

Bringing Everyone to the Table-- Collaborative Ontology Development

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ALA Midwinter

ALCTS Metadata Interest Group

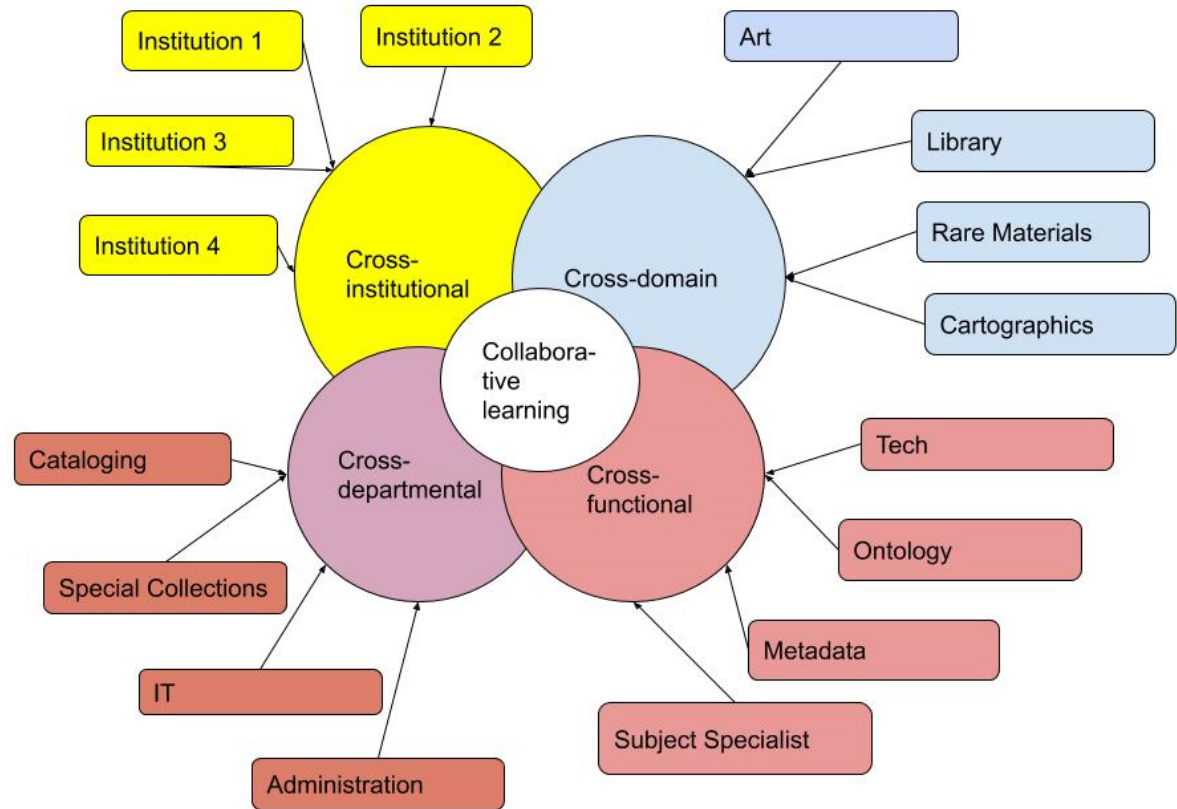
January 26, 2020

Metadata Collaborations

Types of collaborations:

- Cross-Institutional
- Cross-Departmental
- Cross-Domain
- Cross-Functional

ALL of the above!



ArtFrame Project: Outcomes

Use Case Development

- Defined use cases for description of art
- Classified use cases into entity types
- Prioritized use cases
- Analyzed use cases and developed ontology requirements
- Compared ArtFrame use cases to [Rare Material](#) use cases and identified commonalities

Analysis/Modeling

- Accession Number
- Attributions
- Awards
- Bibliographic Citation
- Bindings
- Carriers & Bound-withs
- Custodial History
- Exhibitions
- Fonts, Handwriting Types and Notations
- Limitation Statement
- Markings
- Materials
- Measurements of Part, Whole and Arrangement
- Notes in Art
- Pagination and Foliation
- Physical Condition
- Signature Statements
- Style/Period
- Titles in Art

