# EAA Session 350: Sustainability, Unsustainability and Opportunity for Archaeological Data

**Abstract:**

The rise of digital data in archaeology has created a sustainability crisis requiring urgent action, while also creating opportunities. The majority of archaeological interventions are non-repeatable, and the careful recording carried out to document the resource becomes primary data. As this data is increasingly undertaken using digital methods and tools, archaeological data is often born digital, and with no paper surrogates for the primary record. Archaeological researchers are creative and innovative in their methodologies; adopting, adapting and developing novel techniques and approaches, requiring stewardship of a far greater variety of data formats than other cultural and scientific domains, along with more complex understandings of data re-use. This combination of factors, along with the challenges created by development-led archaeology and a research environment focused on project-by-project funding models, makes moving to a sustainable model even more challenging.

At the same time, work around stewardship and management of archaeological data has contributed to the creation of persistent resources, including an increase in the availability of open access to 'grey literature', and data from diverse providers has been made interoperable and cross-searchable across national boundaries. Continued effort to make archaeological data open, persistent and sustainable are urgently needed, and archaeologists must work together to raise awareness and take action. The ARIANDEplus infrastructure (https://ariadne-infrastructure.eu/) and Saving European Archaeology from the Digital Dark Age (COST Action SEADDA, https://seadda.eu/), invites papers discussing the sustainability of archaeological data, exemplars of open data and data re-use, and technologies and initiatives that promote interoperability and persistent resources. This session also welcomes papers discussing challenges associated with the sustainability of archaeological data, to promote better understanding of how we may work together as a community to address them.
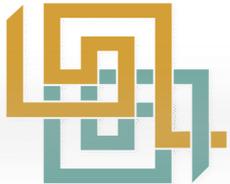
# Sustainability, Unsustainability and Opportunity for Archaeological Data

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**Franco Niccolucci** and **Paola Ronzino**

PIN - University of Florence

**Virtual EAA, 30 August 2020**

# What is ARIADNEplus?

ARIADNE*plus* (2019-2022) is the continuation & extension of ARIADNE (2013-2017)

- It builds on ARIADNE results
- It extends ARIADNE along several dimensions
- It focuses ARIADNE on innovative services
- It embeds ARIADNE in the EOSC

Our mission: to interpret and answer the research community needs for studying the past to better understand the present with the tools and the methodology of the future, in the service of research, culture and society.
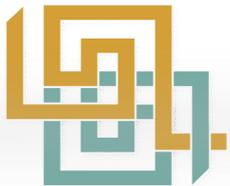
# Coordinating networking activities (Task 2.1)



Photo: Paolo Lussu, SEADDA STSM (Short Term Scientific Mission to ADS) Feb-March 2020

Extending and supporting the ARIADNEplus and SEADDA communities in the days of COVID-19
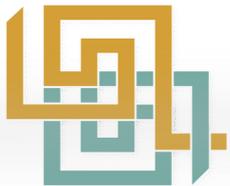
# Coordinating networking activities (Task 2.1)

- CHNT workshop, Vienna, 4-6 Nov 2019 – ARIADNEplus / SEADDA FAIR roundtable
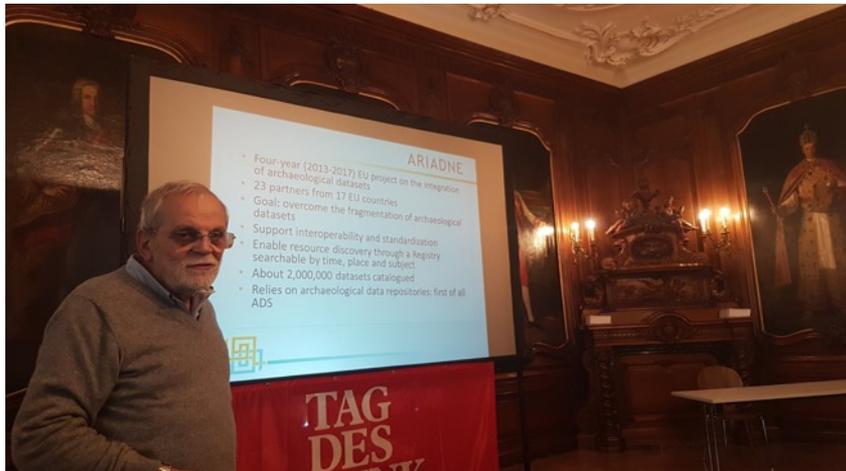
# Coordinating networking activities (Task 2.1)

