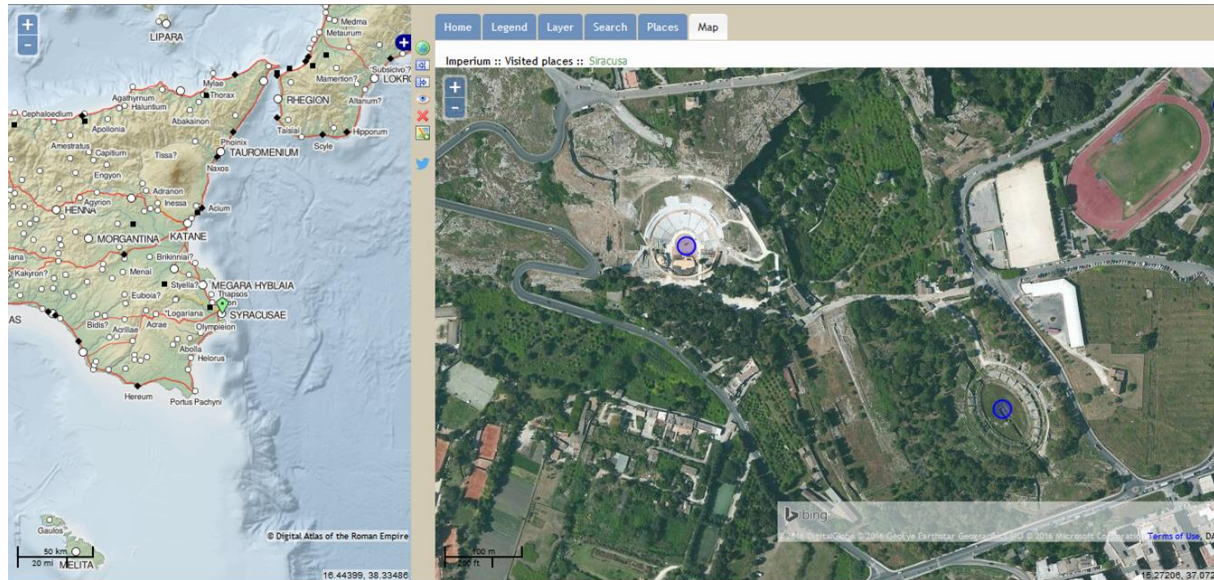
**MORGANTINA (Serra Orlando) Sicily.**

Five km E of the commune of Aidone on a ridge known locally as Serra Orlando. The city commanded a strategic position controlling the ancient roads that led from Gela on the S to Messina on the NE and up from Katane on the E. The original Sikel settlement dates from the third millennium B.C. The name of the city reflects an influx of the Morgetes from south central Italy ca. 1200 B.C. (Strab. 6.2.4). Greek settlers from the E coast, and later from the S, merged apparently without conflict with the local inhabitants until Morgantina became essentially a Greek outpost at the edge of the hinterland to the W. In 459 B.C. Ducetius, king of the Sikels, sacked the town in his campaign to wrest Sicily from Greek domination (Diod. Sic. 11.78.5), and in 425 Morgantina was assigned to the city of Kamarina (Thuc. 4.65.1). In 397 Dionysos of Syracuse brought the city back into the sphere of Syracusan interests (Diod. Sic. 14.78.7). Agathokles began an extensive renewal and building program, which continued under Hieron II of Syracuse, and from the middle of the 3d c. Morgantina prospered as the center of an extensive grain-producing area. It was also the center of a considerable production of terracottas. Coincident with Marcellus' capture of Syracuse in 211 B.C. the city was sacked and all but destroyed. A senate decree granted the Hispanic allies of Marcellus the right to issue their own coinage, but this seems not to have been exercised until after the middle of the 2d c. Little new building exists from that period, save for a large macellum in the center of the original agora. Repairs to the houses converted many rich dwellings into middle class houses—centers for small industry or makeshift apartments. Cicero (Verr. 2.3.23 556) speaks of the injuries to a worthy citizen of the place. Strabo (6.2.4), writing ca. 25 B.C., says that what once was a city is no more. The excavations, begun in 1955 and still continuing, have confirmed this, and the scarcity of coins found of Julius Caesar and of Augustus are evidence for the extinction of Morgantina. Apparently there was no final sack; the abandonment is due, rather, to the failure of the grain market and the general impoverishment of the area.

The walled area of the town measures from E to W 2.4 km by 580 m to as little as 140 m. Approach from N and S is very steep, but gates on those sides gave access to the central market area. A W gate gave access to a street that ran the length of the town. To the E on an isolated hill (Citadella), whose walls do not join with those of the rest of the city lay the earlier settlement, almost an acropolis. A



# DARE Embedded Imagery





# Tim Berners-Lee suggested a 5-star deployment scheme for Open Data

- ★ make your stuff available on the Web (whatever format) under an open license
- ★★ make it available as structured data (e.g. Excel instead of image scan of a table)
- ★★★ make it available in a non-proprietary open format (e.g. CSV)
- ★★★★ use URIs to denote things, so that people can point at your stuff
- ★★★★★ link your data to other data to provide context



# FAIR Data management in the Humanities

- Findable, Accessible, Interoperable and Reusable
- Pelagios Commons collaboration: 30 projects worldwide talk to each other, both machines and humans
- Based on authority control of *ancient place* that connects material in time and space through stable identifiers and common formats
- Access to data using an open license
- Findable through a central body acting as aggregator, not a publisher





# Authority control for historical persons, places and organisations

- To ensure that we talk about the same entity within and between digitized materials
- Settlement units in premodern Sweden, TORA-project, National Archives of Sweden
- Wikidata project
- VIAF, NBN, KB
- Specialized gazetteers, prosopographies



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## Stable URI:s

[dare.ht.lu.se/places/1438](https://dare.ht.lu.se/places/1438)

Ancient city of Rome

Roma (la), Ῥώμη (grc)

Temporal coverage: attested 750 BCE to 640 CE.

Spatial coverage: comune Roma, provincia Roma, Italia



# Outlook

- Digital Humanities centres, laboratories and GLAM institutions as nodes of competence and digital infrastructure, like SWE-CLARIN
- Maintaining stable identifiers and publication platforms for live databases  
Distributed responsibility for research data as Open Linked Data
- Big interest among researchers with or without partners in the GLAM-sector



# Challenges

- Rethinking dissemination of research information (cumulative digital collections)
- Organizational aspects of research
- Ontologies, gazetteers, URI:s, digital objects
- Long term sustainability and availability
- Pushing the limits by good examples