2 March 2021

OCLC and Linked Data: The transition to contextual metadata

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Product Manager,
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John Chapman
Senior Product Manager,
Metadata Strategy and Operations

Nathan Putnam
Director,
Metadata Quality

Shane Huddleston
Product Manager,
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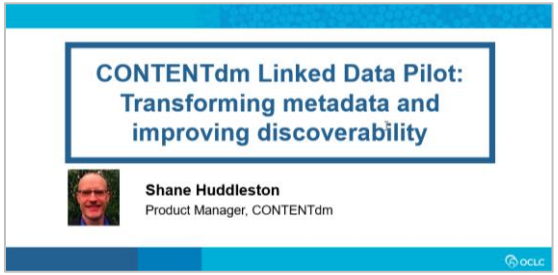

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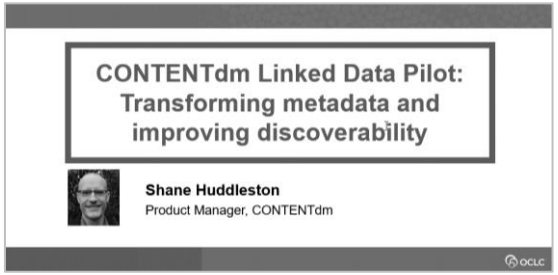

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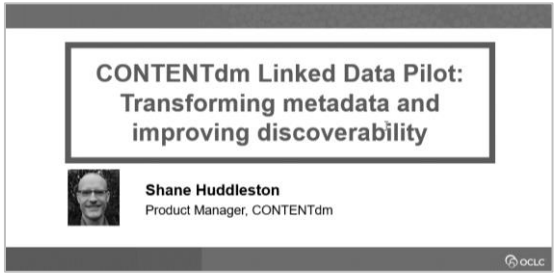

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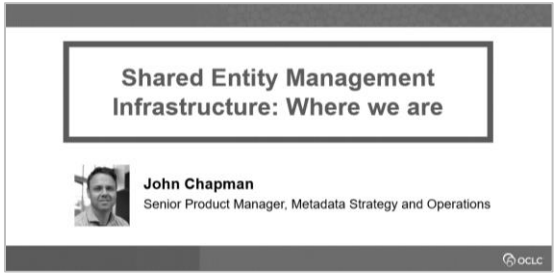

Nathan Putnam
Director,
Metadata Quality

CONTENTdm Linked Data Pilot: Transforming metadata and improving discoverability

Shane Huddleston

Product Manager, CONTENTdm

Building on our experience

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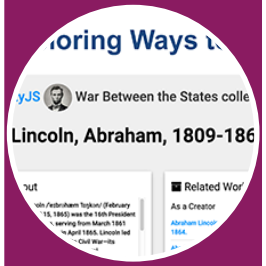
Publish linked data - FAST, VIAF, WorldCat (2009 -)



EntityJS Research Project (2013)

WorldCat
Person Entity Lookup Pilot

Person Entity Lookup Pilot (2014)

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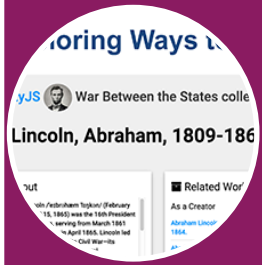

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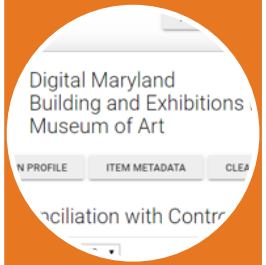

CONTENTdm Metadata Refinery (2015-16)

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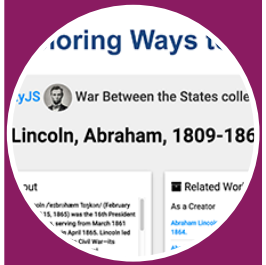

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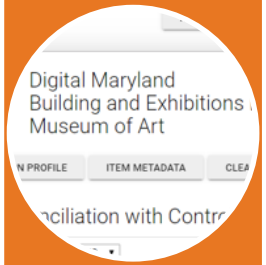

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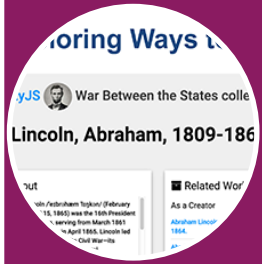

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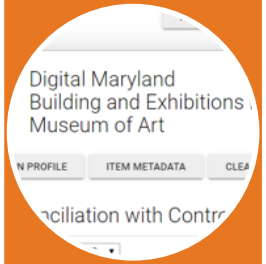

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Entity Management Infrastructure (2020-21)

OCLC

Project Passage (2017-18)

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Entity Management Infrastructure (2020-21)

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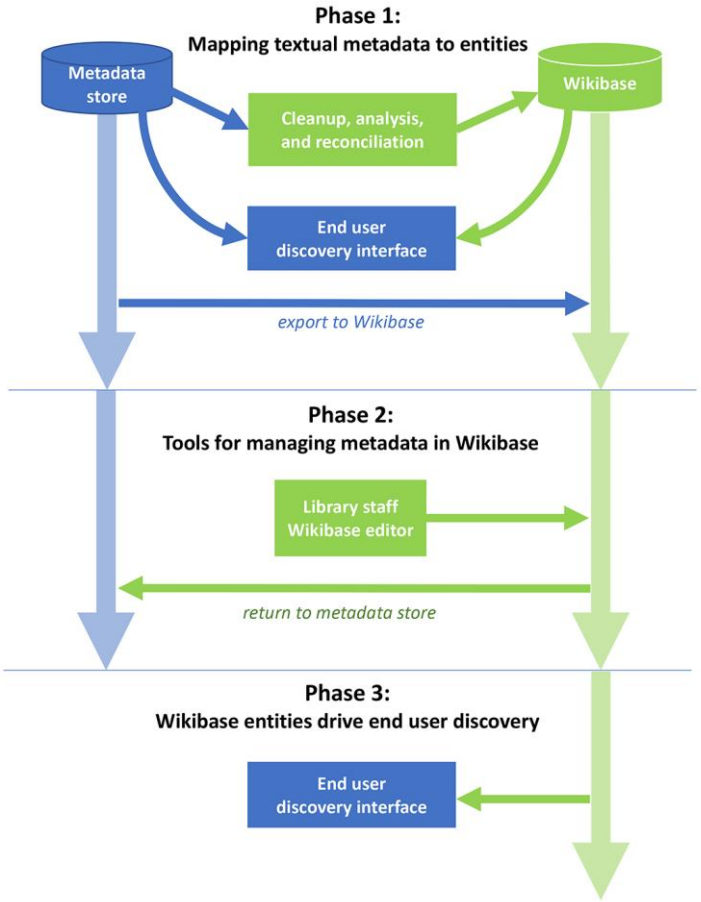
Overview of the pilot

