

# Hungarian National Library Platform Implementation

Miklós Lendvay  
Hungarian National Széchényi Library  
Bibframe Workshop 2020, online

# Innovation and digital transformation



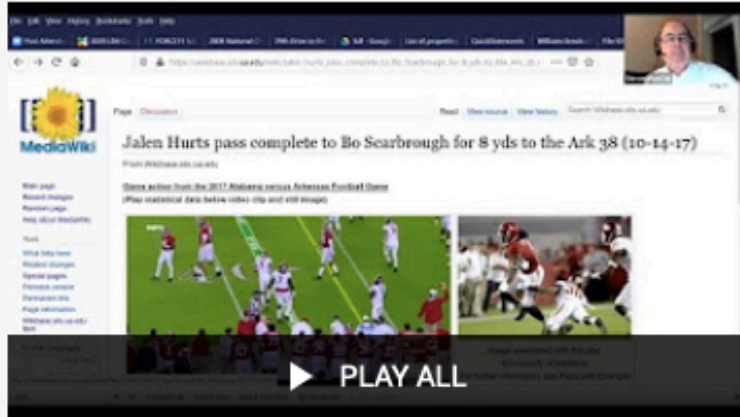
## Digital publication and education

I will teach you in a ROOM  
I will teach you now on ZOOM  
I will teach you in your HOUSE  
I will teach you with a MOUSE  
I will teach you here and there  
I will teach because I care



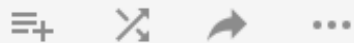


# 2020 LD4 Conference on Linked Data in Libraries



## 2020 LD4 Conference Videos



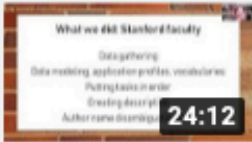


57 videos • 2,574 views • Last updated on 1 Aug 2020



LD4

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-  1:15:09  
2020-July-31 Content enrichment...; ... football photos, Dig. collections track (Kumar; MacCall)  
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-  9:18  
2020-July-31 Welcome, Wikidata track (Shieh, Wyatt)  
LD4
-  24:12  
2020-July-31 No bricks without clay...Stanford Wikidata Working Group, Wikidata track (Falcone)  
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-  30:42  
2020-July-31 VanderBot: Using a Python script to create and update..., Wikidata track (Baskauf)  
LD4
- 





# BIBFRAME workshop 2020

[Registration](#)

[Agenda](#)

[Links](#)

[Organizer Group](#)

## BIBFRAME Workshop in Europe 2020

The aim of the BIBFRAME Workshop in Europe is to be a forum for sharing knowledge about the practice of, production with, and planning of BIBFRAME implementation. We bring together people working in the transition from MARC to Linked Data using the BIBFRAME model and related tools. The workshop areas are strongly focused on the practical implementation of BIBFRAME, not a theoretical Linked Data / Semantic Web event. For 2020 the workshop is replaced by an online event because of the coronavirus pandemic.



Venue at DNB, Frankfurt/M 2017



Venue at EUI, Fiesole 2018

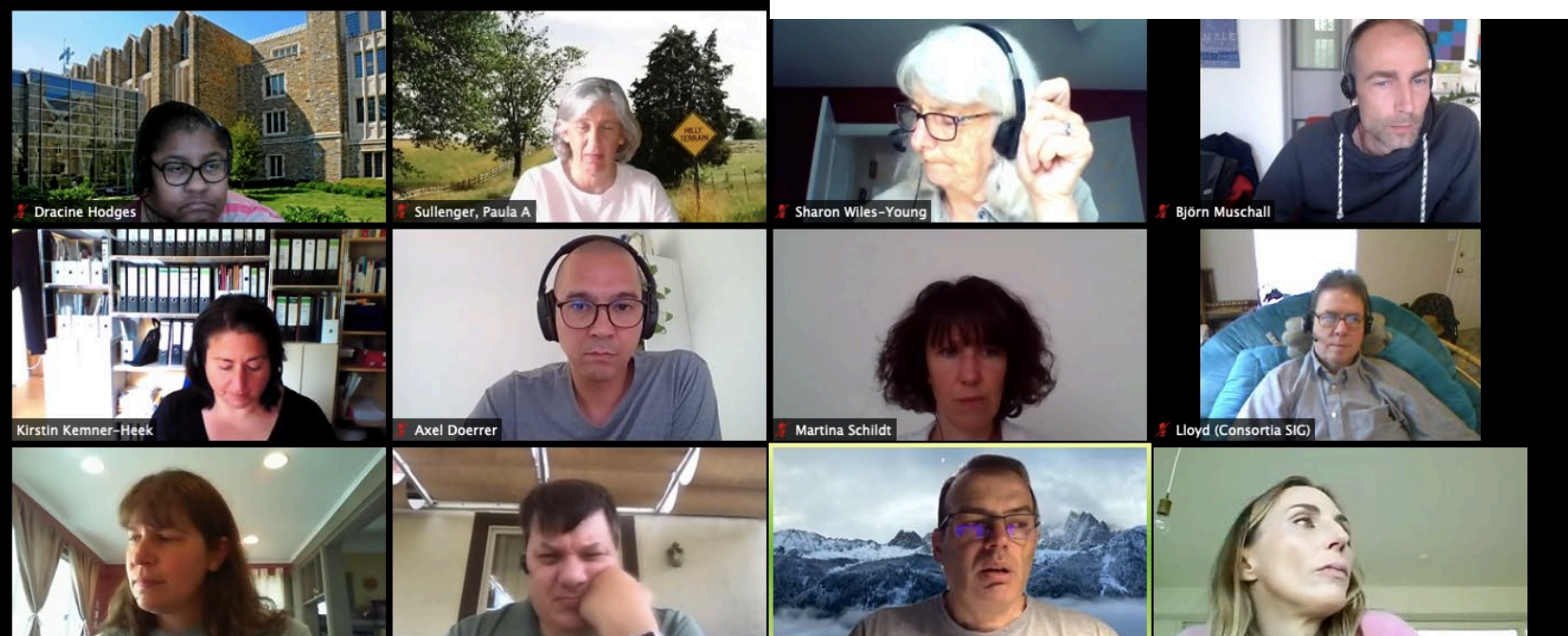
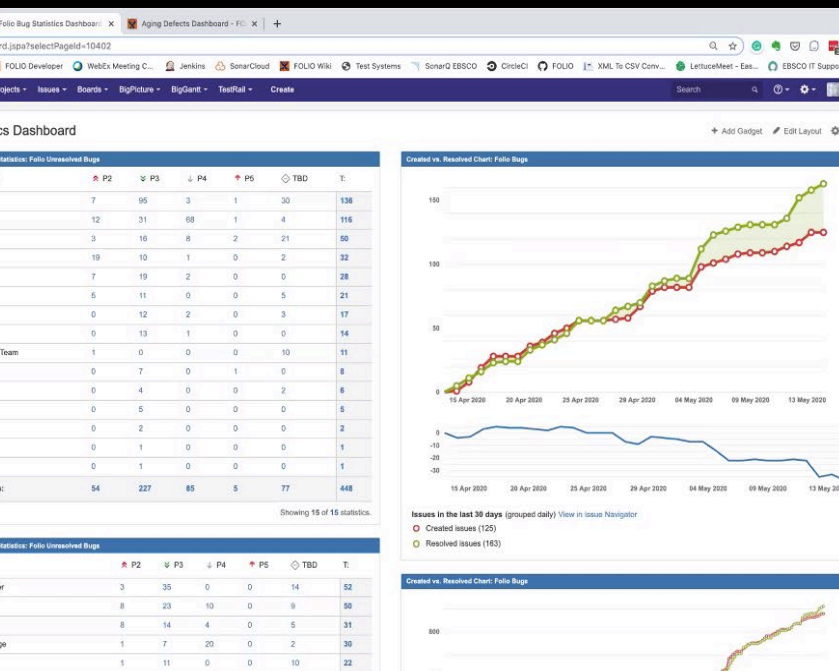


