Share-VDE

Share Virtual Discovery Environment in Linked Data

https://svde.org
info@svde.org
https://wiki.svde.org/
The initiative and its goals
From pilot project...

**Phase 1**
- October 2016 – January 2017
- 1985 and 2015 imprint titles; 2,249,397 bib-records and 3,601,327 auth-records.

**Phase 2**
- March 2017 – May 2018
- The entire catalogues for all resource types; 94,378,728 bib-records and 24,150,238 auth-records.

**Phase 3**
- Production environment: January 2019 - in progress
- Share-VDE triplestore currently contains 24 billion quads of converted data and 400 million triples of clustered entities.
Share-VDE is a library-driven initiative to establish an effective working environment for the use of linked data by libraries within a global context.

Library data are enriched with additional information and relationships, and bibliographic and authority data are converted into linked data.

A virtual discovery platform with the structure based on BIBFRAME data model is created to simplify the way in which that data is consumed.

The network of resources created is the basis for the Share-VDE Sapientia Cluster Knowledge Base, the common authoritative source of clusters accessible in RDF, open to the entire Share-VDE community.
Share-VDE is a collaborative endeavour based on the needs of libraries, developed 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;
- influenced by the vision of the **Linked Data for Production initiative**;
- with input and active participation from an international group of research libraries.
Share-VDE overall goals

- **Enrichment** of MARC records with URIs
- **Conversion from MARC to RDF** using the BIBFRAME vocabulary (and other ontologies)
- **Data publication** according to the BIBFRAME data model
- Batch/automated **data updating** procedures
- Batch/automated **data dissemination** to libraries
- Progressive implementation of **use cases**, with priorities defined by the Share-VDE community
The Share family of initiatives based on linked data currently comprises Share-VDE (Virtual Discovery Environment), Share-Catalogue (the Italian network of university libraries applying the Share principles), Share-Art and the Kubikat-LOD project of the Art History libraries of the Max Planck Institut, and other projects. The different characteristics of each field are a useful asset that can be used to the advantage not only of the Share family as a whole, but for each single discipline.
The Share family map around the world
The Share family participating institutions

Share-VDE Full members - university libraries
- Duke University
- New York University
- Stanford University
- University of Alberta
- University of Chicago
- University of Michigan at Ann Arbor
- University of Pennsylvania
- Yale University

Share-VDE Full members - national Libraries
- Library of Congress
- National Library of Finland
- National Library of Norway
- Smithsonian Institution
- The British Library

Share-VDE Full members - university libraries
- Cornell University
- Frick Art Reference Library
- Harry Ransom Center Texas A&M
- Harvard University
- National Library of Medicine
- Northwestern University
- Princeton University
- University of California Davis
- University of California San Diego
- University of Colorado at Boulder
- University of Minnesota
- University of Texas A&M
- University of Washington

Share-Catalogue Institutions
- Università degli Studi di Napoli “Federico II”
- Università degli Studi della Basilicata
- Università degli Studi di Napoli L’Orientale
- Università degli Studi di Napoli Parthenope
- Università del Salento
- Università degli Studi di Salerno
- Università degli Studi del Sannio RCost
- Università degli Studi della Campania “Luigi Vanvitelli”

LD4P Cohort members
- Università degli Studi di Napoli “Federico II”
- Università degli Studi della Basilicata
- Università degli Studi di Napoli L’Orientale
- Università degli Studi di Napoli Parthenope
- Università del Salento
- Università degli Studi di Salerno
- Università degli Studi del Sannio RCost
- Università degli Studi della Campania “Luigi Vanvitelli”

Share-Art (Kubikat-LOD) project
- Max-Planck-Institut:
  - Kunsthistorisches Institut in Florenz
  - Biblioteca Hertziana Rome
- Central Institute of Art History Munich
- Deutsches Forum für Kunstgeschichte Paris

Share-Music project
- Bayerische Staatsbibliothek
- Library of Congress
- Stanford University

See also
Why Share-VDE

Facilitates cataloguing and exposition of bibliographic records through a linked data based approach.