- Other International meetings:
  - CAA, Oxford – ARIADNEplus sessions cancelled ☹
  - FAIR Heritage, Tours, France: 17-18 June - may be a virtual meeting
  - EAA Budapest, 26-30 August 2020: Joint A+/SEADDA Session 350: Sustainability, unsustainability and opportunity ??
- National meetings:
  - We need partners to organise them – in person or virtually!
  - e.g. Local CAA meetings

**CAA International**
@CAA_Int

It is with regret that we must announce the @CAA_2020 conference has been postponed due to the rapidly evolving situation with Covid-19. As we explore options for rescheduling, please visit our website for details: caa-international.org/2020/03/09/caa....

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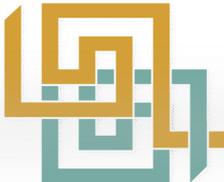
# Coordinating networking activities (Task 2.1)

- Online meetings:
  - Joint virtual meetings with SEADDA WG3 and WG4
  - Digital Humanities Twitter conference
  - Virtual ARIADNEplus General Assembly: 15 April 2020

**ARIADNEplus Project** @ARIADNEplus · Apr 2

The #ARIADNEplus team is happy to present its integration model and show how its digital platform enables collaborative work.

Thanks to colleagues of #APOLLONIS and @athenaRICinfo for showing, with this initiative, that #DH and #CH are stronger than #COVID19

1/15 | #DHgoesVIRAL

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See replies

**Migrations to Preferred Formats**

Mass migrations and transformations of archived data to new standards.

"Upgrading is compulsory."
--the Cybermen
Doctor Who, BBC Studios, 1963-2019

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**ARIADNEplus/SEADDA meetings on FAIR Data Management**