OWL file development

- **Core Ontology**
 - Core ontology used in the description of art and rare materials.
 - Ontology specification
 - Human-readable documentation
- **Award Ontology**
 - Specialized ontology for the description of awards received by bibliographic resources or agents; reusable in contexts beyond the bibliographic domain.
 - Ontology specification
 - Human-readable documentation
- **Custodial History Ontology**
 - Specialized ontology for the description of an object's custodial history; reusable in contexts beyond the bibliographic domain.
 - Ontology specification
 - Human-readable documentation
- **Measurement Ontology**
 - Specialized ontology for the description of an object's measurements; reusable in contexts beyond the bibliographic domain.
 - Ontology specification
 - Human-readable documentation
- **Activity Ontology**
 - The issue of whether to adopt the BIBFRAME Contribution model or the biblitek-o Activity model has not yet been resolved. As a temporary accommodation, the Activity model is used, but the terms are stored in a separate ontology file with a distinct namespace for easy separation. The expectation is that either (1) the Activity model will be adopted, and the terms merged into the ARM Core Ontology, or (2) the BIBFRAME Contribution model will be adopted, the Activity ontology deprecated, and other associated revisions to the ARM ontologies and vocabularies be implemented.
 - Ontology specification
 - Human-readable documentation

Application Profiles (SHACL)

- **Art:** https://github.com/LD4P/arm/tree/master/application_profiles/art/shacl
- Recommendation for SHACL maintenance and development

In-Person Meetings

- In-Person Meeting of ARTframe + Rare Materials Ontology Extension (January 2018)
- In-Person Meeting of ARTframe + Rare Materials Ontology Extension (March 2017)
- Virtual meetings occurred every two weeks between July 2016 and July 2018

Presentations

- ALCTS Webinar: ArtFrame: Extending Library Ontologies for Works of Art (April 4, 2018, Melanie Wacker and Amber Billey)
- Presentation: The Outcome of the ArtFrame Project (ARLIS/NA Annual Conference, Feb. 27, 2018, Amber Billey, Marie-Chantal L'Écuyer-Coelho, Jason Kovari and Melanie Wacker)
- Presentation: ArtFrame—Connecting two Worlds (Metropolitan Museum of Art, November 14, 2016, Roberto C. Ferrari and Melanie Wacker)
- Presentation: Artframe, LD4P@Columbia (METRO (Metropolitan New York Library Council), June 2, 2016, Melanie Wacker)

More Importantly ...

ArtFrame

Team

Arden Alexander (Library of Congress, Prints & Photographs)
Penny Baker (Clark Art Institute)
Roberto Ferrari (Columbia/Art Properties)
Paul Frank (Library of Congress)
Kate Harcourt (Columbia/OSMC)
Robert Rendall (Columbia/OSMC)
Margaret Smithglass (Columbia/Avery)
Melanie Wacker (Columbia/OSMC)
Amber Billey (Bard College)
Timothy Ryan Mendenhall (Columbia/OSMC)

Members of ARLIS/NA Cataloging Advisory Committee:

William Blueher (Metropolitan Museum of Art) (November 2017-)
Marie-Chantal L'Écuyer-Coelho (Bibliothèque et Archives nationales Québec)
John A. Mair (Pratt Institute)
Elizabeth O'Keefe (November 2017-)
Andrea Puccio (Clark Art Institute)
Sherman Clarke (freelance art cataloger)
Bronwen Bitetti (Bard College)
Tamara Fultz (Metropolitan Museum of Art) (2016-November 2017)
Maria Oldal (Morgan Library & Museum)
Karen Stafford (Art Institute of Chicago)
Samantha Deutch (Frick Collection)

<https://wiki.lyrasis.org/display/LD4P/ArtFrame>

Rare Materials

Team

Amber Billey (Bard College)
Amy Brown (Boston College)
Todd Fell (Yale University)
Steven Folsom (Cornell University)
Peter Green (Princeton University)
Linda Isaac (University of Miami)
Jason Kovari (Team Lead, Cornell University)
Margaret Nichols (Cornell University)
Michelle Paquette (Stanford University)
Audrey Pearson (Yale University)
Timothy Thompson (Yale University)
Rebecca Younes (Cornell University)

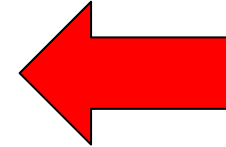
ArtFrame Collaborators

<https://wiki.lyrasis.org/display/LD4P/Rare+Materials+Ontology+Extension>

Cross-Project Collaboration

[LD4L 2014](#) (Linked Data for Libraries original grant) (2014-2016)