- Three-phase, one-year project
- Leveraging what we've learned from past linked data projects
- Unique digital items are well-suited to entity-based description
- Working with real data in partnership with libraries



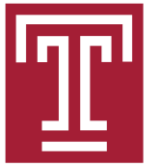
The partners

THE HUNTINGTON
Library, Art Museum, and Botanical Gardens

CLEVELAND PUBLIC LIBRARY
www.cpl.org

MINNESOTA
DIGITAL LIBRARY

UNIVERSITY
OF MIAMI



TEMPLE
UNIVERSITY

The report

- Published in 2021
- Summarizes the activity of the project over the year
- Key findings and conclusions

oc.lc/transform-linked-data

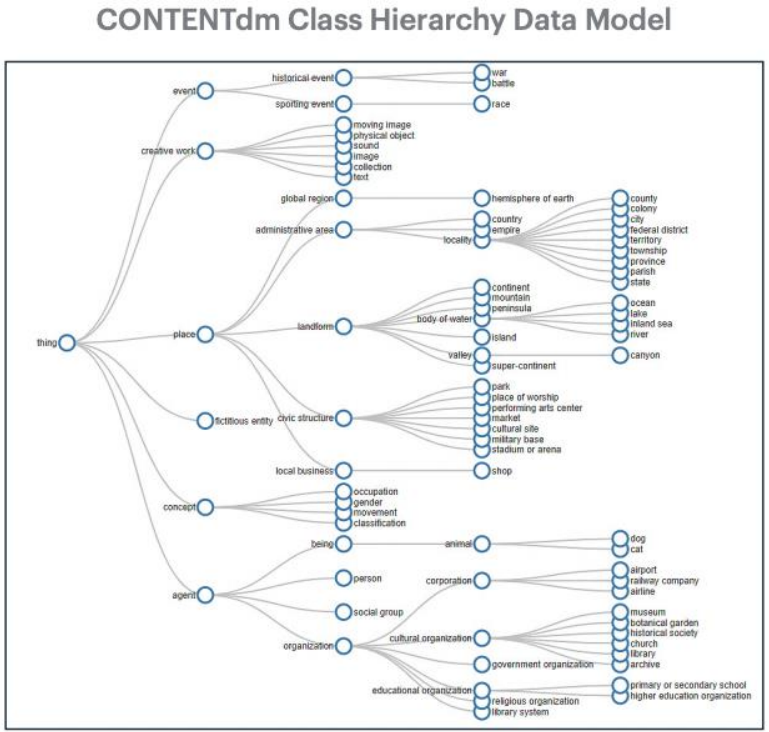
KEY FINDINGS

Benefits of a linked data environment

- Manage richer metadata with greater efficiency
- Add contextual information that better reflects knowledge in the real world
- Help researchers achieve a fuller understanding of collection materials to increase engagement

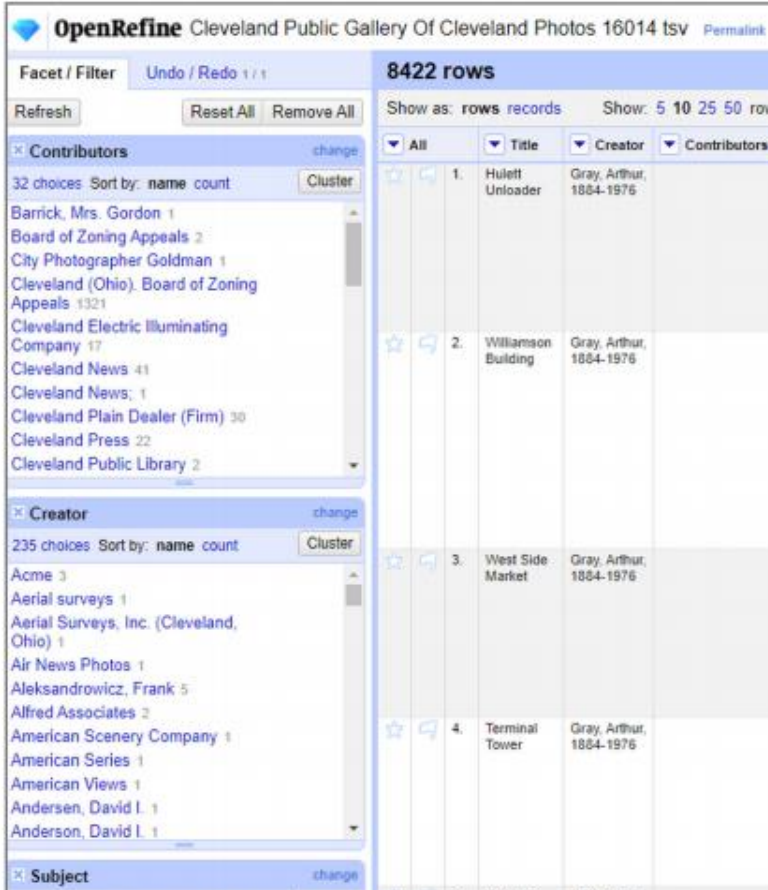
Potential to develop a shared data model

- Headings are associated with linked data entities and reused
- Relationships between entities support connecting and aggregating related items
- Connecting items can make management more efficient and discovery more intuitive



Challenges

- Converting existing text headings will be difficult to do at scale
- Analyzing, transforming, and reconciling is beyond the reach of a single central agency
- Data transformation needs to be shared and workflows decentralized