News

# Reviewing community needs - SRFG (T2.2)
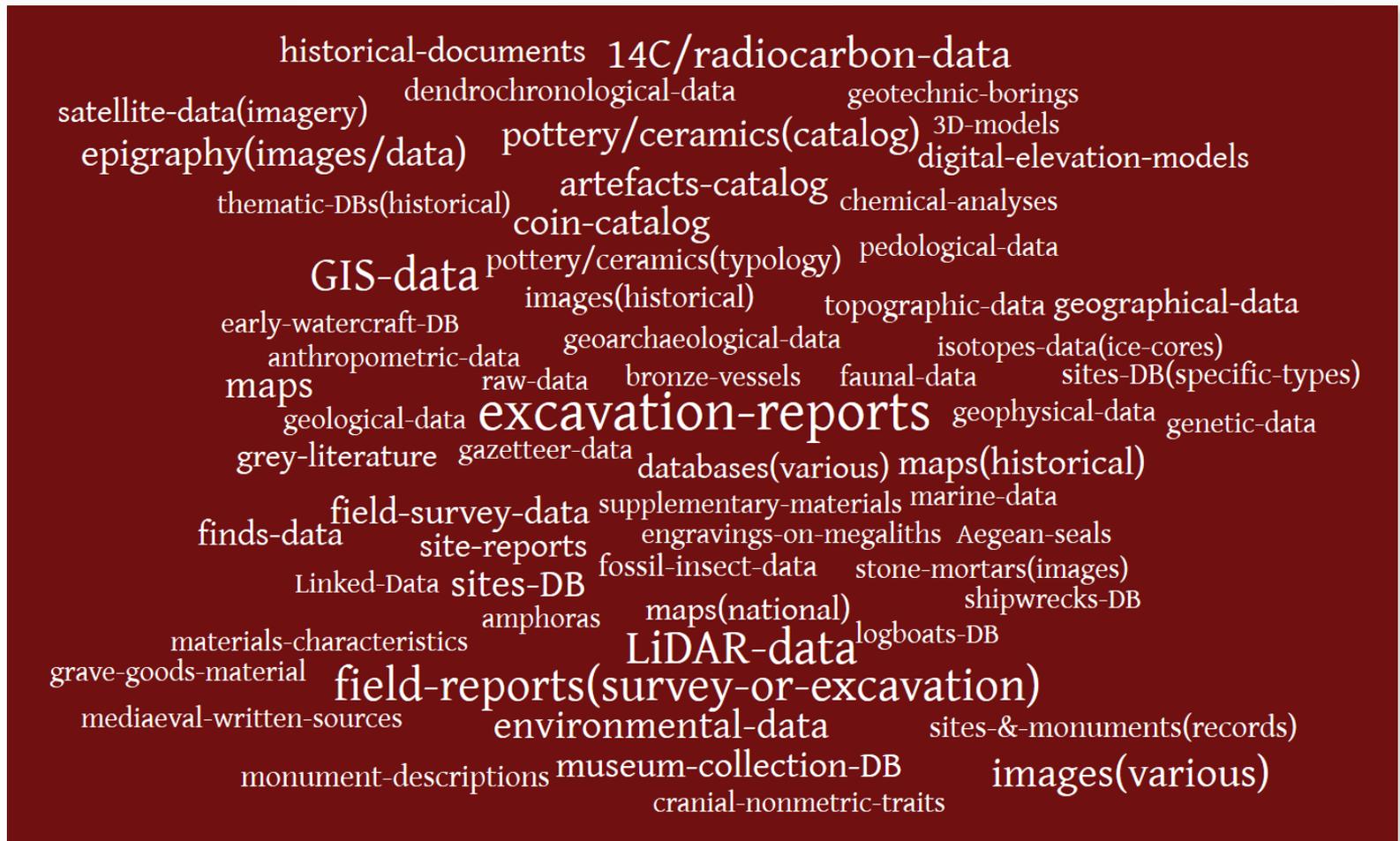


**Word cloud of 85 terms for data types and systems derived from keywords for research interests of the survey respondents [N=452].**
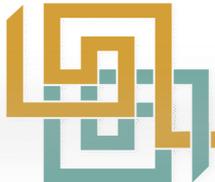
## Organisational background
[N=482]



- 53% University or public research organisation
- 19% Museum
- 15% Governmental institution
- 8% Private company or research institute
- 2% Not affiliated with an organisation (e.g. self-employed, free-lancing)
- 3% Other
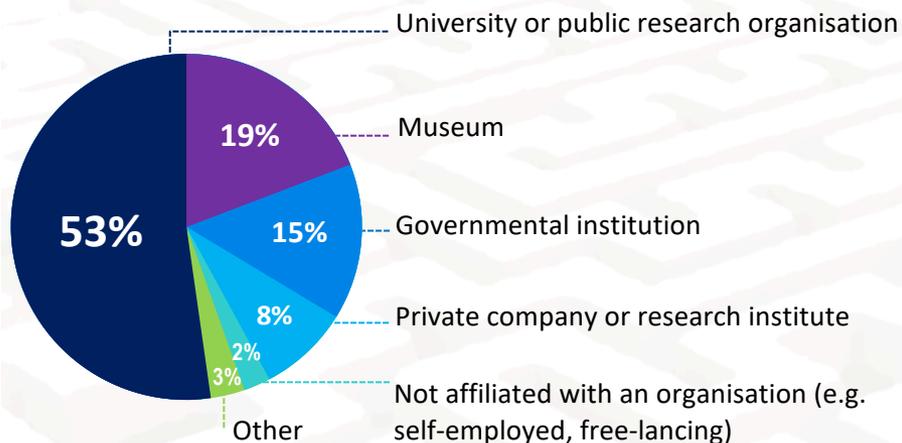
## Main professional activities
[N=484]