Venue at NLS, Stockholm 2019





# FOLIO Online Product Council and Special Interest Groups meetings



# FOLIO

*The Future of Libraries is Open*

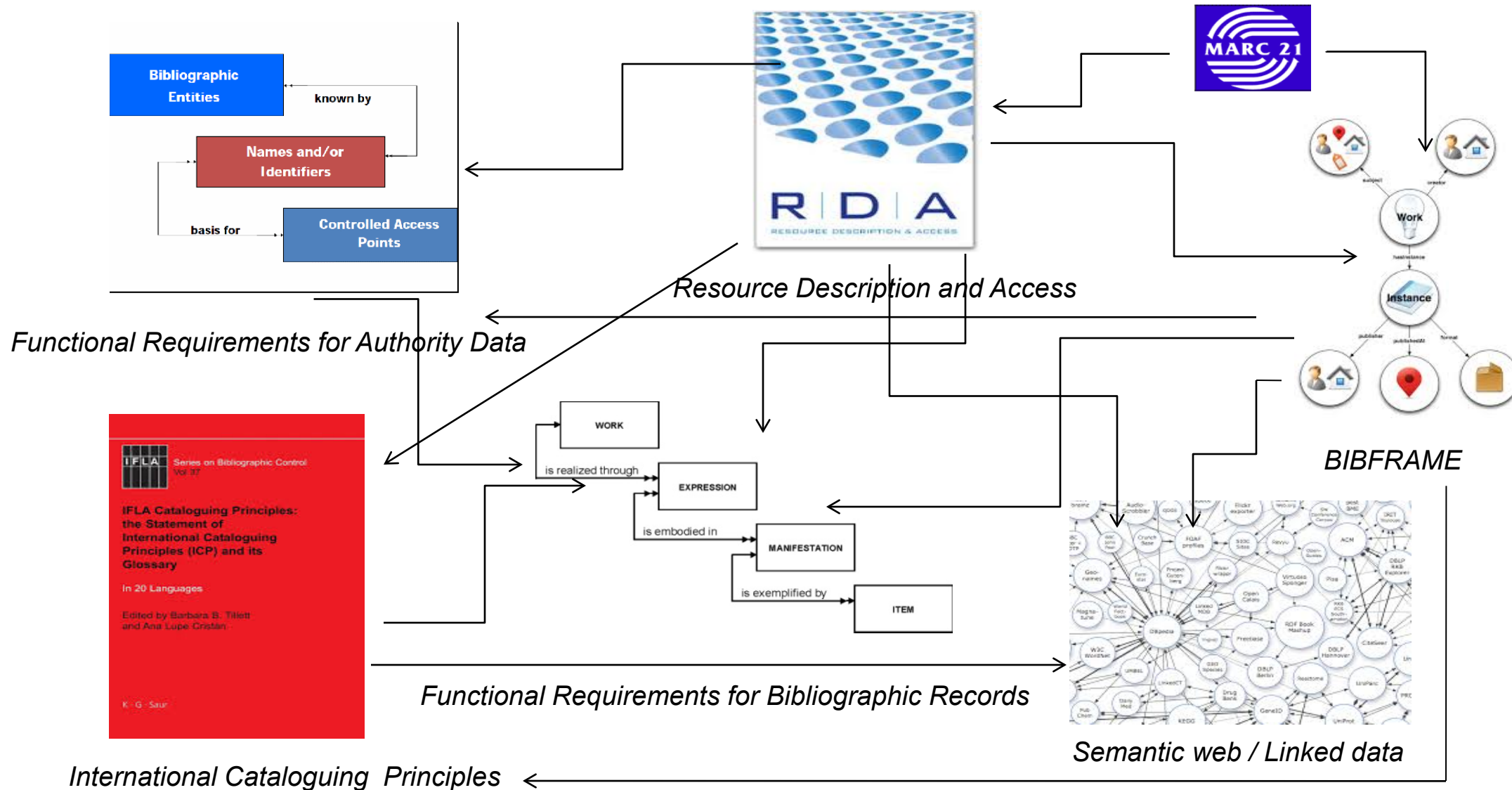
FOLIO is a **PLATFORM**  
and a **COMMUNITY**

based on **innovation**:  
libraries, Open Library Environment  
Partners, Index Data, EBSCO & others