The platform www.svde.org enhances the discovery potential of library resources to scholars and students and unveils information that would otherwise have been hidden in archives → access to a rich amount of data that can be exported and re-imported by the participating institutions.

It’s an authoritative source thanks to the data enrichment with external URIs (ISNI, VIAF, Wikidata etc.) and internal ones (the URI created by Share-VDE for each entity).

Enhances the cooperation with the Linked Data for Production (LD4P) initiative and the Program for Cooperative Cataloging (PCC) for the study and application of linked data.

Fosters the collaboration among institutions and the information exchange with the broader linked data community in the library, archive and museum domains.
Major benefits

**Quality**: enrichment with data from other authoritative sources and share responsibility for and contribute to maintenance of quality data

**Use**: better exposition, data analysis opportunity, reuse in other projects, improve visibility of hidden resources

**Integration**: intersection of different and multiple authoritative sources, increase circulation of data

**Engagement**: facilitate information exchange and collaboration with other communities
The Testaments

Get a copy

Author/creator
“Atwood, Margaret, 1939- author”
Search catalog for text "Atwood, Margaret, 1939- author"

Format / description
Book. 419 pages ; 25 cm
Published by
Search catalog for text "London, England : Chatto..."

Summary
“More than fifteen years after the events of The Handmaid’s Tale, the theocratic regime of the Republic of Gilead maintains its grip on power, but there are signs it is beginning to rot from within. At this crucial moment, the lives of three radically different women converge, with potentially explosive results. Two have grown up as part of the first generation to come of age in the new order. The testimonies of these two young women are joined by a third voice: a woman who wields power through the ruthless accumulation and deployment of secrets. As Atwood unfolds The Testaments, she opens up the innermost workings of Gilead as each woman is forced to come to terms with who she is, and how far she will go for what she believes.”—Publisher description.

Notes
Sequel to: “The Handmaid’s tale.”
Search catalog for text “The Handmaid’s tale”

Contains
Sequel to: Atwood, Margaret, 1939-. Handmaid’s tale.

Experience without linked data.
Search for text string ➔ View a record ➔ Search for text string ➔ View..
Linked data means interconnections
A network of interconnected data
A network of interconnected libraries
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

Share-VDE institutions
What data is available

The new SVDE 2.0 is now live at https://svde.org
- new back-end infrastructure for the Linked Data Management and the Cluster Knowledge Base
- new Entity Discovery Interface (web portal)

Progressive load of SVDE member libraries data into the new system:
- Share-VDE 2.0 is available at https://svde.org
- Share-VDE 1.0 is available at https://share-vde.org

SVDE 1.0 and 2.0 will coexist until clustering iterations and data load on the new version will be completed.
Useful materials

Wiki resources to learn more [https://wiki.svde.org/](https://wiki.svde.org/)

Share-VDE data can be queried through several methods:

- entity discovery portal (web user interface available at [https://svde.org](https://svde.org))
  - [https://www.svde.org/about/about-share-vde](https://www.svde.org/about/about-share-vde)
- via API through GraphQL and RESTful API endpoints
- via Stardog triple store (the Stardog db including the new CKB 2.0 will soon be available)

Report bugs and suggestions on the forum [https://forum.svde.org/](https://forum.svde.org/)
The Share core technology
The LOD Platform is a highly innovative framework of applications and components for handling bibliographic catalogues and transforming them in Linked Open Data.