- 53% Archaeological researcher (field work)
- 9% Laboratory-based researcher
- 13% Manager of an institutional repository or other data access service
- 7% Manager of project databases
- 7% Director of an archaeological institute or research centre/laboratory
- 12% Other (various academic, technical and data management activities)
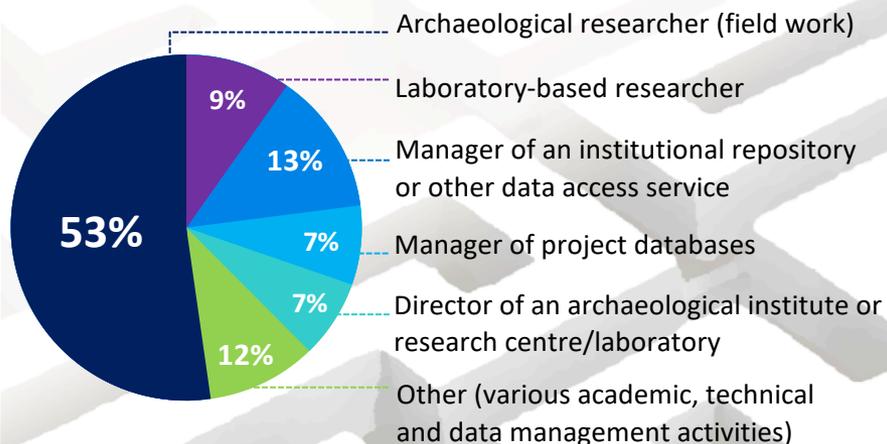
# Data sharing and reuse

Is project data of your research group/organisation typically being made available through an accessible repository (institutional, national or other subject-/domain-based repository) [N=437-457]

In a few–all projects
**Yes 65%**  **No 35%**
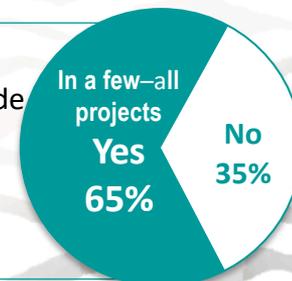
Did you / your research group in the last 2 years use any data which other researchers made available through a publicly accessible digital repository or databases? [N=376]

**Yes 58.5%**  **No 41.5%**
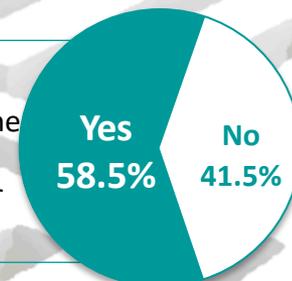
Do you agree to the following statement: *"In the last 5 years the readiness of archaeologists to share data through publicly accessible repositories or data-bases increased"*? [N=376]

**Yes 83.2%**  **No 16.8%**
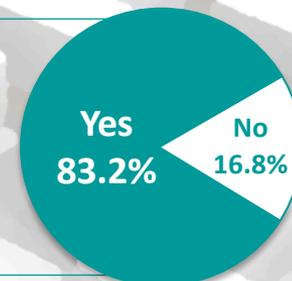
**Barriers to deposit research data in digital repositories**

Results for "very" or "rather" important [N = 398-415]

| 75.5% | 75% | 74% | 69.5% | 67% | 62% | 59% | 42% |
|-------|-----|-----|-------|-----|-----|-----|-----|
| A lack of professional recognition and reward for open data sharing | Intellectual property right issues (e.g. in collaborative projects) | The work effort for providing the data and meta-data in the required formats | Lack of a mandate or enforcement from research funding bodies | Lack of an appropriate national or international repository | National heritage law does not require depositing digital data | The cost for depositing data for long-term preservation and access | Internal rules are in conflict with depositing data in open repositories |

# Reviewing community needs - SRFG (T2.2)

**Data discovery and access**

Discover and access archaeological datasets from different providers via the ARIADNEplus data portal – Results for "very helpful" [N = 341-355]:

| 72.7% | 72.4% | 72.1% | 71.1% | 67.1% | 64.6% |
|-------|-------|-------|-------|-------|-------|
| National GIS data and maps | Sites and monuments databases or inventories | Satellite or airborne remote sensing data (e.g. LiDAR) | Excavation data (e.g. excavation archive) | Artefact/finds databases or image collections | Unpublished fieldwork reports ('grey literature') |

| 63.4% | 62.8% | 61% | 53.6% | 49.6% | 47.7% | 35.2% |
|-------|-------|-----|-------|-------|-------|-------|
| Field survey/ prospection data | Environmental archaeology datasets | Radiocarbon, dendrochrono-logy and other dating data | Inscriptions, coins or other special databases | Scientific data/ analysis of inorganic remains | Scientific data/analysis of biological remains | Maritime and underwater archaeology data |