[Linked Data for Production \(LD4P\) Phase 1](#) (2016-2018)



[Linked Data for Libraries Labs \(LD4L Labs\)](#) (2016-2018)

[LC BIBFRAME Metadata Production Pilot](#) (also part of LD4P)

Cross-Institutional Collaboration (LD4P Phase 1)

[Linked Data for Production -- Phase 1](#): 2016-2018

Partners: Columbia University, Cornell University, Harvard University, Princeton University, Stanford University, Library of Congress

Focus:

- Linked open data produced communally
- Domain-specific BIBFRAME ontology extensions
- Production workflows



BIBFRAME Extensions

- Art (Columbia)
- Cartographic/geospatial (Harvard)
- Moving images (Harvard)
- Performed music (Cornell, Stanford)
- Rare materials (Cornell, Princeton)



<https://dx.doi.org/10.7916/D8W66PMS>



Columbia Participation: Art Objects



Charles Willson Peale
*Portrait Miniature of Alexander
Hamilton, c.1780*
watercolor on ivory



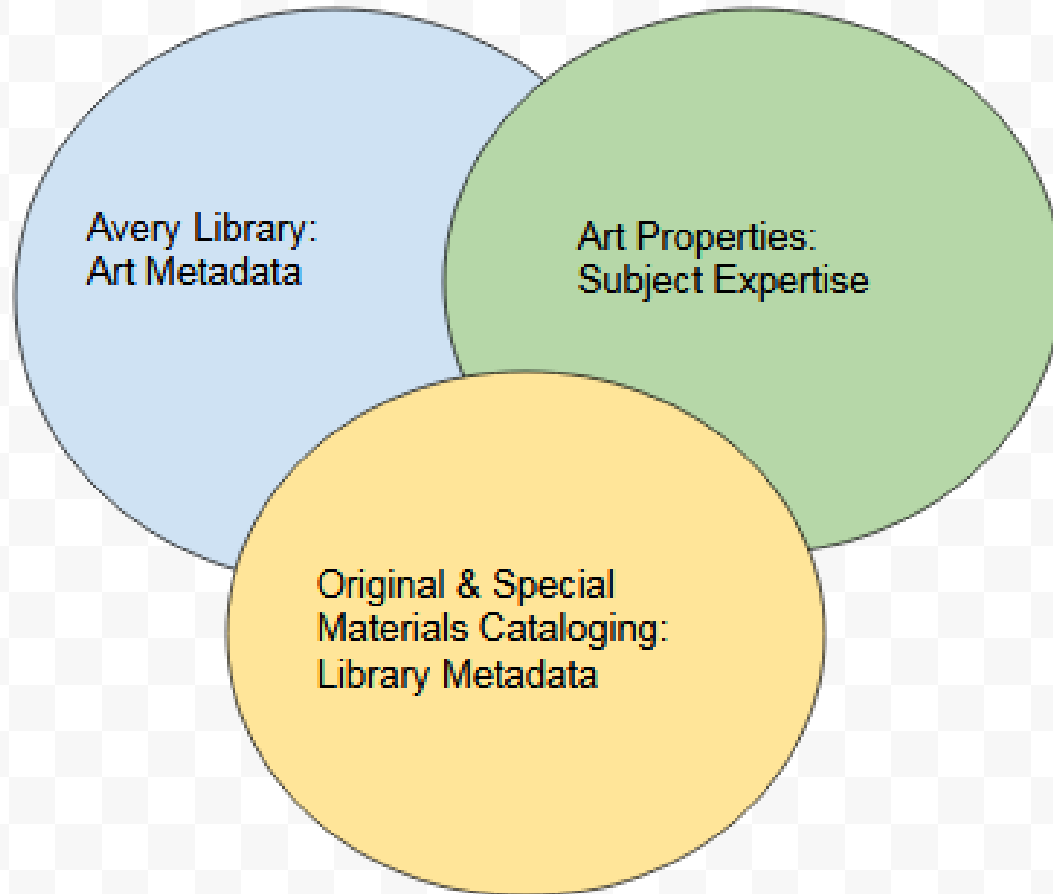
Anna Hyatt Huntington
Cranes Rising 1934, bronze



Hiroshige
The Cave Shrine of Kannon
Japan, Edo period
1855, woodblock print

Slide courtesy of Roberto C. Ferrari, Curator of Art Properties and Margaret Smithglass, Registrar and Digital Content Librarian,
Avery Architectural & Fine Arts Library

Cross-Departmental Collaboration



Expanding the Group

“We are open to different forms of collaboration, depending on level of interest and time available. It could reach from actively participating in the ontology development to commenting on what we come up with.”