The LOD Platform uses BIBFRAME as main ontology but is able to combine and add other ontologies and data models as required by each specific project.
The LOD platform

The system allows:

- data **analysis and management**, to identify and group the entities (clusterization process);
- data **enrichment** through links with URIs from external data sources;
- bibliographic and authority data **conversion** to RDF (Resource Description Framework, the standard model by the W3C for LOD), using vocabularies and ontologies;
- **publication** of the RDF dataset on a triplestore;
- user-friendly **discovery portal** based on BIBFRAME.
Main modules of the technological architecture:

- **AUTHIFY**, RESTful module that provides bibliographic and authority search services and full text of external datasets, mainly related to Authority files (VIAF, Library of Congress Name Authority file...) but also extendable to other types of datasets;
- **CLUSTER KNOWLEDGE BASE**, on PostgreSQL database, is the result of data identification, enrichment, and clusterization processes;
- **LODFIFY**, RESTful module that automates the entire process of data conversion in RDF format;
- **TRIPLESTORES** for storing RDF files;
- **DATA PRESENTATION PORTAL**, the personalized portal on which data is published.
The LOD Platform components

**TECHNOLOGY**

**Advanced API layer**
- GraphQL technology with advanced architecture and search API layer

**Advanced entity model**
- Advanced 4-layered entity model, based on BIBFRAME 2.0 and interoperable with multiple schemes (BIBFRAME, RLF-URM etc.)

**Tenant infrastructure**
- Data of member libraries are grouped by domain or similar characteristics in ad hoc tenants
- Suitable for library consortia willing to renovate their union catalogue

**SERVICE**

**Triple store indexing**
- Linked data descriptions created from the original MARC records and the clusters of entities in the CKB are published on a triple store and can be queried through SPARQL endpoint

**Integration with other systems**
- Development of APIs for interoperability and cooperation with third parties (e.g., OAI-PMH - Linked Data for Productions)

**Authority services**
- New generation of services for authority control
- Combination of automated and manual checks of data quality
- Creation of authority records

**APPLICATION**

**J.Cricket Editor**
- J.Cricket editor for updating and modifying linked data entities

**Discovery Portal 1.0**
- Interface for the standard discovery system

**Discovery Portal 2.0**
- Advanced entity discovery system based on BIBFRAME
- Customized UI (skin)
- Integration with local APIs
- Site mapping with additional meta-tagging
- Data conversion to Schema.org

**DATA**

**Deliverable D1**
- The library catalogue is converted according to BIBFRAME 2.0 (including additional vocabularies and ontologies as needed)
- The linked data descriptions created in the conversion are reconciled and linked to original Share URLs and published on the discovery portal

**Deliverable D2**
- The library receives the file from the Cluster Knowledge Base with the clusters of added data entities including original Share URLs, URLs from external sources and variant forms
- The data from the Cluster Knowledge Base is published on the discovery portal and on the triple store

**Deliverable D3**
- The original library records are converted to BIBFRAME 2.0 (including other vocabularies and ontologies as needed), enriched with URLs from external sources and delivered to the library

**Deliverable D4**
- The MARC records from the library catalogue are enriched with original Share URLs and URLs from external sources, and published on the discovery portal
Share family technology in 5 steps

The initiative is steered by the community of participating libraries, with the aim of setting up linked data based workflows.

The Share family technology, based on the LOD platform, makes available:

1. enrichment of original MARC records with identifiers from external sources (e.g. ISNI, VIAF) and with original Share-VDE entity URIs;
2. reconciliation and clusterization of entities identified in the MARC data;
3. conversion of library catalogues from MARC to linked data;
4. delivery of converted and enriched data to libraries for reuse in their systems;
5. publication of linked data descriptions on the discovery platform www.svde.org.
Enrichment: SVDE adds to the original MARC records of member libraries the entity identifiers (authors, works, subjects etc.) from external data sources (ISNI, Wikidata etc.) to facilitate the reuse of records in linked data. Also the data resulting from the conversion in BIBFRAME is enriched in the same way.

Added value: SVDE creates original URIs assigned to the entities managed by the system (authors, works etc.): this further benefits data enrichment and makes SVDE an authoritative data source.