Success through cooperation

- Linked data transformation is a paradigm shift requiring long-term strategies
- Working partnerships represent strength in numbers
- Sharing practices and expertise are critical

oc.lc/transform-linked-data

Shared Entity Management Infrastructure: Where we are

John Chapman

Senior Product Manager, Metadata Strategy and Operations

Project Passage (2017-18)

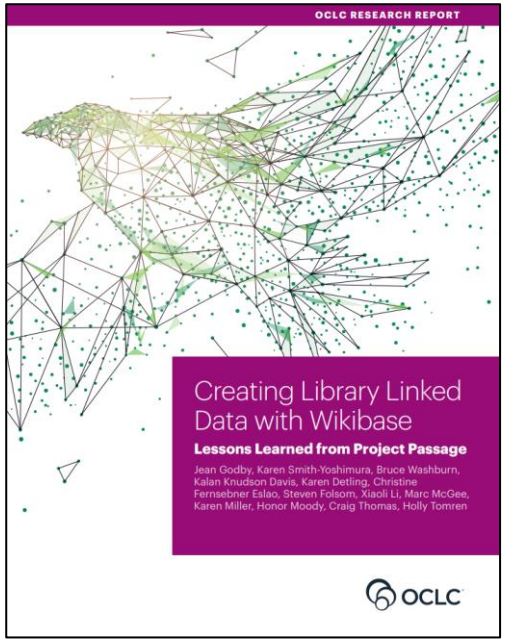
CONTENTdm Linked Data Pilot

CONTENTdm Linked Data Pilot (2019-20)

Entity Management Infrastructure (2020-21)

OCLC

Feedback from OCLC member libraries

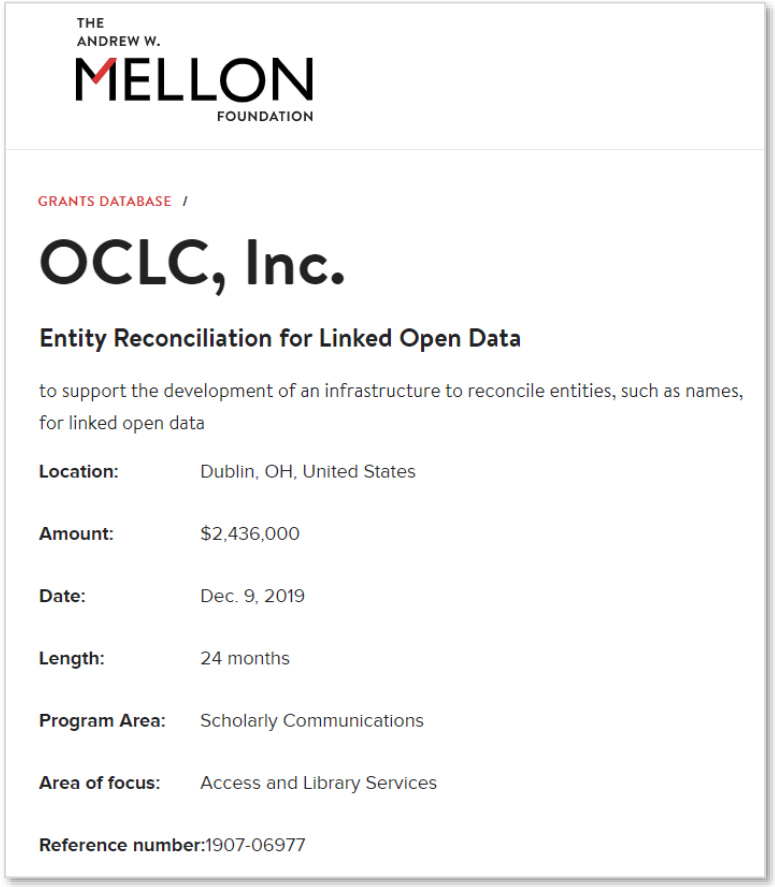


- Provide persistent identifiers relevant to library workflows
- Enable the creation of new identifiers within metadata management workflows
- Provide interfaces and ecosystem to create native linked data descriptions
- Seed the web with persistent identifiers
- Provide broad reconciliation across vocabularies & ontologies

oc.lc/passagereport

Project overview

- Two-year, $2.436M grant, matched by OCLC
- Production infrastructure for Work and Person entities
- Support for multiple descriptive and encoding standards
- Use of persistent identifiers
- **Most importantly: a collaboration with the library community**



THE ANDREW W. MELLON FOUNDATION

GRANTS DATABASE /

OCLC, Inc.

Entity Reconciliation for Linked Open Data

to support the development of an infrastructure to reconcile entities, such as names, for linked open data