# Services for researchers and data managers

Helpfulness of ARIADNEplus services. Results for "very helpful" or "helpful" and just "very helpful" [N = 318-337]:

| | "very helpful" or "helpful" | "very helpful" |
|---|---|---|
| Spatially and/or chronologically defined search options | 96.3% | 81.5% |
| Register a dataset in a portal that allows searching data from many providers | 95.5% | 74.7% |
| Discover & access archaeological data stored in repositories in different European & other countries | 95.0% | 73.6% |
| Search and visualize geo-spatial / GIS datasets | 93.5% | 68.9% |
| Multi-lingual search for archaeological data | 83.0% | 59.2% |
| Use Linked Data to interlink own and other datasets | 82.9% | 51.6% |
| Annotate images (e.g. artefact or laboratory images) and link them with other content | 82.1% | 49.6% |
| Post a picture of an object and get suggestions for similar ones | 81.8% | 54.0% |
| Display and manipulate visual data objects (e.g. RTI images, 3D models, LiDAR data) | 81.5% | 50.5% |
| Link and present together visual media (e.g. a 3D model) and related documentation | 81.2% | 49.8% |
| Process many documents (using NLP) to find those on certain topics or specific information they may contain | 80.5% | 49.8% |
| Identify & extract information from textual sources (e.g. a document repository) to produce metadata | 79.8% | 51.4% |
| Annotate texts (e.g. fieldwork or laboratory reports) and link them with other content | 79.5% | 48.6% |
| Align own vocabulary terms with international thesauri (e.g. Getty Arts & Architecture Thesaurus) | 78.3% | 49.7% |
| Map a database (schema) to the CIDOC-CRM extended for archaeological research data | 74.5% | 39.9% |
| Visualize in 3D the layers of an excavation and the related documentation | 74.3% | 45.3% |

# Reviewing community needs - SRFG (T2.2)

**Training needs**

Tasks for which training would be "very helpful" [N = 328-330]:

| 67.3% | 62.8% | 60.7% | 59% | 58.8% | 57.3% | 55.8% | 48.5% |
|---|---|---|---|---|---|---|---|
| Apply open/FAIR data principles in archaeology | Deposit project datasets in a digital repository | Develop data science skills | Manage data-sets of a large archaeological project | Manage a digital repository of archaeological data | Produce metadata for archaeological datasets | Define and implement a Data Management Plan | Use domain vocabularies to describe datasets |
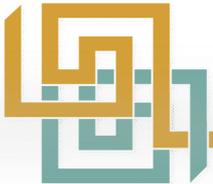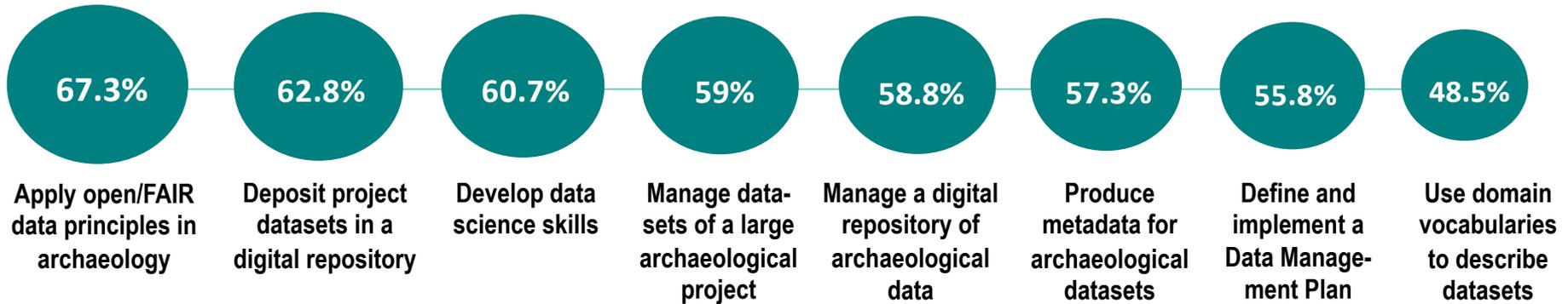
- ## Preparing documentation
  - ### – ARIADNE DMP