Reconciliation and clusterization: SVDE reconciles data from MARC records in order to identify groups of entities (clusters). Example: starting from a set of library records describing the same book, SVDE creates a single cluster with its own original SVDE URI that groups together the manifestations of the same work. The same happens for authors, e.g. William Shakespeare.
Some of the external sources

- FAST Linked Data
- RDA Registry
- OCLC WorldCat Identities
- ID.LOC.GOV
- Other sources
- WIKIDATA
- VIAF
- ISNI
- DATA.BNF.FR
- ISSN
- GND Integrated Authority File
The main Share-VDE ontologies

- RDA Elements set
- BIBFRAME
- BFLC
- RDF syntax
- MARC relator scheme
- RDF schema
- PROV-O
- MADS
Conversion

Share-VDE converts library data from MARC to linked data. The ontology currently in use is BIBFRAME, one of the major standards in use in the transition from original MARC-based workflows to linked data cataloguing.

Share-VDE entity model includes the Opus level, in order to keep continuity with IFLA-LRM and BIBFRAME models.

This facilitates the conversion from MARC to linked data and vice versa and allows Share-VDE infrastructure to be in line with the developments of the Library of Congress that has released the Hub property as highest level of abstraction in BIBFRAME model.
Reuse and publication

**Reuse:** the network of SVDE resources is the base of the SVDE Cluster Knowledge Base (named Sapientia). The CKB is an authoritative source of entities (works, authors etc.), accessible in RDF format and open to the entire SVDE community. The CKB can be queried and can be used in the local systems of SVDE member libraries. Also the MARC records enriched can be reused by libraries, that continue handling their own data independently.

**Publication:** the linked data descriptions resulting from the conversion of library records are published on the discovery platform [www.svde.org](http://www.svde.org) (currently available for full member libraries [https://wiki.share-vde.org/wiki/ShareVDE:Main_Page/SVDE_institutions](https://wiki.share-vde.org/wiki/ShareVDE:Main_Page/SVDE_institutions)). SVDE interface is being renewed as far as user experience and discoverability potential, and ad hoc branding options of the interface are available.
Technical advancements

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

Infrastructure, data storage, indexing and queries
- Internal PostGres RDBMS
- Triplestore with SPARQL query endpoint
- Solr inverted index
- Tenant infrastructure with Share Family Index across Share Family CKBs

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
- Cross-tenant services
- Apply Share principles to other domains (e.g. archives, museums, music)

More on the latest achievements
303 URIs forwarding to Different Documents

Reference: https://www.w3.org/TR/ccooluris/ (Par. 4.2)
Participation and autonomy in the Share Family
Tenant architecture

Definition of tenant from Wikipedia:

- “The term software multitenancy refers to a software architecture in which a single instance of software runs on a server and serves multiple tenants”.
- “A tenant is a group of users who share a common access with specific privileges to the software instance. With a multitenant architecture, a software application is designed to provide every tenant a dedicated share of the instance - including its data, configuration, user management, tenant individual functionality” etc.

Share tenants:

- data of Share member libraries are grouped by similar requirements/characteristics (e.g. the tenant for art libraries → Share-Art);
- purpose:
  - more efficient data management;
  - technological sustainability: lighter RDF graph of Share libraries’ data.
The Cluster Knowledge Base and the CKB editor

**Sapientia Cluster Knowledge Base:**
- Sapientia includes the clusters of entities created in the reconciliation and conversion to linked data of the catalogues of all Share-VDE participating libraries;
- the first release of Sapientia is online and the database is constantly enriched with the new data created by libraries and converted by Share-VDE;
- more than 100 millions of bibliographic records and 24 millions of authority records have been processed;
- Sapientia contains 400 millions triples in its triplestore, and 24 billions quads of converted bibliographic records.