Location: Dublin, OH, United States

Amount: $2,436,000

Date: Dec. 9, 2019

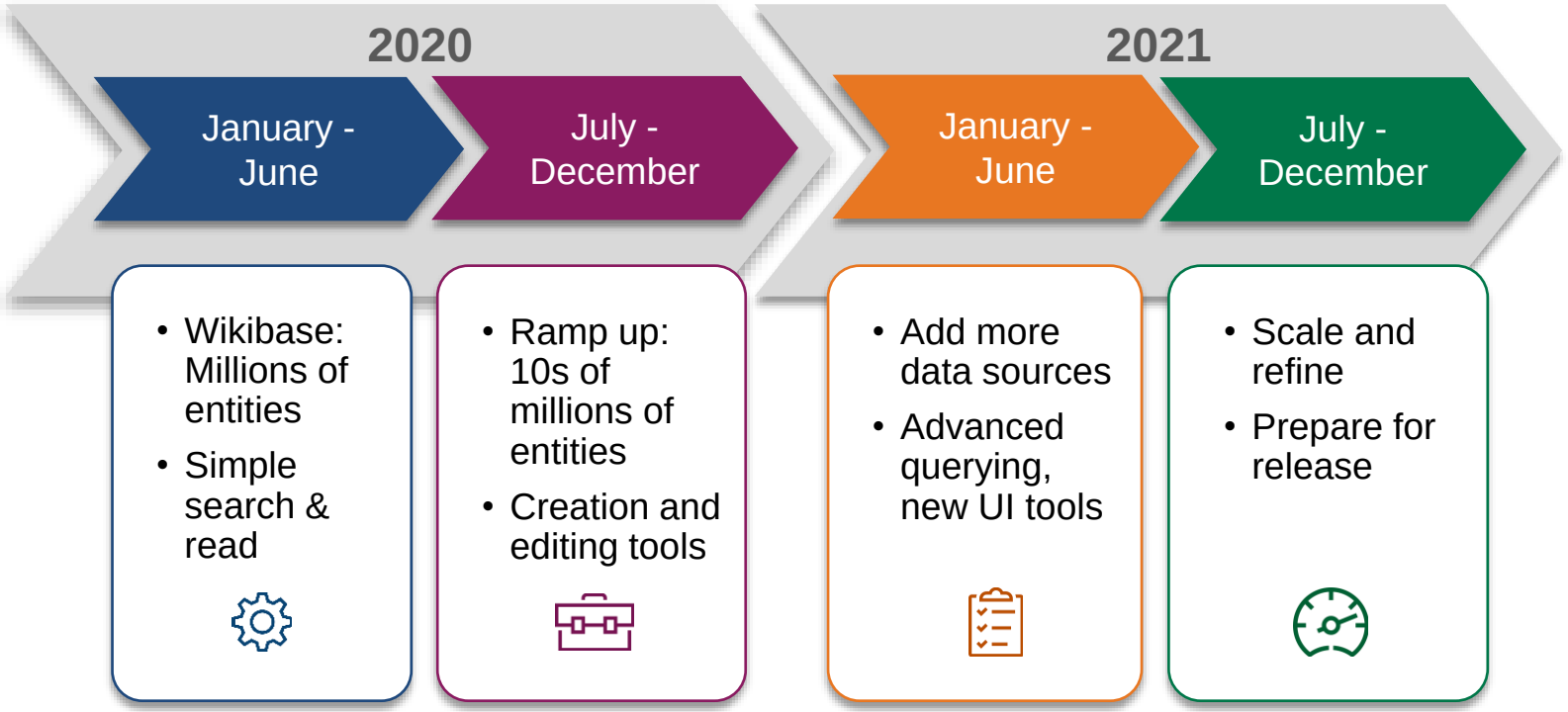
Length: 24 months

Program Area: Scholarly Communications

Area of focus: Access and Library Services

Reference number: 1907-06977

Timeline of activities



Production release

OCLC

Advisory group members

WHAT IS IT?

Entity Management Infrastructure (2020-21)

What is the “Infrastructure”?

- Community-curated Knowledge Graph
- Integration of facts from library data from around the world
  - Seeded from the knowledge contained in bibliographic authority files, WorldCat creative works, and controlled vocabularies
- Provenance and context of the knowledge claims as the facts come from a variety of heterogeneous sources
- Published following linked data principles, a set of APIs and query endpoints

Done in 2020

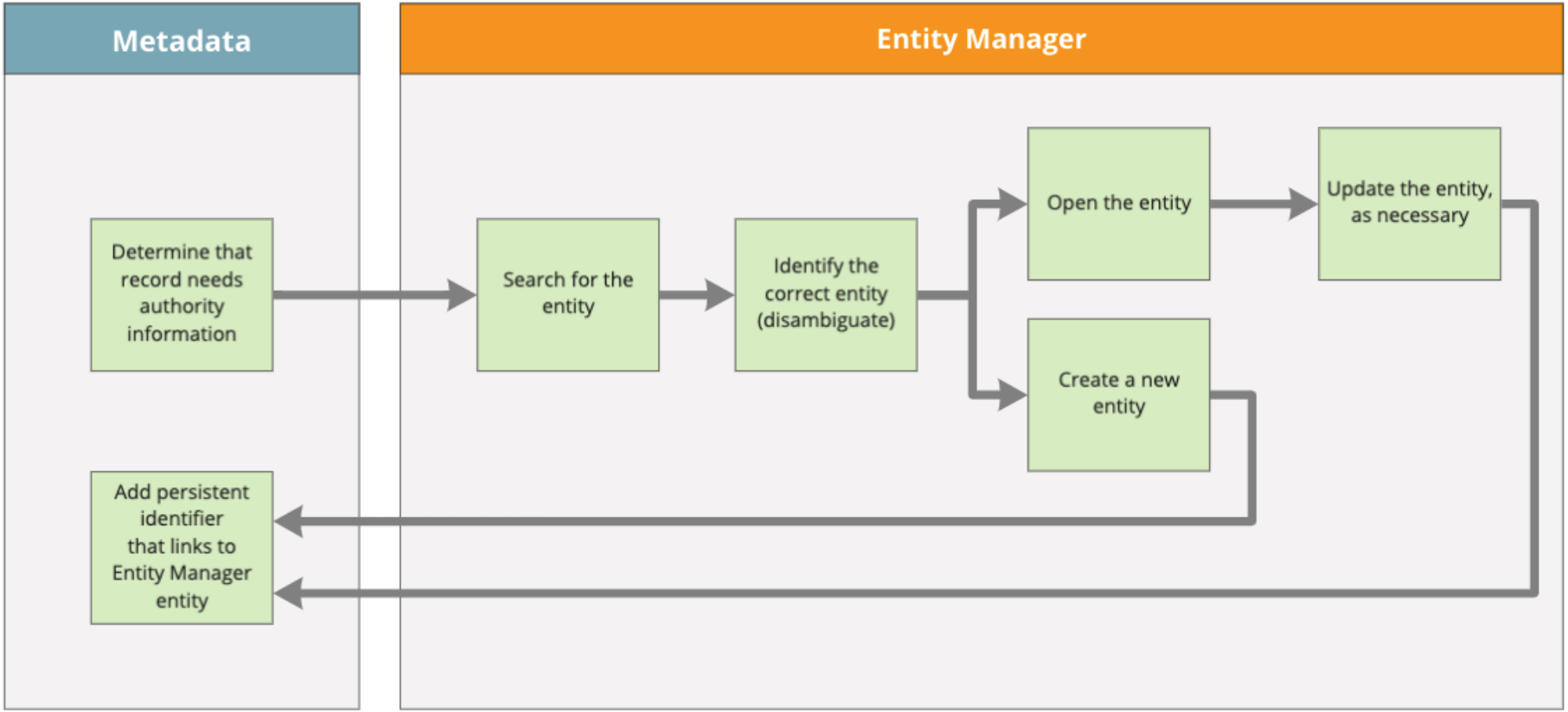
- Explored an entity pipeline
  - Extracted, transformed, loaded multiple sources to graph
  - Studied the landscape (probabilistic/fuzzy matching, gazetteer)
- Established stable, repeatable knowledge hosting
  - Continued the learning with Wikibase
  - Focused on Loading at scale
- Explored iterative creation/curation at scale
  - Measures, models, tools