# Identifying and Linking of Data





# Hungarian catalogue in BIBFRAME format -



MokkaUP

Info | Contact Us | | |

Person/Work

Person  Work   Person   Go to publications

## Search Person/Family/Corporate body



EXPAND ALL

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### ▼ This person in



data.bnf.fr

VI  
AF



Gárdonyi, Géza, 1863-1922

ID: 6806

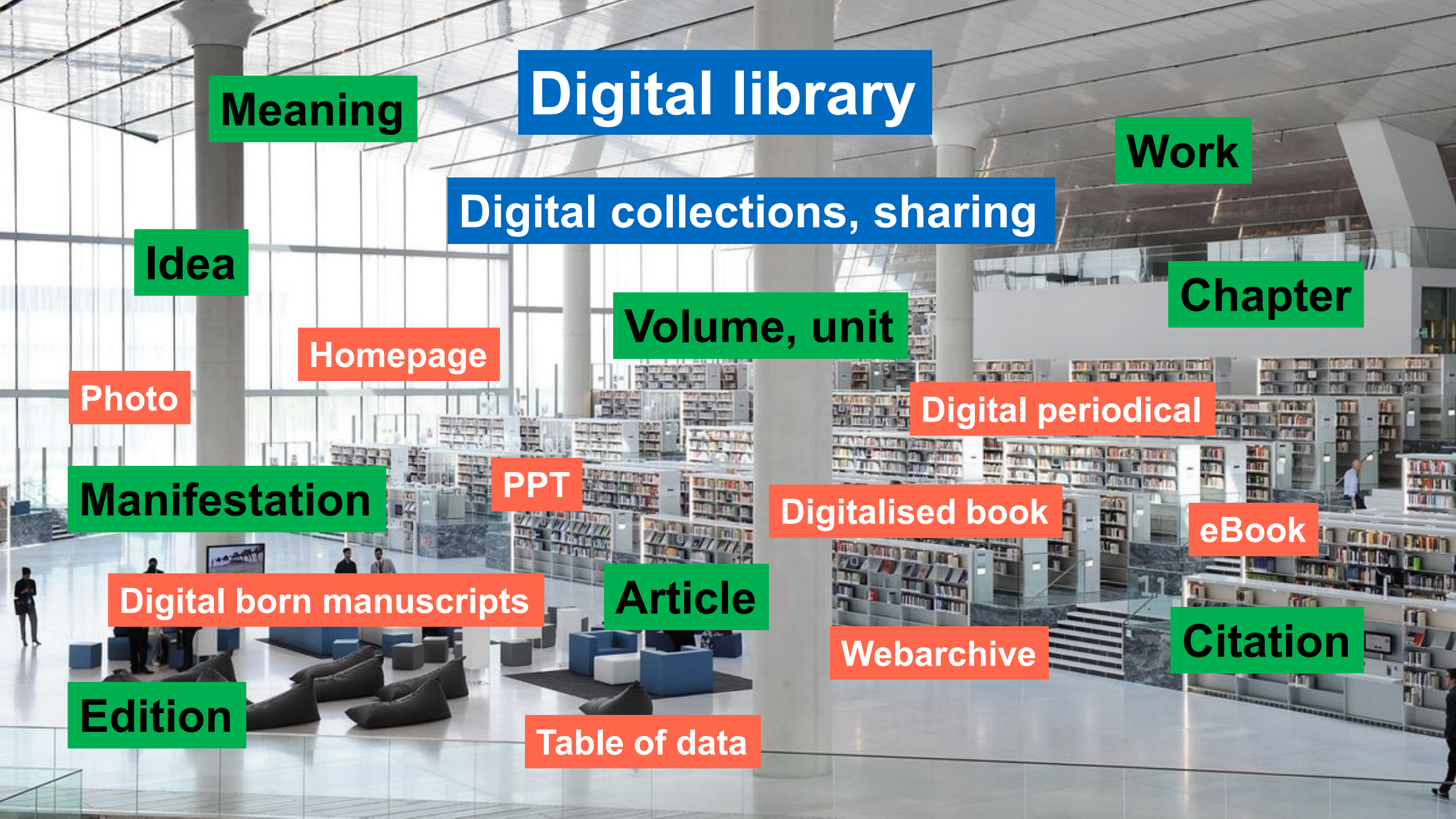
Works

### ▼ Other name forms

- Gárdonyi, Géza (1863-1922)
- Gárdonyi Géza. (1863-1922)
- Gárdonyi Géza (1863-1922)
- Gárdonyi Géza 1863-1922
- Gárdonyi Géza
- Gárdonyi Géza 1863-1922
- Gárdonyi Géza. 1863-1922
- Gárdonyi Géza
- Gárdonyi Géza (1863-1922)
- Gárdonyi Géza, (1863-1922.)
- Géza, Gárdonyi 1863-1922
- Gárdonyi Géza magyar író, költő, drámaíró, újságíró, pedagógus
- Gárdonyi, Géza, 1863-1922
- Gárdonyi, Géza
- Göre Gábor (1863-1922)

### ▼ Wikipedia

**Géza Gárdonyi**, born **Géza Ziegler** (3 August 1863 – 30 October 1922) was a Hungarian writer and journalist. Although he wrote a range of works, he had his greatest success as a historical novelist, particularly with *Eclipse of the Crescent Moon* and *Slave of the Huns*.