**J.Cricket Cluster Knowledge Base editor:**
- J.Cricket is the module dedicated to the editing of the SVDE entities, essential for the management of Share-VDE database;
- the initial model of the J.Cricket Cluster Knowledge Base Editor has been analysed from a functional perspective, along with the design of its user interface;
- the result will be a collaborative environment enabling the editing of the entities managed in Share-VDE (works, authors etc.).
Continuous R&D in the Share-VDE community
Active participation

Libraries members of SVDE working groups and parallel projects are constantly contributing with their Subject Matter Experts to requirements gathering, functional analysis and feedback to developments.
Share-VDE Advisory Council & Working Groups

The Share-VDE AC will take an active role in determining future uses and vision for the Share-VDE initiative; Develop future use cases for Share-VDE, and set development priorities as needed; Monitor and lead the work of the various Advisory Council Working Groups; Maintain communication among the Share member institutions.

There are 4 sub-committees focusing on specific areas:

- Sapientia Entity Identification Working Group
- Authority/Identifier Management Services Working Group
- Cluster Knowledge Base Editor Working Group
- User experience/User Interface Working Group
- Share Family National Bibliographies Working Group
Authority/Identifier Management Services WG

- Defines guidelines and best practices for Authority/Identifier management in the linked data environment;
- Defines scope and data-flow for the creation and implementation of automated services based on preliminary documentation;
- Proposes additional use cases identified as essential for effective knowledge base management.
Cluster Knowledge Base Editor WG

- An essential part of the MARC to RDF conversion process is the maintenance of metadata that have been produced and registered on the Sapientia Cluster Knowledge Base (CKB);
- the group analyses how libraries interact with the Sapientia CKB and their use of the Editor for modifying (correcting / enriching), deleting, merging and separating clusters;
- the same approach will be applied on the data originally created in BIBFRAME.
Sapientia Entity Identification WG

- Review use of entities, identifiers, and associated modelling in the Sapientia CKB;
- review and refine processes for Sapientia entity clustering in Share-VDE and the creation of associated open and stable URI for use in Share-VDE and the library community;
- review MARC to BIBFRAME and BIBFRAME to MARC conversion of elements related to entities in Sapientia;
- engage with the library community to identify and/or develop best practices for use of Sapientia identifiers in BIBFRAME and MARC data.
Re-designs Share-VDE user interface to respond to both patrons and library staff requirements and expectations. The new interface will:

- reflect the components of the Share-VDE data model infrastructure;
- harness the potential of linked data and deliver wide-ranging and detailed search results;
- provide an intuitive user experience hiding the complexity of the underlying data model;
- embed partner APIs for the interoperability with local library services (e.g. lending);
- allow the branding of the institution, or of the consortia of libraries.
National bibliographies WG

- New working group dedicated to the practical cooperation among the National Bibliographies, to address the needs of National Libraries and institutions that hold National Bibliographies in the framework of a shared entity discovery environment such as the Share Family of initiatives
  - this could be a new tenant of the Share family
Shared vision - interoperability of entity models

IFLA-LRM

- **Work**
  - is realized through
  - realizes
  - is embodied in
    - embodies
  - is exemplified by
    - exemplifies

  **Expression**
  - bf:hasExpression
  - bf:expressionOf

  **Manifestation**
  - bf:hasItem
  - bf:ItemOf

BIBFRAME

- **Work**
  - is realized through
    - realizes
  - is embodied in
    - embodies
  - is exemplified by
    - exemplifies

  **Instance**
  - bf:hasInstance
  - bf:instanceOf

  **Item**
  - bf:hasItem
  - bf:ItemOf

Share-VDE

- **svde:Opus**
  - is realized through
    - realizes
  - is embodied in
    - embodies
  - is exemplified by
    - exemplifies

  **svde:Work**
  - is realized through
    - realizes
  - is embodied in
    - embodies
  - is exemplified by
    - exemplifies

  **svde:Instance**
  - is realized through
    - realizes
  - is embodied in
    - embodies
  - is exemplified by
    - exemplifies

  **Item**
  - svde:Item
  - svde:Item
Share-VDE approach
Share-VDE pillars

- Integration
- Autonomy
- Community engagement
- Shared vision
Integration is the core of the SVDE platform that aggregates data from multiple libraries to form clusters of entities.