“ ... since you have extensive experience working with art objects and library cataloging standards, we were wondering if you'd be interested in being part of the broader community that we could call on for input.

We are not asking for a huge commitment in staff or time, just for your opinion.”

The ArtFrame Extension Group

The Art Extension Group (interested members of the art and art library community)

- Library of Congress Prints & Photographs Division
- Sterling and Francine Clark Art Institute
- Morgan Library & Museum
- Amber Billey (Bard College; formerly Columbia)
- Cataloging Advisory Committee of ARLIS/NA (joined May 2016)

Scheduling & Communication

- Bi-weekly, 1 hour calls
- E-mail alias should be used for communication. All members of the group should feel free to post to it
- Slack channel available, but not required
- Documents shared using Google Drive
- Only documentation approved by the group as ready for sharing will be posted to the public project Website. Everything else remains private.

Meeting Minutes

Minutes on Google Docs:

Consistent format:

- Meeting access
- Attendees
- Homework (action items from last meeting)
- “Helpful links” section with links to previous meeting notes and the group drive folder
- Agenda/Notes
- Action items

Getting started

- Scope
- Timeline
- Information sharing
- Determine training needs
- Agree on first step

Use Case Development

Title (Goal)	1.5 Relating Agents to Works
Mode of use	Cataloging, Reference, Research, Discovery
Primary Stakeholders (who uses it)	Catalogers, Curators, Researchers, Reference Librarians
Scope	Relationships
Priority	Medium/High
Story	A researcher wants to find books that contain illustrations by Dante Gabriel Rossetti and original art work, but not books that contain his poems or translations.

Title (Goal)	4.2 Find all artwork created from the same medium/media/material
Mode of use	Research; Conservation
Primary Stakeholders (who uses it)	Researchers, curators, conservation staff, artists, art students
Scope	Discovery; Physical description
Priority	Medium
Story	A student is writing a research paper on textile fabrics in Africa and wants to look at actual examples. A conservator maybe want to do an inventory across the departments of all wooden objects.

Analysing the Use Cases

Identify Modeling areas:

- a) Group “like” case studies (entire group)
- a) Assign priorities (entire group)
- a) Identify entities involved (subgroup)
- b) Translate statements into triples (subgroup)
- c) Map triples to Bibframe (subgroup)

Whole Group Versus Subgroups

- Some tasks are better worked on by 2-4 people
- Volunteers picked the tasks they were most interested in regardless of prior experience
- Each subgroup included at least one person comfortable with data modeling and another person with a strong domain background

Work of the Use Case Analysis Subgroup

Use Case	Entities_1	Entities_2	Entities_3
6.6 Exhibition history	Work	hasExhibitionEvent	ExhibitionEvent
6.7 Determine the earliest/latest date in the lifecycle of a work	Work	hasStartDate/hasEndDate	Date
6.8 Create/find groupings of artworks originating from specific places	Work	hasEvent	Creation
7.0 Find images of an art work	Work/Instance (?)	hasSurrogate	Instance (?)
7.1 Document information about the images of an object	Instance (?)	hasAgent	Agent
7.1b	Instance (?)	hasDate	Date
7.1c	Instance (?)	hasTitle	Title
8.0 Find art works to illustrate the cultural context of a specific place	Work	depicts	Location
8.0b	Work	hasCreationLocation	Location
8.1 Find all paintings of women in the collection	Work	depicts	Agent
8.1	Work	depicts	