**Meaning**

**Digital library**

**Work**

**Digital collections, sharing**

**Idea**

**Chapter**

**Volume, unit**

**Homepage**

**Photo**

**Digital periodical**

**Manifestation**

**PPT**

**Digitalised book**

**eBook**

**Digital born manuscripts**

**Article**

**Webarchive**

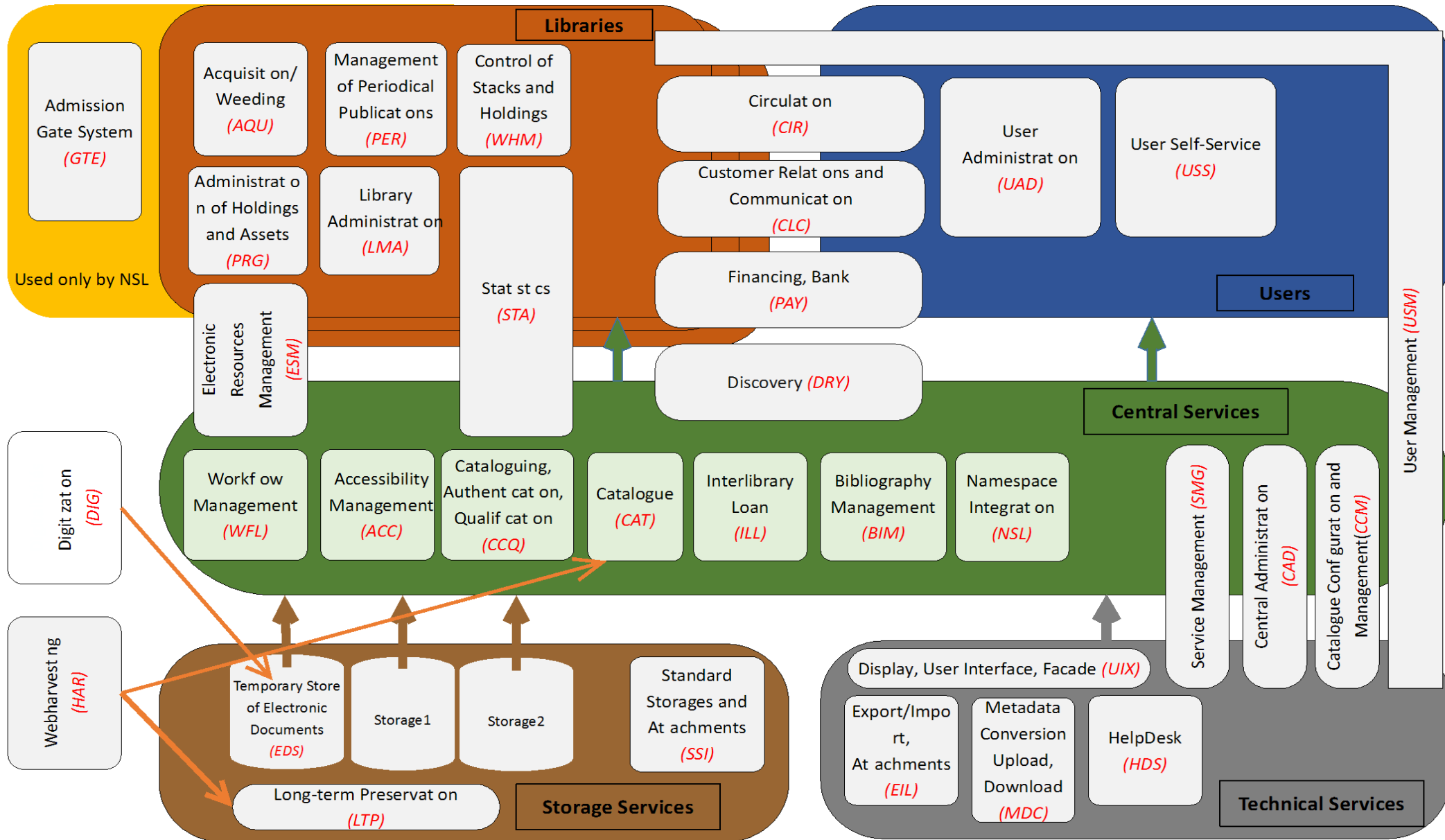
**Citation**

**Edition**

**Table of data**



# Functions in the National Library Platform

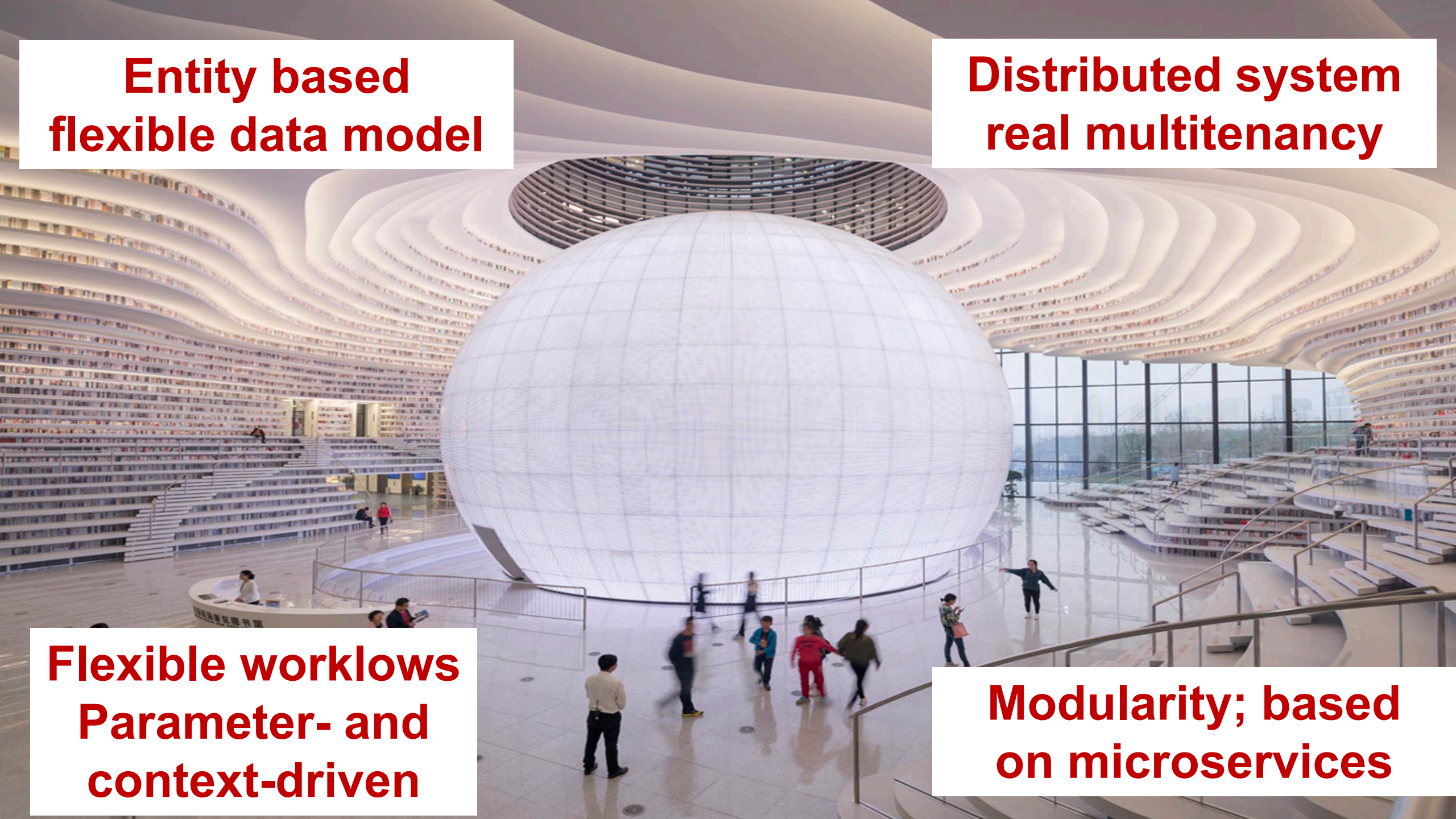


**Entity based  
flexible data model**

**Distributed system  
real multitenancy**

**Flexible workflows  
Parameter- and  
context-driven**

**Modularity; based  
on microservices**





# The Future of Libraries is Open

FOLIO is a collaboration of libraries, developers and vendors building an open source library services platform. It supports traditional resource management functionality and can be extended into other institutional areas.



## **Modularity**

Applications easily connect to each other, so you can choose applications, develop, or adjust workflows. Any vendor or library may contribute applications as open source or for-fee.

## **Flexibility**

Choose whether to implement and host the platform on premises or through a vendor. Create and enhance applications at your institution or with a vendor to meet your needs.

## **Extensibility**

FOLIO can be integrated with a myriad of applications within and outside of your institution such as university enterprise systems, institutional repositories, research management, discovery and more.

# FOLIO™ Platform



The FOLIO platform will support resource management functionality while affording libraries and developers the ability to extend the platform into new areas. The platform design is “APIs all the way down”. This means that any developer can interact with any layer in the platform, and no component is too big to be replaced.

## UI Toolkit

FOLIO comes with a default User Interface for the platform applications. At the same time, libraries or developers can take advantage of the UI toolkit to create a new UI as needed. The UI toolkit leverages the React framework, an open JavaScript library for creating user interfaces.

## Language Agnostic Applications

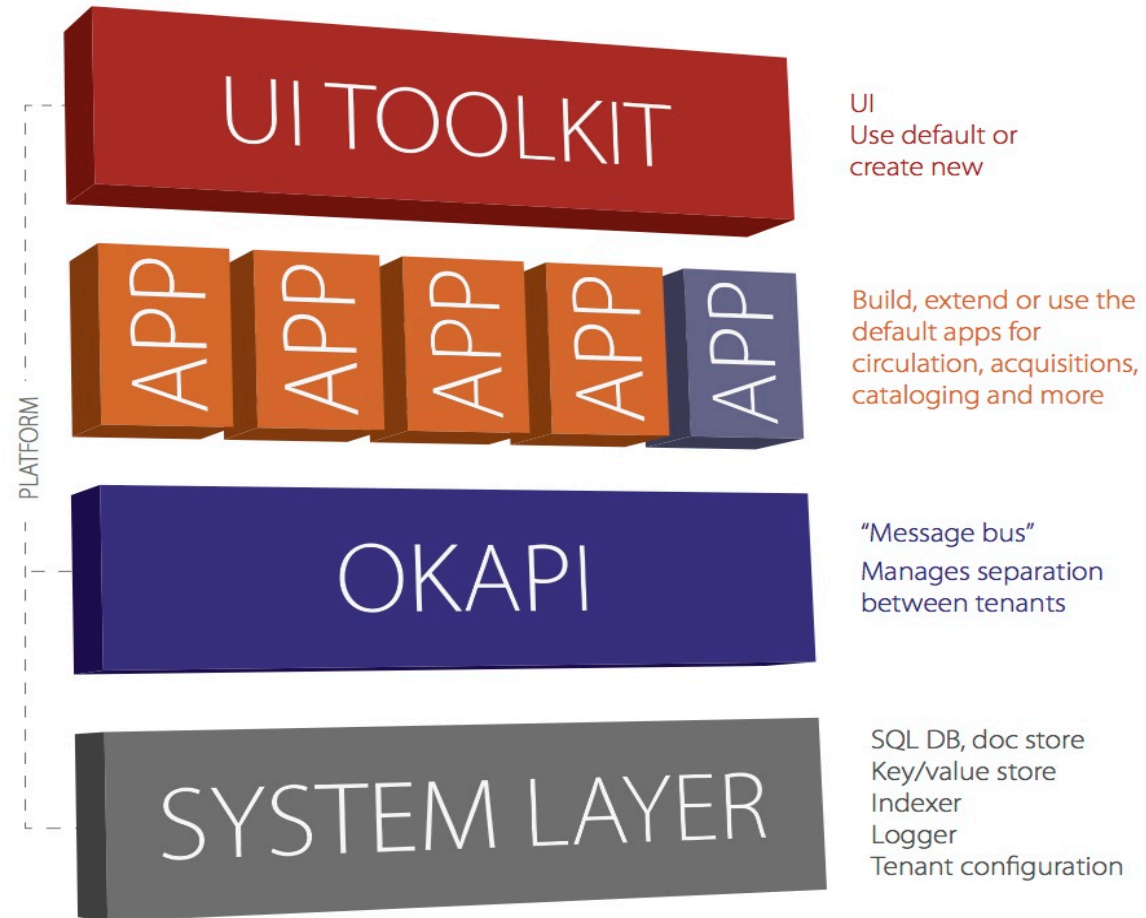
FOLIO applications are language agnostic. In other words, apps can be written in any programming language. Apps include standard ILS modules such as circulation, cataloging, and acquisitions. Libraries and vendors can build on existing apps, or develop new apps that extend the library into areas such as campus ERP, research administration, and more.

## APIs and Message Bus

OKAPI is the API gateway that manages communication and separation between apps and different tenants (installations) on the platform. While apps are language agnostic, the connecting protocol between applications is HTTP.

## System Layer

The FOLIO platform features a centralized layer for data storage. The platform utilizes several data storage technologies for optimal performance and reporting. Transactional data, such as circulation transactions, may be stored in an SQL database while bibliographic data can reside in MongoDB. The system layer also facilitates indexing, supports linked data, and provides for tenant configuration.