From the end user perspective: the discovery platform has to accurately represent the entity model, but also provide an intuitive experience, seamless navigation and rich resources to the end users. A new, advanced discovery interface is being developed to harness the potential of linked data.
SVDE is evolving from a discovery platform that converts MARC data of libraries in Linked Open Data to an interactive authoritative source providing real services for libraries. This transition is happening through the editor named J. Cricket, that is the new application dedicated to the editing of SVDE data in a collaborative environment.
Integration - J.Cricket: the professional perspective

The editing tool J.Cricket will allow for editing the SVDE Cluster Knowledge Base, Sapientia, enabling several actions on the clusters of entities saved in SVDE database, including creation, modification, merge of clusters of works, of agents etc.

J.Cricket will extend authority capabilities through the integration with external data sources such as Wikidata and ISNI.
Integration - Wikidata

Wikidata is increasingly authoritative and is used in the library community as a source for entity identification (SVDE property on Wikidata Share-VDE author ID)

Query the source and enrich SVDE data with Wikidata entities information and vice versa → connection with Casalini participation in the PCC Wikidata pilot

Ad hoc SVDE working group is studying the use cases for interaction (e.g. starting points for the analysis are API:Main page + Wikibase/API, and other documentation)

Major challenge: alignment between Wikidata and SVDE entities
How J.Cricket interacts with Wikidata

Isaiah Thomas

Cluster metadata

<table>
<thead>
<tr>
<th>Source</th>
<th>ID</th>
<th>Name</th>
<th>Born</th>
<th>Died</th>
<th>Confidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>OCLC</td>
<td>2131241</td>
<td>Isaiah Thomas</td>
<td>1989</td>
<td></td>
<td></td>
</tr>
<tr>
<td>VIAF</td>
<td>1568849</td>
<td>Isaiah Thomas</td>
<td>1989</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LC</td>
<td>9875663</td>
<td>Isaiah Thomas</td>
<td>1989</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Wikidata</td>
<td>055322233</td>
<td>Isaiah Thomas</td>
<td>1773</td>
<td>1819</td>
<td></td>
</tr>
</tbody>
</table>

Connected external IDs

<table>
<thead>
<tr>
<th>Actions</th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>View log</td>
<td>Validate</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Integration - the technological perspective

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

API Architecture

SVDE tenants

LD4P

PCC

folio+
Integration - new Authority services generation

J.Cricket editor
Autonomy - the end user perspective

SVDE localisation for the University of Pennsylvania

Kubikat-LOD project platform
Autonomy: Share-VDE tenants

Common Share-VDE User Interface

Share-VDE skin portal
Penn skin portal
Other skin portals

Share-Family Index

URI registry

J.Cricket editor
Sapientia CKB

Share-VDE original data (bib/holding)

Enrichment with external sources (VIAF, ISNI, LCSH, FAST etc.)

Share-VDE tenant

Share Catalogue CKB

URI registry

J.Cricket editor

Share-Catalogue CKB

URI registry

J.Cricket editor

Kubikat-LOD CKB

URI registry

J.Cricket editor

URBE CKB

URI registry

J.Cricket editor

PCC CKB

Share-Catalogue tenant

Kubikat-LOD tenant

Parsifal tenant

PCC tenant

Kubikat discovery interface

Parsifal discovery interface

PCC discovery interface

SVDE

Sapientia

J.Cricket editor

SVDE

Sapientia

J.Cricket editor

SVDE

Sapientia

J.Cricket editor

SVDE

Sapientia
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 Family 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
Share-VDE latest achievements
The Share-VDE development team expanded