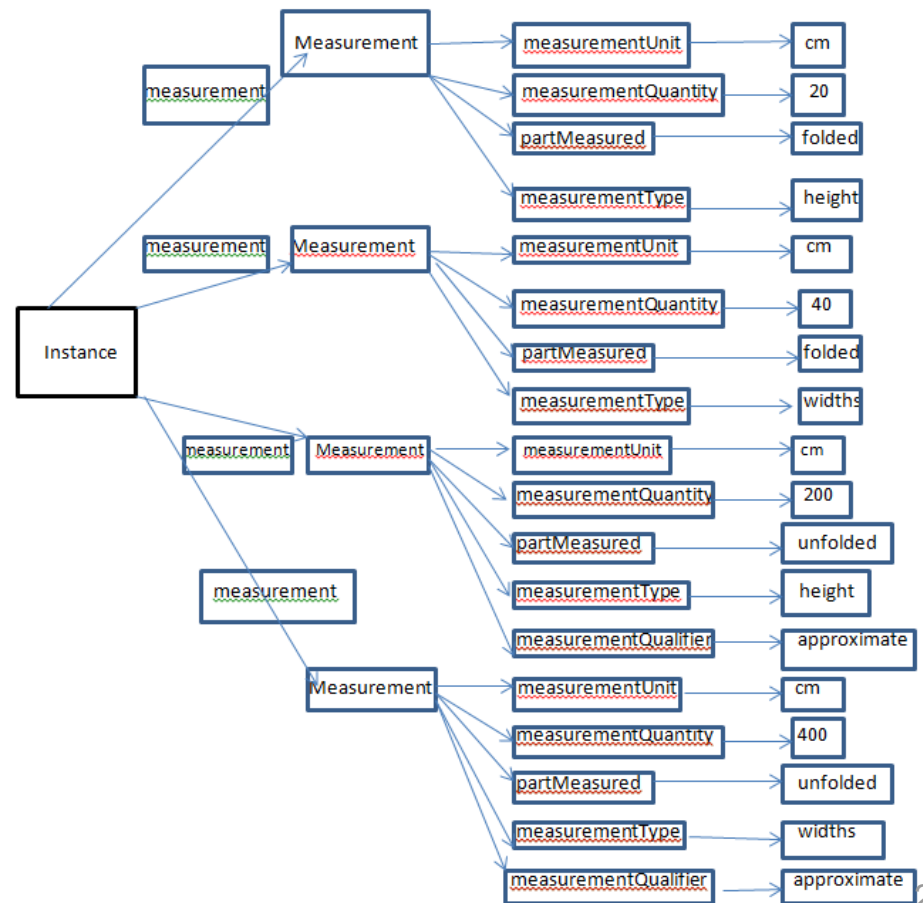
Note	Relationships (notes; just experimenting)	
	Work > references/cites > Work [or can this be combined	
	Work > is inspired by > Work	
	Work > is part of > Work	
	Work > has state > Literal	
	Work > is part of > Work	
	Work > has genreForm > GenreForm	
Covered by use cases above.		
Out of scope for ontology development	FormGenre > is same as > FormGenre	
	Work > has style > Style	
Covered by use cases above.		

Start Modeling!

- Identify modeling areas based on use case groupings and assigned priorities (entire group)
(physical description floated to the top!)
- Collect real world examples to model (entire group)
- Focused, collaborative brainstorming on each topic (e.g. form/genre or “inspired and depicting”) (entire group)
- Create visual models based on properties/classes identified through use cases (volunteers)
- Are there existing property/class in BIBFRAME? or elsewhere?
If not, what exists in other ontology? (volunteers)

Measurement Type

- Dimensions ⇒ Planned sheet dimensions
- Duration
- Weight
-
-



Collaborative modeling

The RareMat Extension Group

- Lead by Cornell University (Jason Kovari)
- Shared member with Art (Amber Billey)
- Use case comparison: Overlap!
- Focus on physical description



Cross-Domain: ArtFrame & RareMat

Result:

- Cross-domain working groups on topics of shared interest
- Shared in-person 2-day meetings at Columbia



In Person Meetings

In Person Meeting 1: March 2017 at Columbia University

Modeling sprint align and coordinate ontology development work with overlapping issues with the Rare Materials and Art Properties groups.