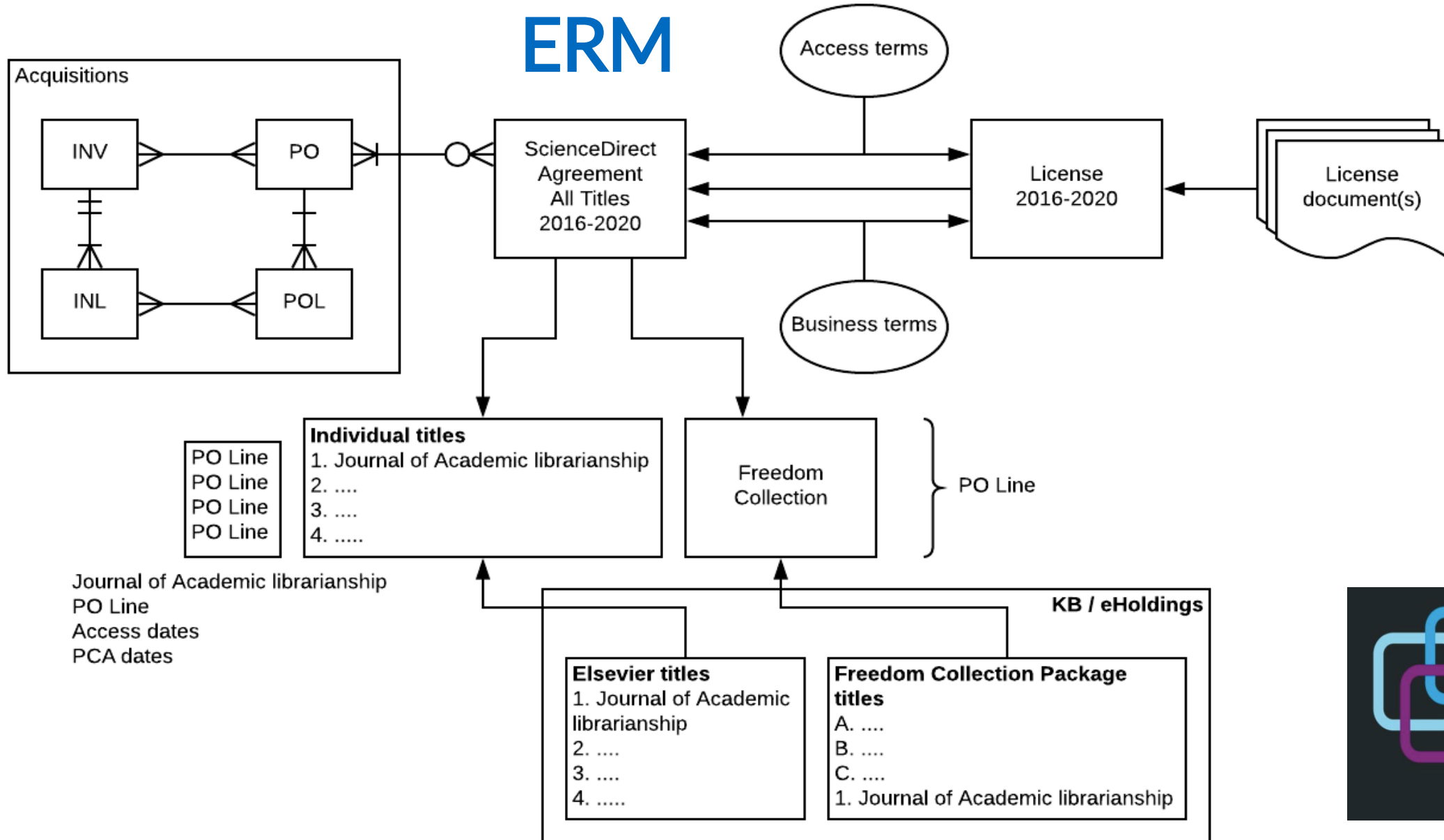


# RESHARE

# Electronic Resource Management

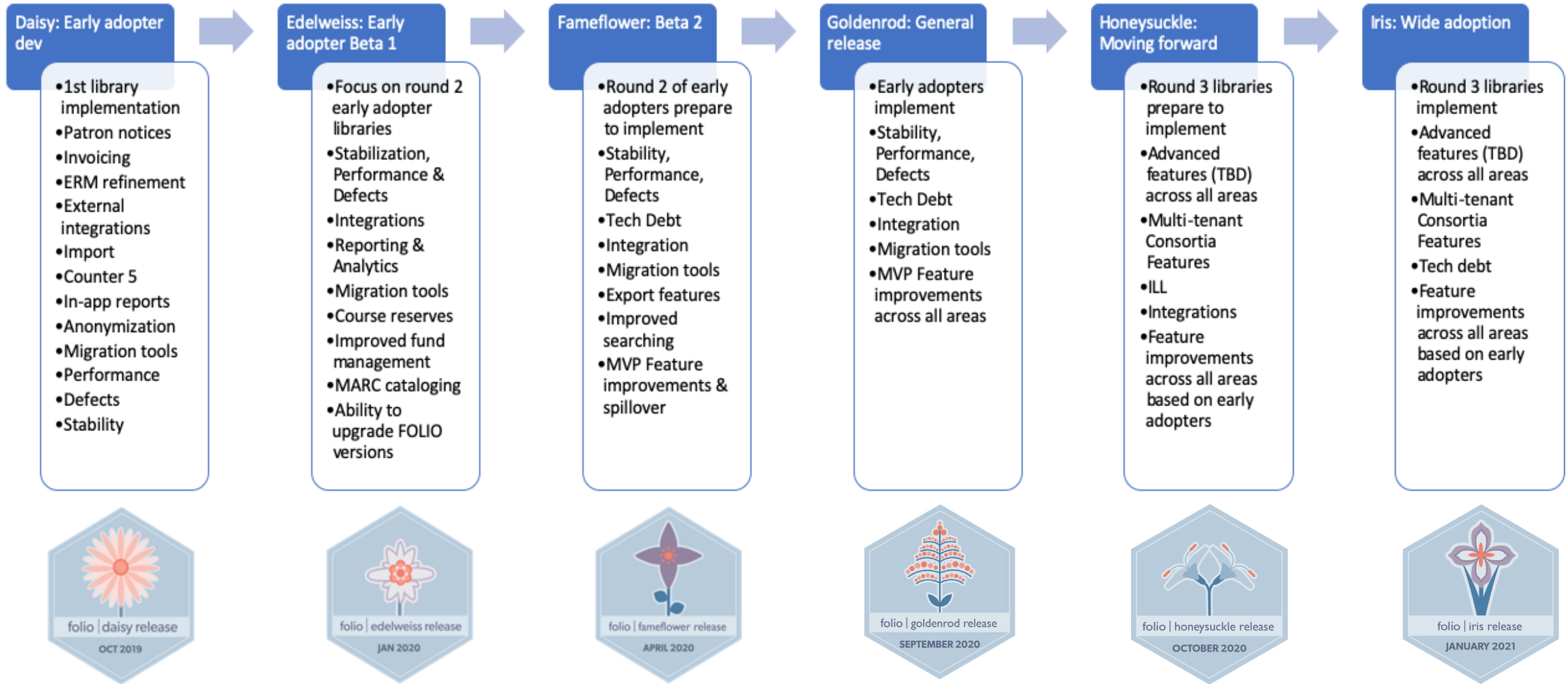


## ERM
























# The Future of Libraries is Open Milestones



# The Future of Libraries is Open



<p>OLE</p> 	<p>OLE</p> 		
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# Libraries implementing EBSCO FOLIO



## Live today

- Chalmers University of Technology - *Sierra*
- Missouri State University - *Sierra*
- Florence National Library - *Homegrown*
- St. Thomas Univ. (FL)\* - *WMS\**
- Warner Univ.\* - *WMS*
- Washington and Jefferson College\* - *Symphony*
- Cornell University (ERM First)

## Go-live in 2020

- Amherst College – *Aleph*
- Drew University – *Symphony*
- Hampshire College - *Aleph*
- Mount Holyoke College - *Aleph*
- Smith College – *Aleph*
- St. Vincent College – *Sierra*
- UMass Amherst - *Aleph*
- University of Alabama - *Voyager*

