Bringing an interoperable model to collaborative research catalogues

Jio Institute International Workshop, April 9th 2021

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Michele Casalini - Casalini Libri
The story so far

Casalini Libri has a long tradition as supplier of publications and provider of bibliographic descriptions of resources.

The workflow of cataloguing services has been based for decades on MARC, the major bibliographic standard in use in the library domain.

The Semantic Web imposed a change in library practices, i.e. in the way libraries manage and share their catalogue records.

Share-VDE was initiated to support libraries in adapting their workflows to the new Web standards.
Linked data: what it is and why we need it

In 2006 Tim Berners-Lee described linked data:

The Semantic Web isn’t just about putting data on the web. It is about making links, so that a person or machine can explore the web of data. With linked data, when you have some of it, you can find other, related, data

1 [Linked Data - Design Issues](#)
Linked data: what it is and why we need it

In a nutshell:

- data carry information
- LD creates relations and connections between data
- this is the way data can be managed in the internet
- connections facilitate use of data and knowledge for everyone
Structured information and interconnections

We want to apply to library catalogues the same data structure and standards used by the web

The library community is adopting LD solutions to support visibility of their catalogues

Catalogues of libraries, museums, archives etc. can be connected, and resources are related to each other

Source: Linked Open Data for Cultural Heritage
Share-VDE in a nutshell

Since 2016, Share-VDE has carried on R&D work to facilitate libraries in the transition from MARC-based cataloguing to linked data

this expanded over time from a pilot project to Share-VDE and the Share family of initiatives

https://wiki.share-vde.org
https://www.share-vde.org
A cooperative initiative

Share-VDE is a collaborative endeavour based on the needs of libraries, developed and supported by:

- the joint effort of the Share-VDE Advisory Council and of the Working Groups;

- Casalini Libri, provider of bibliographic and authority data as member of the Program for Cooperative Cataloguing;

- @Cult, provider of ILS, Discovery tools and Semantic web solutions for the cultural heritage sector;

- the vision of Linked Data for Production initiative with special endorsement of Stanford;

- with input and active participation from an international group of research libraries.
The Share family map around the world

Share-VDE: over 20 university and national libraries in the US, Canada and Europe

Share family: connected projects in other communities Share-Catalogue, Kubikat-LOD
The evolution over time: towards Share-VDE 2.0

**Optimisation of LD workflows in production**

- Conversion from MARC to RDF using BIBFRAME and other ontologies
- SVDE authoritative Cluster Knowledge Base
- Original MARC records enriched with URIs from different sources
- RDF data enriched with URIs from different sources

**Data storage, indexing and queries**

- Internal PostGres RDBMS
- Triplestore with SPARQL query endpoint
- Solr inverted index

**Data publication and exchange**

- Union catalogue and advanced entity discovery platform
- API layer for CRUD operations
- Interoperability layer with external systems (e.g. LD4P)

**Advanced services**

- New generation authority control
- Shared entity editing tool for update and management of linked data entities: [J.Cricket editor](#)
- Apply Share principles to other domains (e.g. archives, museums, music)

More on the latest achievements
The diffusion in the worldwide communities

Share-VDE members
connecting university and national library catalogues in the US, Canada and Europe

Share-VDE
connections within the library community
Library of Congress BIBFRAME adopters
IFLA
LD4P
OCLC
FOLIO

Share Family
connections extend across sister projects
Share-VDE
Share-Catalogue
Share-Music
Kubikat-LOD
Parsifal
PCC data pool
Ancient books

Share Family
connections with the wider web communities
Wikidata
Schema.org
IIIF
GeoNames
Getty LOD
ISNI
ISSN
Participation and autonomy in the Share Family

- Share-Music
- Share-Catalogue
- Share-VDE
- PCC data pool
- Ancient books
- Parsifal
- Share-Art
- Kubikat-LOD
Common Share User Interface

Share-VDE skin portal
Share-Catalogue skin portal
Other skin portals

Share Family Index

Share-VDE Sapientia Cluster Knowledge Base
Share-Catalogue Cluster Knowledge Base
Kubikat Cluster Knowledge Base
URBE Cluster Knowledge Base
PCC Cluster Knowledge Base

Share-VDE original data (bib/holding)
Share-Catalogue original data (bib/holding)
Kubikat original data (bib/holding)
Parsifal original data (bib/holding)
PCC original data (bib/holding)

Share-VDE tenant
Share-Catalogue tenant
Kubikat tenant
Parsifal tenant
PCC tenant

Enrichment with external sources (VIAF, ISNI, LCSH, FAST etc.)
A collaborative community can produce a gravitational wave of energy that expands...
... and meets other communities, with other energy to Share
Community engagement: SVDE working groups