- ## Preparing seminars





**ARIADNEplus/SEADDA meetings on FAIR Data Management**

- Need online Video training
- Need Webinairs
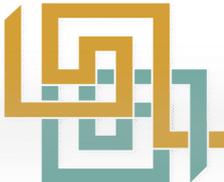
# Consolidating the community (T2.4)

- Liaison with EAA
  - "Perhaps a public statement between EAA and ARIADNE would be important and perhaps we could adopt a code of conduct in regard to this and/or a standard" Felipe Criado-Boado, EAA President
- Liaison with EAC
  - Leonard de Witt will continue to represent them on SAB
  - Plus ARIADNE partners on EAC Board
- MoU with Pelagios
- Liaison with Getty – over extending AAT
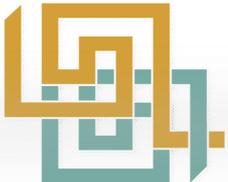
# Involving professionals and heritage managers (T2.5)

- Last quarter:
  - Discussions with ICCU on industry sectors and contacts
  - Discussions with PIN concerning the development of web-pages on the ARIADNE+ website
  - Participation in meetings with Europeana data partners in the Hague (October), Stockholm (October) and Lisbon (November).
- Need to develop a work plan going forward

- ## ARIADNEplus in Argentina (Nov 2019)



CONICET
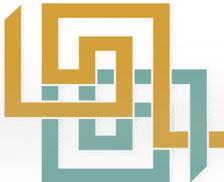
# International Collaboration (T2.6)

– SAA/ EAA Sponsored Design Workshop, Nov 2019, Arizona: Human Migration as Understood from a Long-Term Perspective

– Society for Historical Archaeology, Boston, 10 Jan 2020: ARIADNEplus at CfAS roundtable





Coalition for Archaeological Synthesis

# International Collaboration (T2.6)

- ## ARIADNEplus in Arizona (February 2020)
  - FAIRarchaeology.org

# THANK YOU!
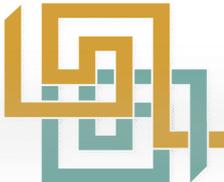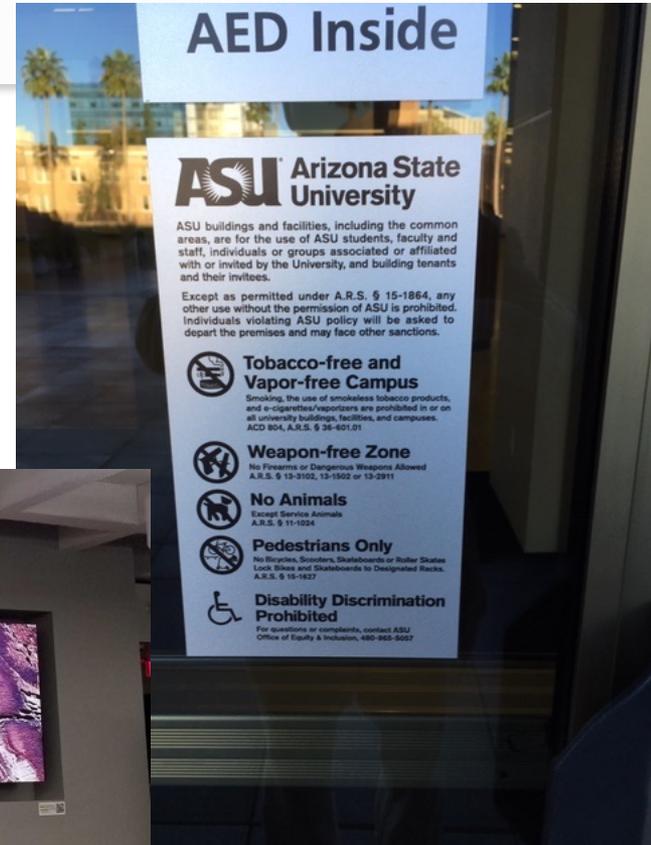
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