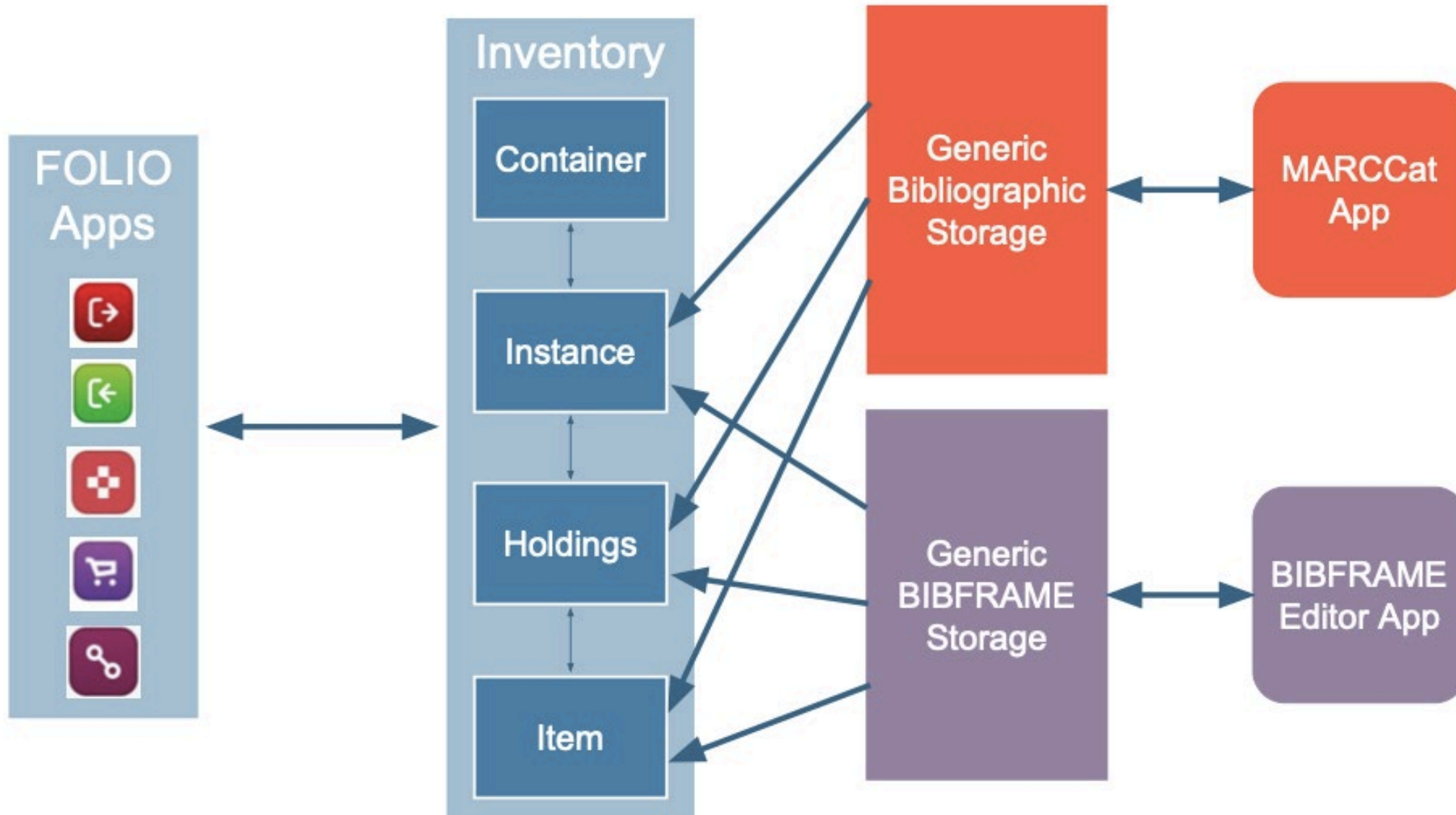
## Go-live in 2021

- Cornell University (full FOLIO) - *Voyager*
- Grand Valley State University - *Sierra*
- Universidad de Zaragoza - *Millennium*
- And many others