Libraries members of SVDE working groups constantly contribute with their Subject Matter Experts to requirements gathering, analysis and feedback to developments.
Community engagement: library community

Extended community: collaboration with heterogeneous initiatives and institutions in the library domain

Scientific value: sharing of data and services in different technological environments and diverse bibliographical and cultural context
Community engagement: SVDE sister projects

Homogeneous community: collaboration with projects and institutions applying the Share-VDE principles and technologies

Scientific value: shared vision whereby each initiative contributes with tools and practices that benefit everyone
Community engagement: World Wide Web

Mixed community: cross-domain cooperation across the Web community

Scientific value: same solutions serve scopes of different communities, data reuse
Real examples of cooperation
Entity models harmonisation

IFLA-LRM

- Work
  - Expression
    - Manifestation
      - Item
      - Item
    - is embodied in
    - embodies
    - is exemplified by
    - exemplifies

BIBFRAME

- Hub
  - Work
    - Instance
      - Item
      - Item
    - bf:hasInstance
    - bf:instanceOf
    - bf:ItemOf

Share-VDE

- Opus
  - Work
    - Instance
      - Item
      - Item
    - bf:hasInstance
    - bf:instanceOf
    - bf:ItemOf
Facilitate interoperability between entity models

Participation in LD4P3: the challenge of data models interoperability between SVDE and Sinopia

See the SVDE entity model compared to BF and LRM and an example of application of the model.
New Authority Services generation
Cooperation and autonomy

SVDE localisation for the University of Pennsylvania
API integration with other projects

- Usability
- Sustainability
- Reliability
- Integration
- Testability
- Scalability
- Security

SVDE tenants
LD4P
PCC
folio+
Schema.org and web technologies

Three main tasks

Public User Interface (HTML)

Schema.org Structured Data (Embedded in HTML)

Linked Open Data Source (Direct URI Requests)

Credits: Richard Wallis, March 2021
### How J.Cricket interacts with Wikidata

#### Connect to external IDs

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<th>OC LC</th>
<th>VIAF</th>
<th>Wikidata</th>
<th>LC</th>
<th>GND</th>
<th>BNF</th>
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<td></td>
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<td></td>
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</table>
| American basketball player · Born 1989 | | | | | | | | Q336030
| **Isaiah Thomas** (or Isaiah Thomas, Sr. · I. Thomas · I.T. T.) | | | | | | | |
| Massachusetts printer, publisher and journalist · 1749-1831 | | | | | | | | Q536543

*Create new wikidata item for “John Doe”*

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**Isaiah Thomas**

American basketball player

- Sex or gender: Male
- Country of citizenship: United States of America
- Country for sport: United States of America
- Birth name: Isaiah Jamar Thomas (English)
- Date of birth: 7 February 1989
- Place of birth: Tacoma
- Occupation: Basketball player
- Position played on team / speciality: Point guard

[Connect to this ID](#)
Share-VDE 2.0: Entity discovery system

Work page
Staff view, English

IQ84

IQ84 is a dystopian novel written by Japanese writer Haruki Murakami, first published in three volumes in Japan in 2009-10. It centers on a woman named Kanae who begins to notice strange changes occurring in the world. She is quickly caught up in a plot involving Artidoga, a religious cult, and more. — Wikipedia

Efficient staff workflows
Merges, add and remove relationships between entities, create new entities and more.

Easy-to-use editing
Efficient keyboard shortcuts
Designed from scratch for linked data
Share-VDE 2.0: Agent entity

Hu Shih
1891-1962, Chinese philosopher, essayist and diplomat.

Hu Shih, also known as Hu Shi in English references, was a pioneer thinker, Chinese philosopher, essayist and diplomat. He is widely recognized today as a key contributor to Chinese education and language reform in his advocacy for the use of 'universal Chinese'. His works influenced the May Fourth Movement, one of the leaders of China's New Culture Movement, was a... — Wikipedia

Works by Hu Shih

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<th>Source</th>
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<th>Format</th>
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<td>胡适</td>
<td>Chinese</td>
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Share-VDE 2.0: Agent entity

Multilingual at its core
The system has been built from the ground up to work for a global audience.

- Multiple languages
- Multiple scripts

Entity knowledge panel
Easy to customize and embed on other websites
- Embeddable
- Customizable
- Easy to use

Hu Shih

1851-1922, Chinese philosopher, essayist and diplomat. He is widely recognized today as a key contributor to Chinese liberalism and language reform in Nineteenth for the use of written... — Wikipedia
Share-VDE 2.0: multilingualism
No one can face on their own the challenges of this global revolution
Thank you!

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michele@casalini.it

https://wiki.share-vde.org

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