Next steps on architecture, systems

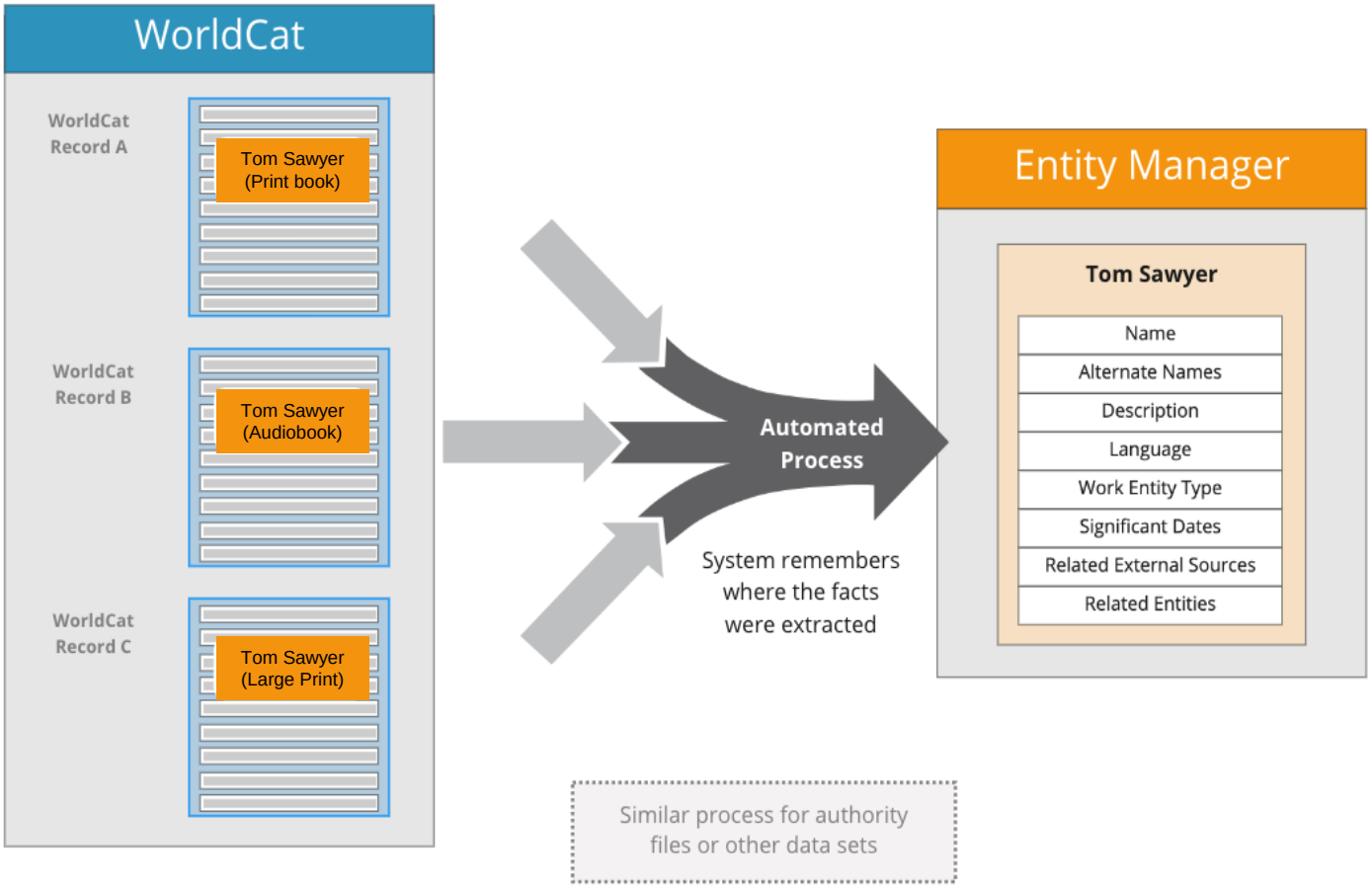
- Multilingual approaches
- Moving beyond the Wikibase structure
- Integrating input on data models
- Building out curation support