\*EBSCO partner implementation

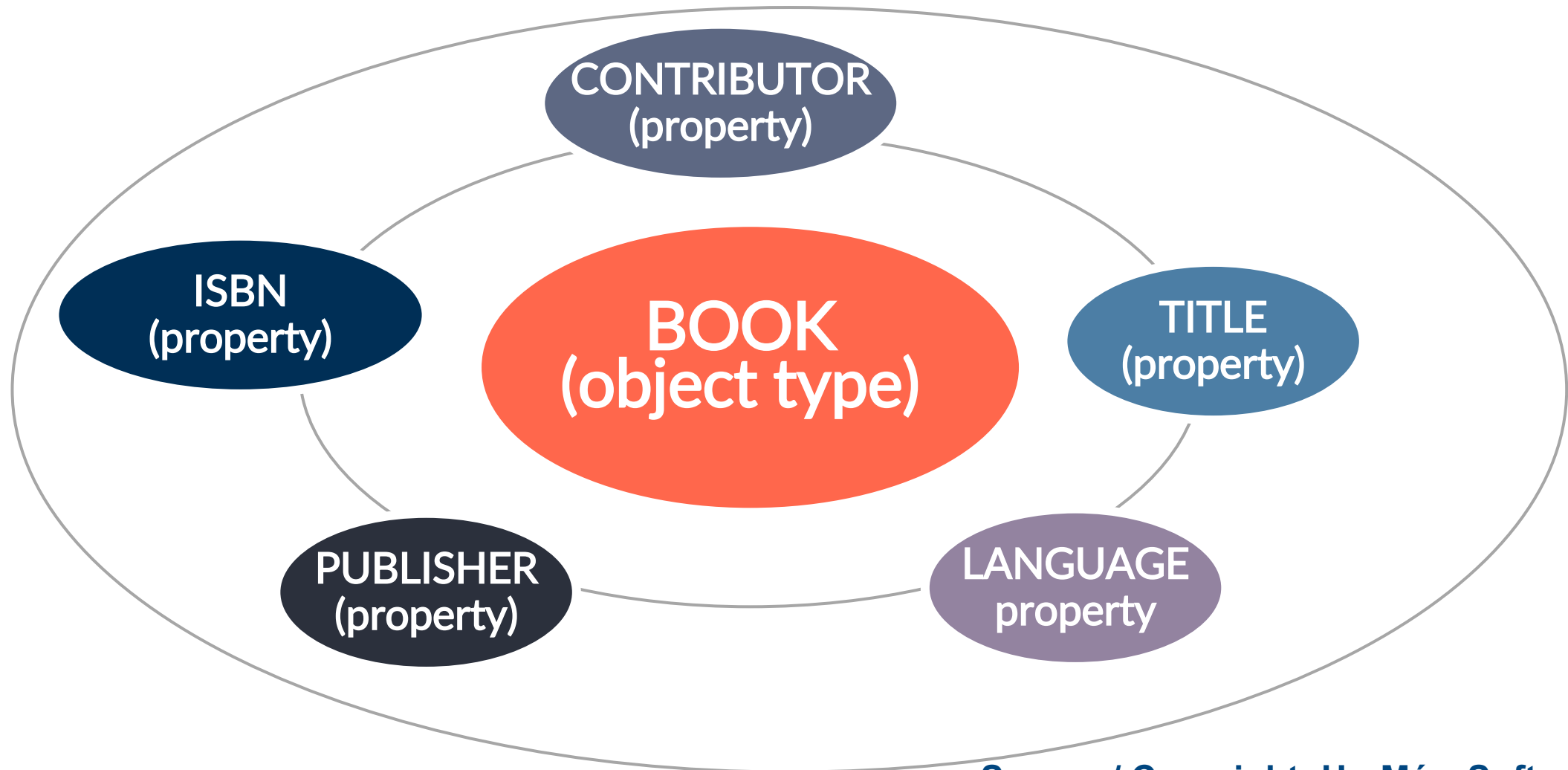


# FOLIO Inventory: MARC and BIBFRAME

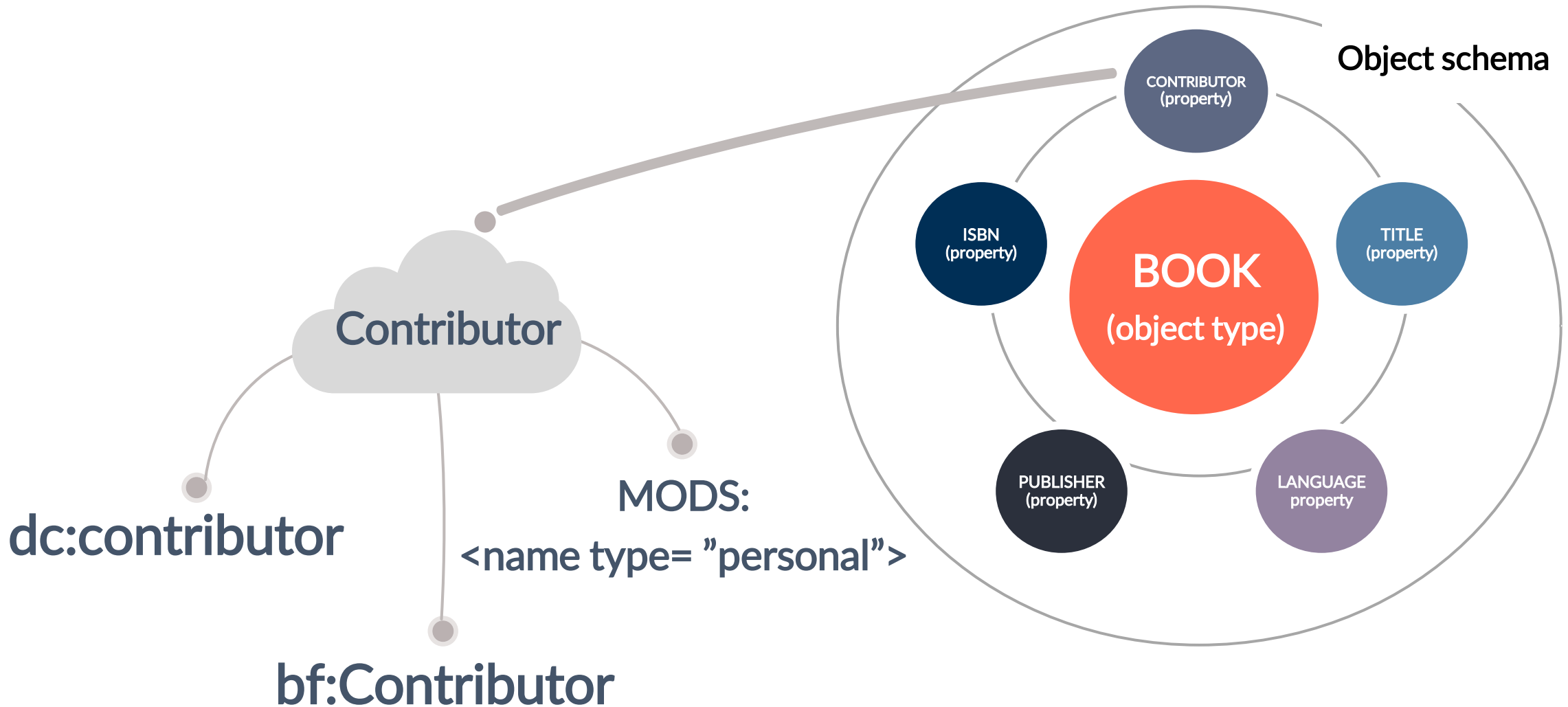




# The Base for a Flexible Cataloging: the Schema Definition



# Property Mapping



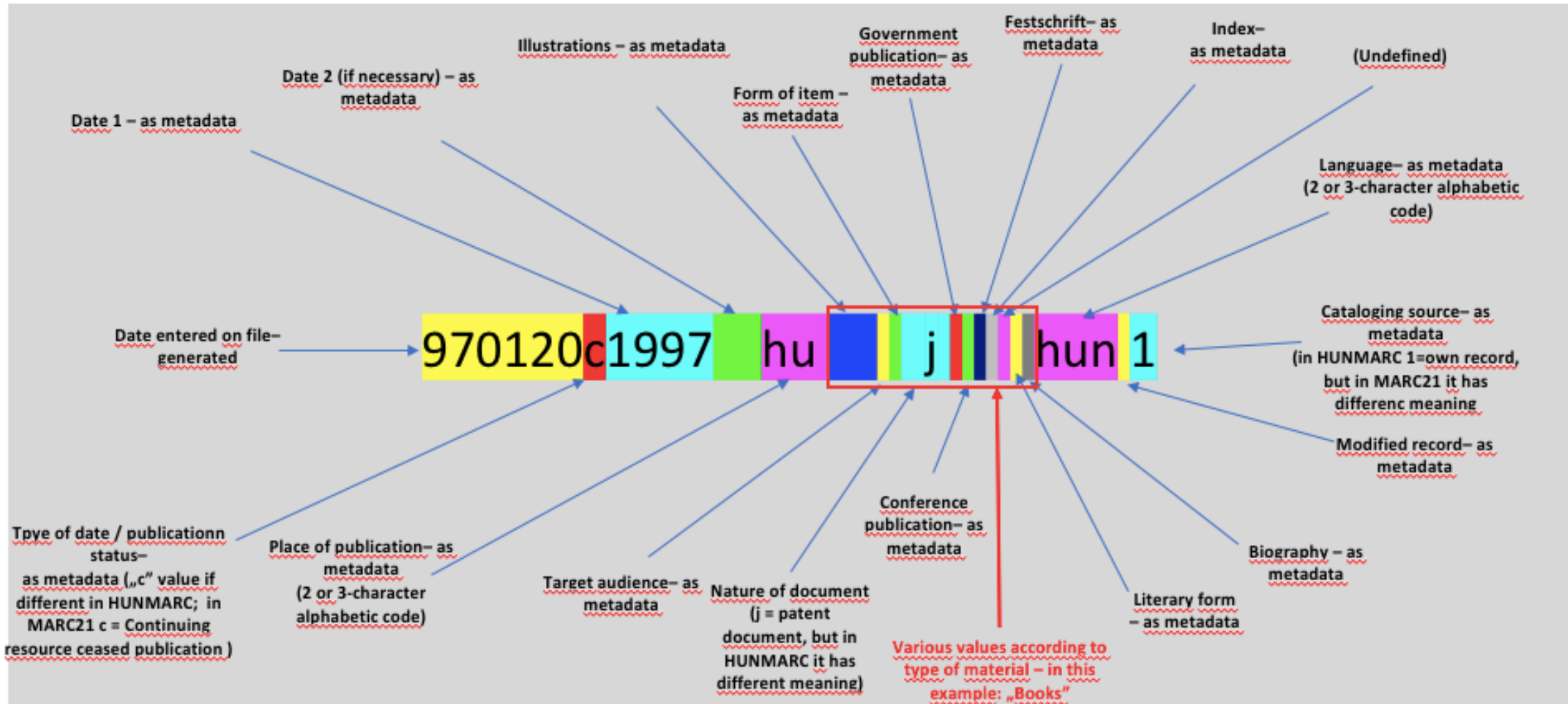
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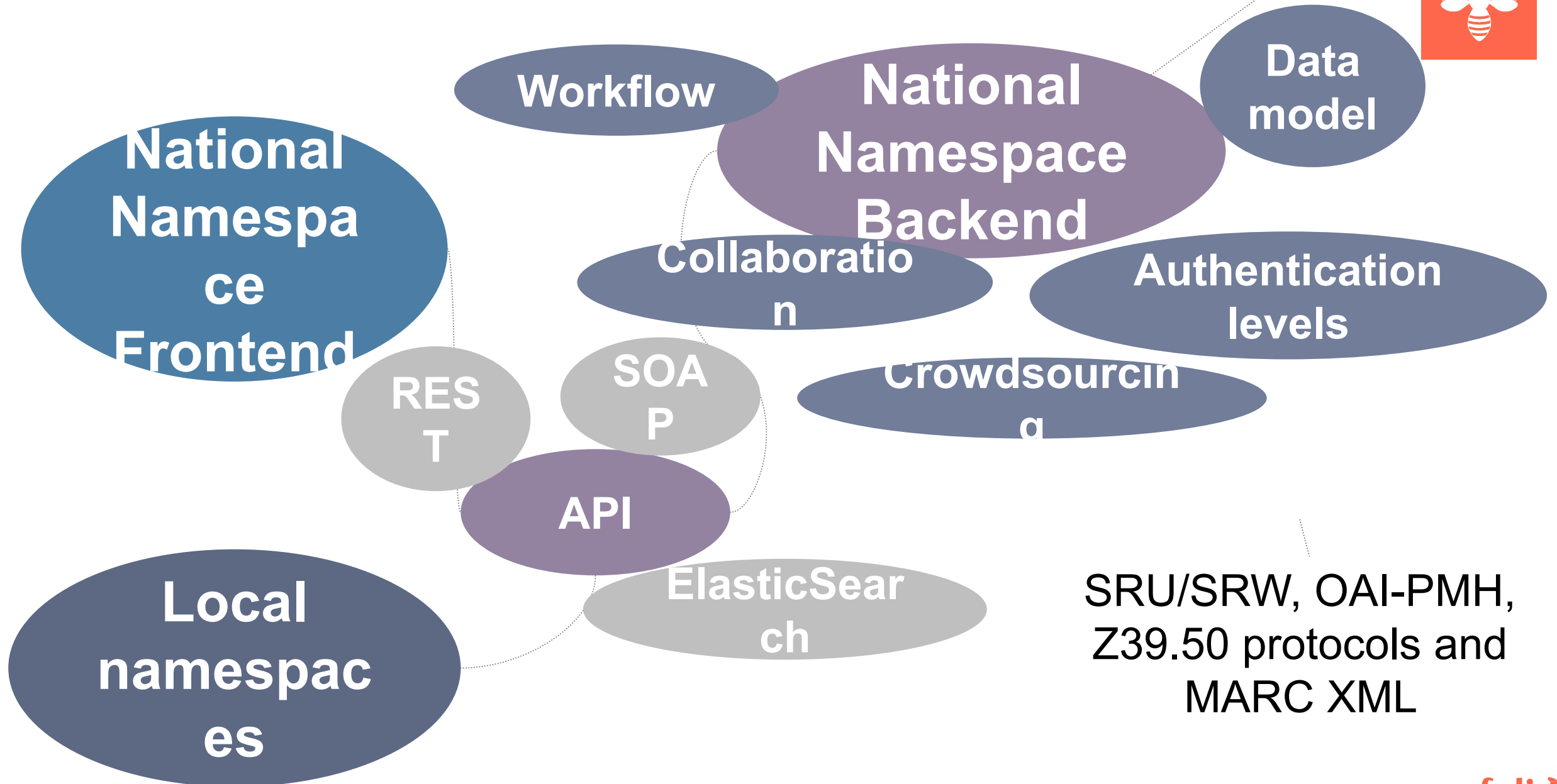
# MARC21 008 – Fixed Length Data Elements