The SVDE IT team has been restructured and enlarged in order to cope with the increasing complexity of the developments, meet the needs of the community and interconnect with several projects. Five main development teams:

- **Infrastructure & Architecture**
- **SVDE Backend (Database and Indexing, APIs development)**
- **SVDE Frontend (Frontend components, APIs development, SVDE portal and J.Cricket search functions)**
- **APIs for Penn’s localisation and other skin portals**
- **J.Cricket Editing functions**
Latest achievements

The design of the UI has been completed and enhanced by the activities around the J.Cricket Cluster Knowledge Base editor, the requirements for the University of Pennsylvania localisation and for the Kubikat-LOD parallel project.

Backend infrastructure rearranged to respond to many layers and complex search logic → general revision of the development plans.

The CKB is being enhanced with new attributes and new controlled vocabularies as a result of the UI design and the revision of the backend infrastructure.

Tenant modelling: skins and tenant architecture to assure benefits from cooperation without forgetting the independence of the libraries (e.g. National Bibliography and Kubikat tenants).
Latest achievements

Design of the J.Cricket Cluster Knowledge Base Editor with the CKB Editor working group

Analysis of authority services with the Authority Identifier Management Services working group and initial release of the authority control features delivered to Stanford

Analysis for the integration with Wikidata and ISNI in AIMS and CKB working groups

Revision of the entity model with the Sapientia Entity Identification working group:
- svde:Opus approved
- 4 layers in SVDE entity model: svde:Opus | svde:Work | svde:Instance | svde:Item
- svde:Opus and svde:Work are types of bf:Work → this ensures interoperability
- work on svde:Instance implementation
Next steps: developing interconnections
LD4P and the PCC

MARC records converted in linked data by SVDE are delivered to Sinopia cataloguing module.

In LD4P3 an API based two-ways flow Sinopia-SVDE will be put in place to optimize interaction and close the loop between the systems.

Conversion and housing of PCC data in SVDE in a dedicated data pool.

PCC data will be in an autonomous tenant with a dedicated namespace for PCC URIs and enrichment from other sources (URIs from SVDE, LC, GNF, VIAF, Wikidata etc.)
Deliverable 1
Deliverable 2
Deliverable 3
Deliverable 4

Triplestore
Stardog

Share-VDE

QA Questioning Authority

CKB Editor (J.Cricket)

Cluster Knowledge Base (Sapientia) Share-VDE_CKB_prod

Bibliographical datasets Share-VDE_prod

API layer
Discovery portal

Sinopía Linked Data Editor
Participation in LD4P3: towards closing the loop

See the diagram online here
Participation in LD4P3: the challenge of data models interoperability

See the SVDE entity model compared to BF and LRM and an example of application of the model
Integration of Wikidata IDs in SVDE with J.Cricket

Connect to external IDs

Name

Isaiah Thomas

OCLC VIAF Wikidata LC GND BNF Other...

Isaiah Thomas (or Isaiah Jamar Thomas)
American basketball player · Born 1989
03360300

Isaiah Thomas (or Isaiah Thomas, Sr. · I. Thomas · I. T. I.)
Massachusetts printer, publisher and journalist · 1749-1831
015503431

Isaiah Thomas (or Isaiah Thomas, Jun. · I. Thomas, Jun.)
(1773-1819) · 1773-1819
065322233

+ Create new wikidata item for "John Doe"
Towards the Share-VDE Sapientia CKB ecosystem
What comes next

- **API layers** for ILS, external applications and other LD systems (such as BF editors and triplestores);
- **Authority Management** and services;
- **Reporting** to serve library needs;
- **Internationalization** of the Share-VDE environment in relationship with new projects;
- **Strategies** to make the Share-VDE environment a trusted source of identifiers and to facilitate interaction with international initiatives as Wikidata, VIAF, ISNI etc.
- **Application** of further Wikidata entity properties.