WORKFLOWS AND LINKING

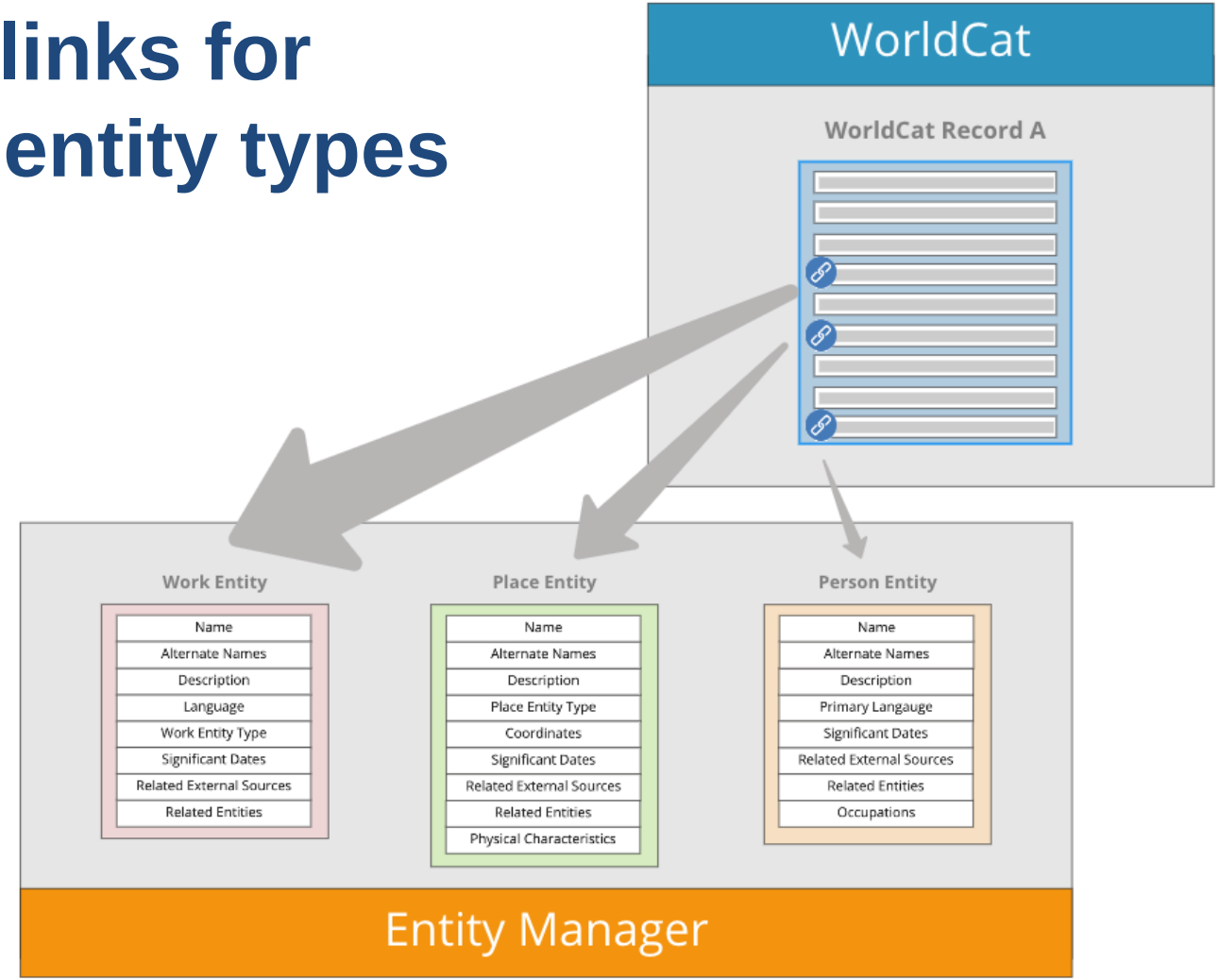
Example workflow



How entities are built from WorldCat data



Multiple links for multiple entity types



WHAT HAVE WE LEARNED?

What we have learned so far

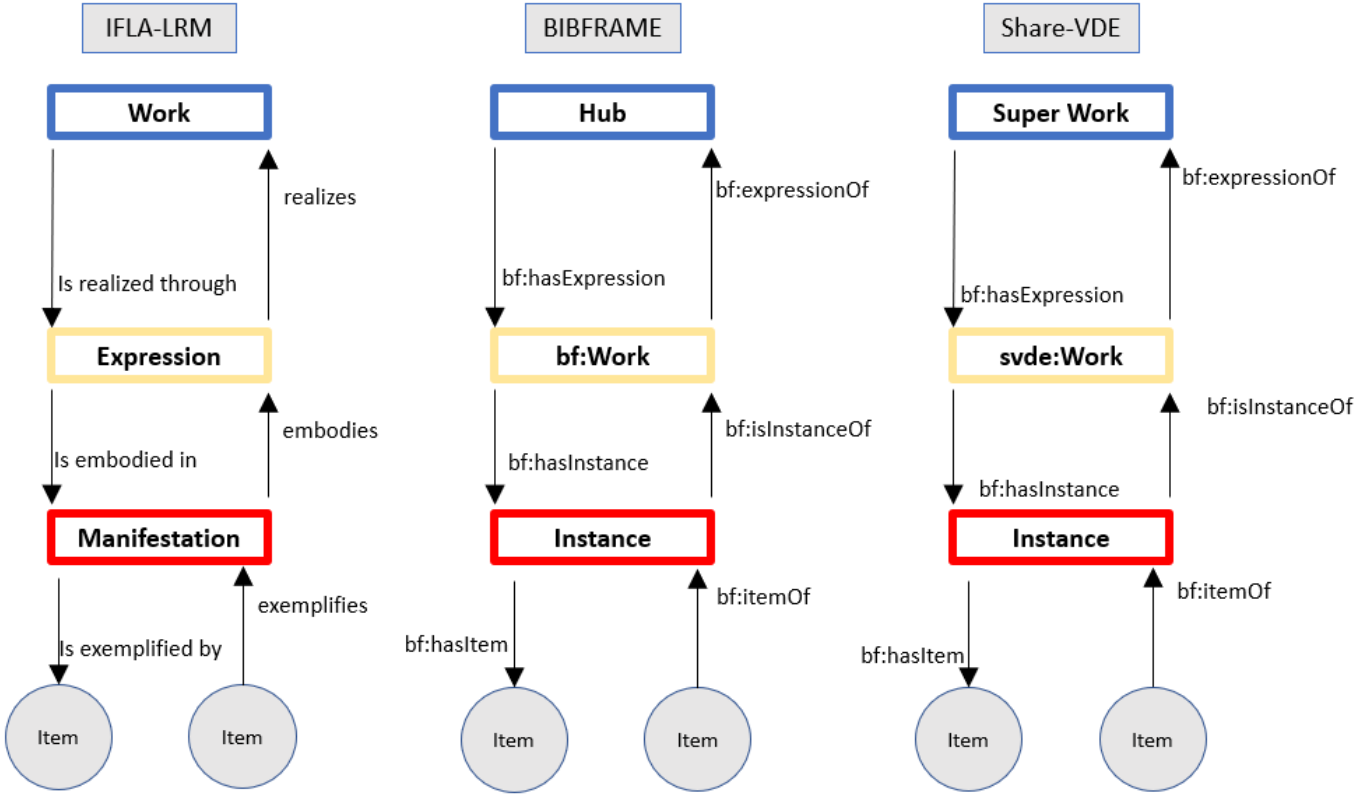
- Need to increase capabilities for monitoring quality, breadth, depth
- APIs, machines as “users”
- Need redundancy, multiple environments, and robust testing capabilities
- Need to engineer loading and ingest technologies

An overview of OCLC's work model within the entity management infrastructure

Nathan Putnam

Director, Metadata Quality

Model comparisons



IFLA-LRM

IFLA's Library Reference Model is a conceptual entity–relationship model developed by the International Federation of Library Associations and Institutions that expresses the "logical structure of bibliographic information".