Break-out groups for specific topics: Notes & Annotations, Physical Description, Provenance

In Person Meeting 2: January 2018 at Columbia University

Workshops: Modeling, Finding existing terms, OWL, Protégé & hand coding

Modeling Workshop In Person Meeting 2018



Recommendations Posted to GitHub

Custodial History : Provenance Ownership Model

LD4P ArtFrame and RareMat Ontology Groups

Created: 2017-10-04 Revised: 2018-07-03

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- [Summary of the Model](#)
- [Diagram](#)
- [RDF Sample](#)
- [Requests to Library of Congress](#)
- [Term Specifications](#)
- [Areas for Future Research](#)

Overview

Understanding the ownership or custodial history of an item is fundamental in understanding its contextual and historical importance as well as during valuation, when applicable.

Current descriptive practice includes these data as strings. For instance: "Unrecorded until purchased in 1893 from Agnew's by J. Pierpont Morgan; sold by him at auction in 1905; Christie's 1910; Pres. and Mrs. Nicholas Murray Butler; donated by their estate to Columbia in 1955."

Collaborative Tasks: Writing the Ontology

Volunteers created OWL files based on collaboratively created recommendation documents

Several of those volunteers had never coded an OWL file prior to the workshop

```
<owl:Class rdf:about="https://w3id.org/arm/core/ontology/0.1/AccessionNumber">
  <rdfs:label xml:lang="en">Accession number</rdfs:label>
  <skos:definition xml:lang="en">
    Numeric, alphanumeric, or other identifying codes assigned when an art object, book, or other item enters the collection of a museum, library, or other repository. Such codes are unique within the set of codes, and specifically identify the particular item at hand. The numbers may be marked on the objects or not.
  </skos:definition>
  <rdfs:subClassOf rdf:resource="http://id.loc.gov/ontologies/bibframe/Identifier"/>
  <skos:editorialNote xml:lang="en">
    Deprecate this class when it is defined in BIBFRAME.
  </skos:editorialNote>
  <dcterms:issued>2018-04-27T00:00:00-04:00</dcterms:issued>
  <dcterms:modified>2018-04-27T00:00:00-04:00</dcterms:modified>
```

Collaborative Tasks: Implementing the Ontology

- Developing the application profile & form building for VitoLib
(entire group decision making, one person responsible for SHACL coding)
- Questions to be answered:
 1. What property groups make sense?
 2. On which workform should they appear? (work, instance and/or item)
 3. In which order?
 4. Which art specific activities (roles) do we need? (work, instance and/or item)
 5. Where do we need drop-down lists?
 6. Controlled vocabularies
- Answers recorded in “Decisions Document”

Collaborative Task: Application Profile

Instance:

InstanceOfWork

InstanceTitleGroup

InstanceIdentifierPropertyGroup

InstanceActivityPropertyGroup

InstanceCopyrightPropertyGroup

InstanceTypePropertyGroup

InstancePhysicalDescription

InstanceGenreFormPropertyGroup

InstanceNotePropertyGroup

InstanceBibliographicCitationPropertyGroup

InstanceRelationshipsPropertyGroup

InstanceHasItemPropertyGroup

Collaborative Learning

Question for participants: What has worked well? What could we have done differently?

- Great learning experience for everyone.
- In-person meetings were especially valuable as we developed our skill sets together. We accomplished a lot online but meeting in person (and the interaction with RareMat) was critical.
- Kept moving forward in coordination with the rest of LD4P
- Achieved a good judgment-free environment where people were free to ask questions and different people's expertise complemented each other.

Lessons Learned

Don't overschedule -- everybody is busy already

Keep it simple -- Use communication tools that everybody is comfortable with

What happens in Vegas ... Not everyone is comfortable with everything being public

Listen!

Let people pick the tasks they are comfortable with -- but include anybody who wants to regardless of prior knowledge

Make sure tasks are not always assigned to the same volunteers

Have tasks built on each other

Celebrate your successes!

Expanding to Another Domain (Archives!)

The Art Libraries Society of North America (ARLIS/NA), Rare Books and Manuscripts Section of ACRL (RBMS), and Society of American Archivists (SAA) have formed a joint task force to refine, publish, and own a BIBFRAME ontology extension for the description of special collections materials. This work will build upon the [Art and Rare Materials BIBFRAME Ontology Extension](#) established as part of the first phase of the Andrew W. Mellon funded Linked Data for Production (LD4P) project, 2016-2018; however, this task force work is independent of the LD4P projects.

(From: <https://www2.archivists.org/news/2019/call-for-volunteers-art-and-rare-materials-bibframe-ontology-extension-arlis-rbms-saa-join>)

Questions?