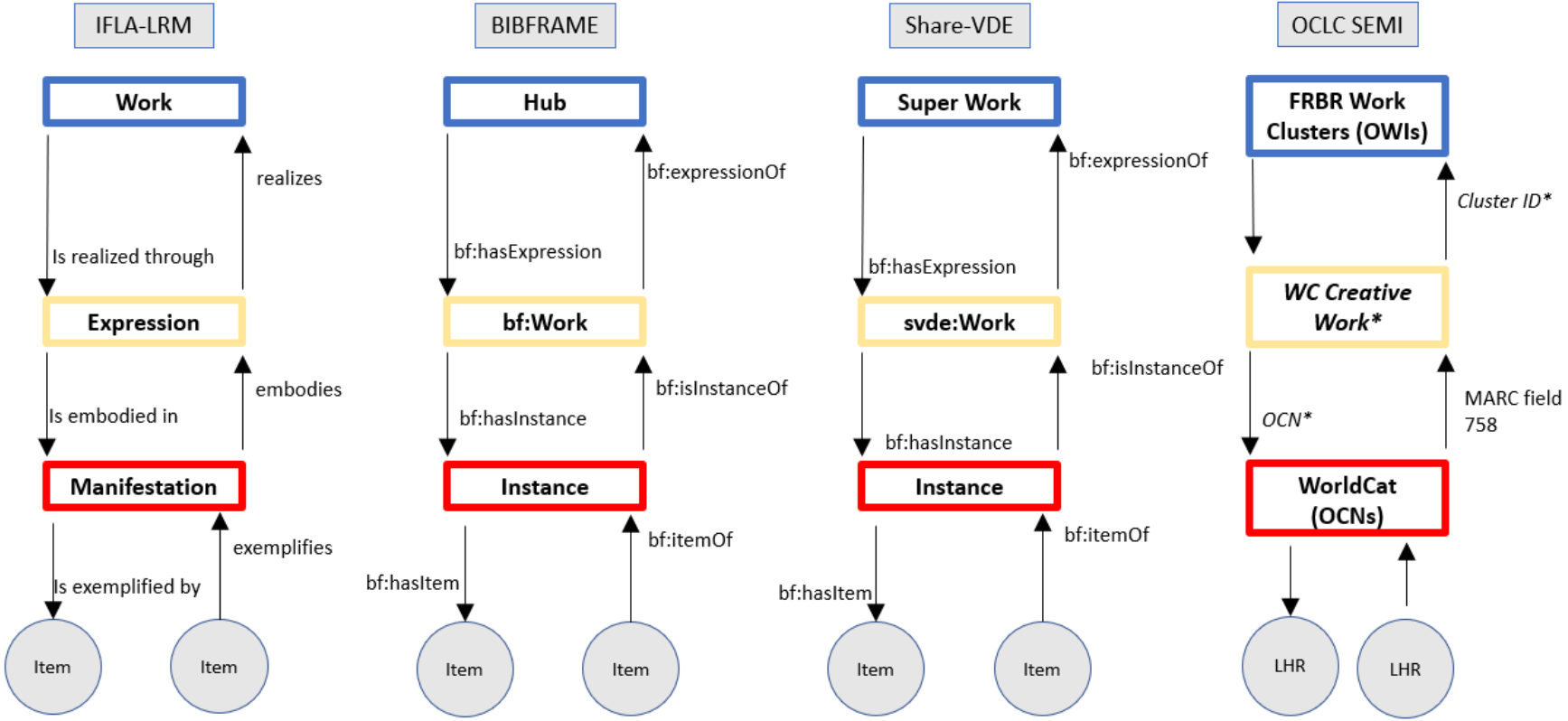
BIBFRAME

BIBFRAME is a data model for bibliographic description. BIBFRAME was designed to replace the MARC standards, and to use linked data principles to make bibliographic data more useful both within and outside the library community.

Share-VDE

Share-VDE is a library-driven initiative which brings together the bibliographic catalogues and authority files of a community of libraries in a shared discovery environment based on linked data.

Model comparisons



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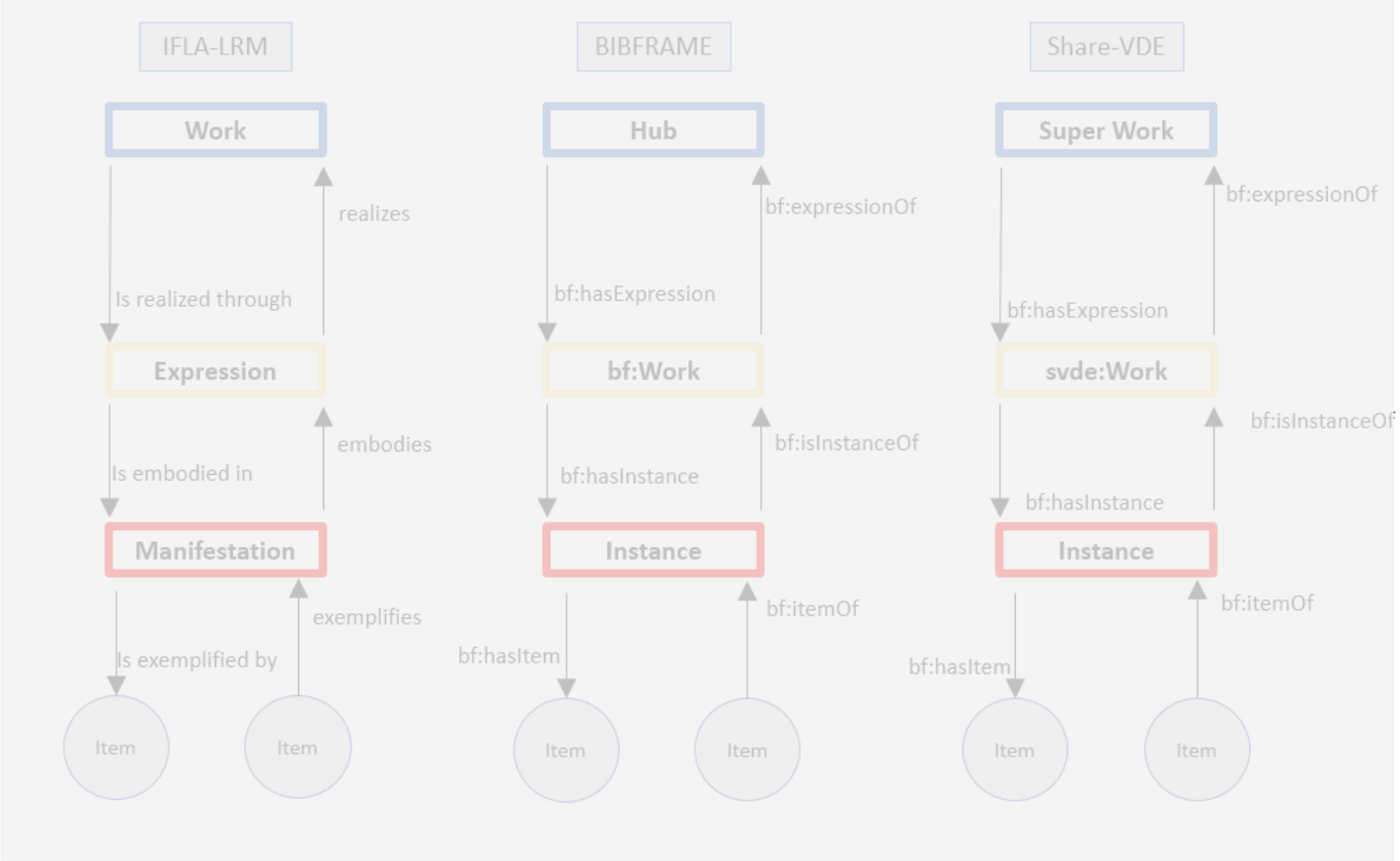
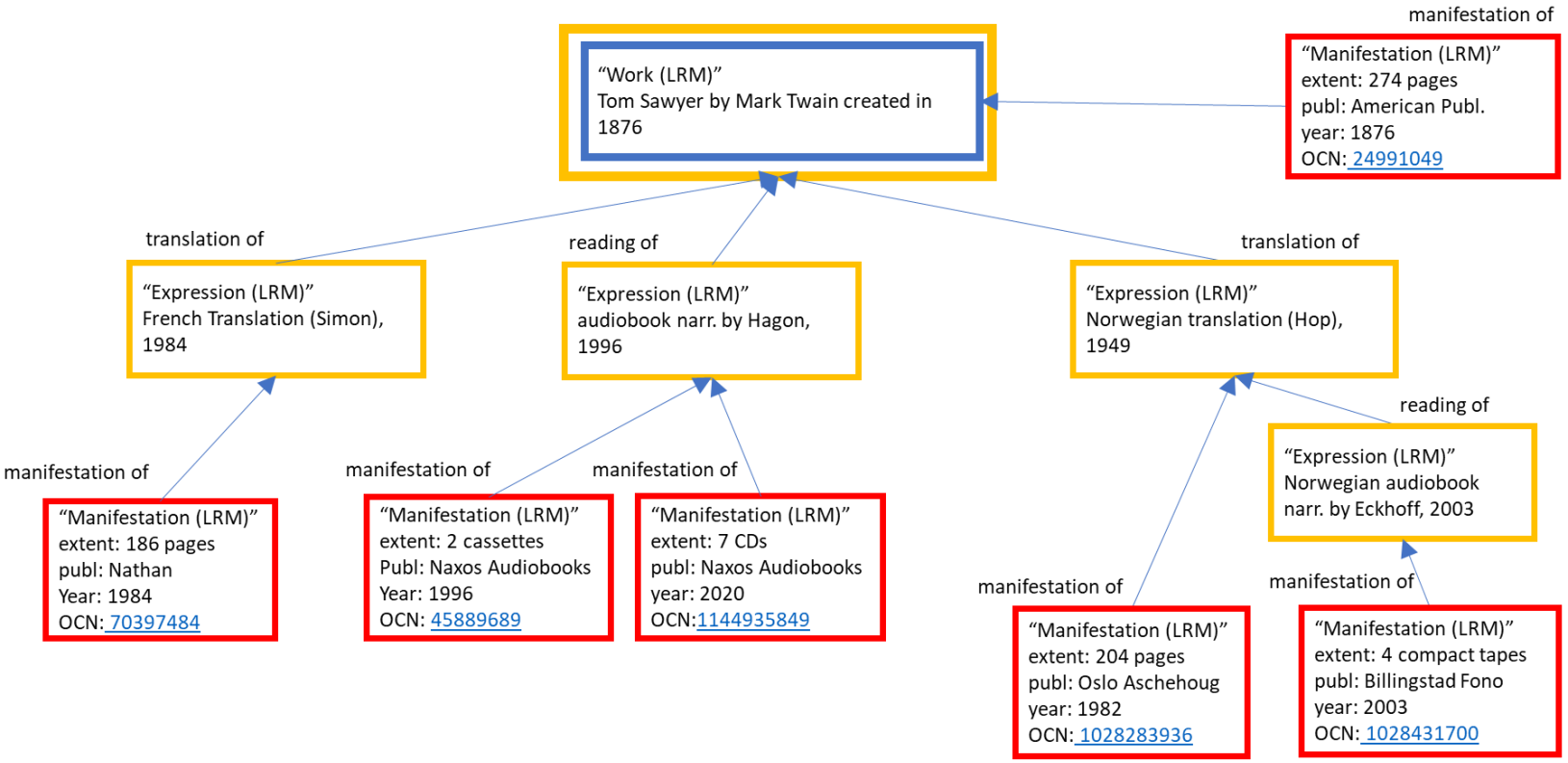


Tom Sawyer example



Questions?

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John Chapman

Nathan Putnam

LinkedData@oclc.org

Because what is known must be shared.®

OCLC