Example: mek.oszk.hu – Jókai Mór: Az arany ember MARC21 record (URL: <http://mek.oszk.hu/00600/00688/usmarc.html>)



# National Namespace - Modular and Linked









# The Relevance of BIBFRAME Beyond our Walls





**VARIATIONS  
OF DATA AND  
COMPETING  
DATA**

**QUALITY  
LEVEL**

**MULTIPLE DATA  
EXCHANGE FORMATS**

# **DATA-RELATED REQUIREMENTS**

**VALIDITY OF  
DATA FOR  
CERTAIN PERIOD  
OF TIME**

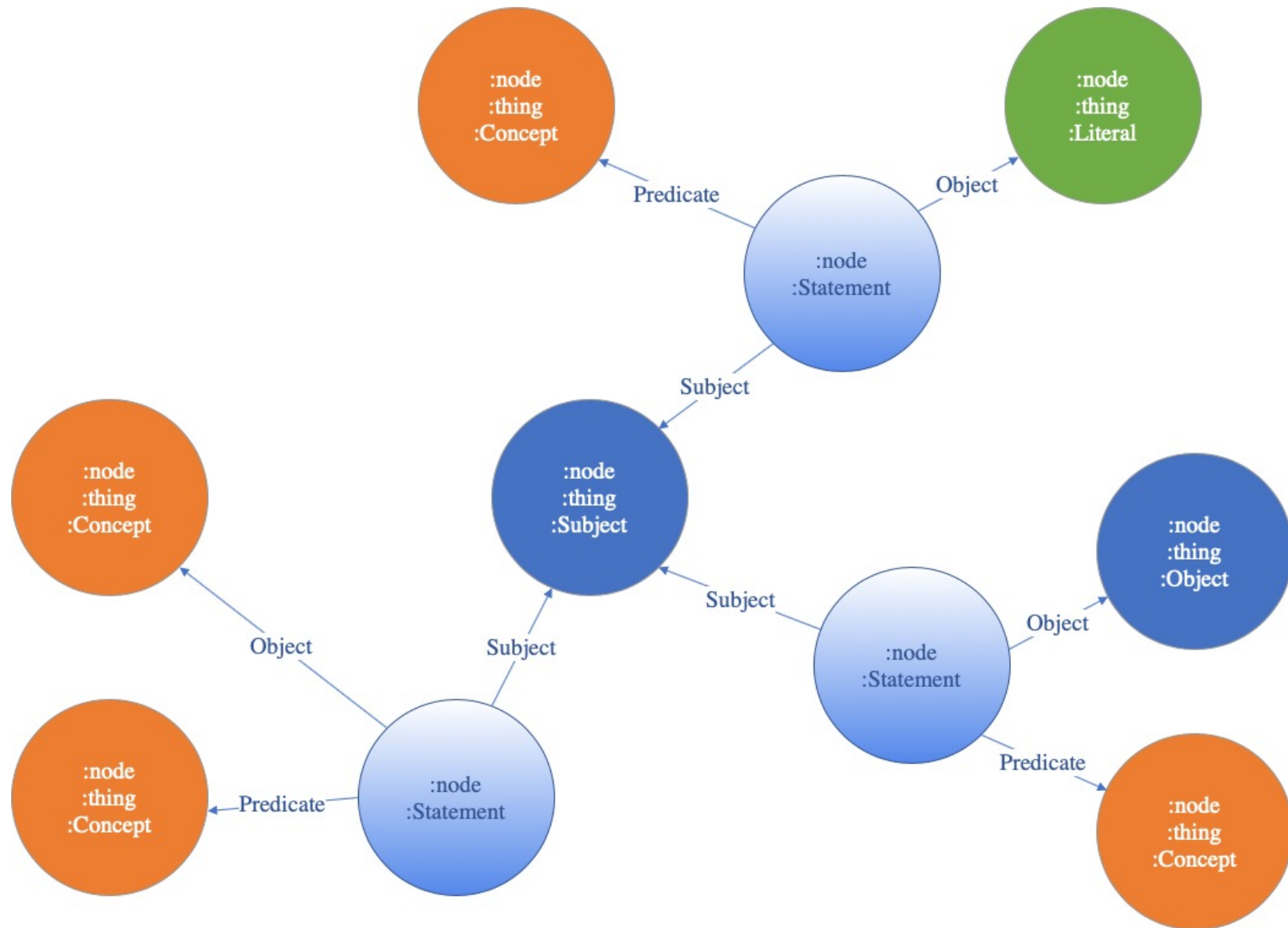
**SOURCE OF  
INFORMATION**

**FLEXIBLE  
WORKFLOWS FOR  
MANY TYPES OF  
AGENTS; PARAMETER  
AND CONTEXT-DRIVEN**

**TRUSTWORTHINESS**

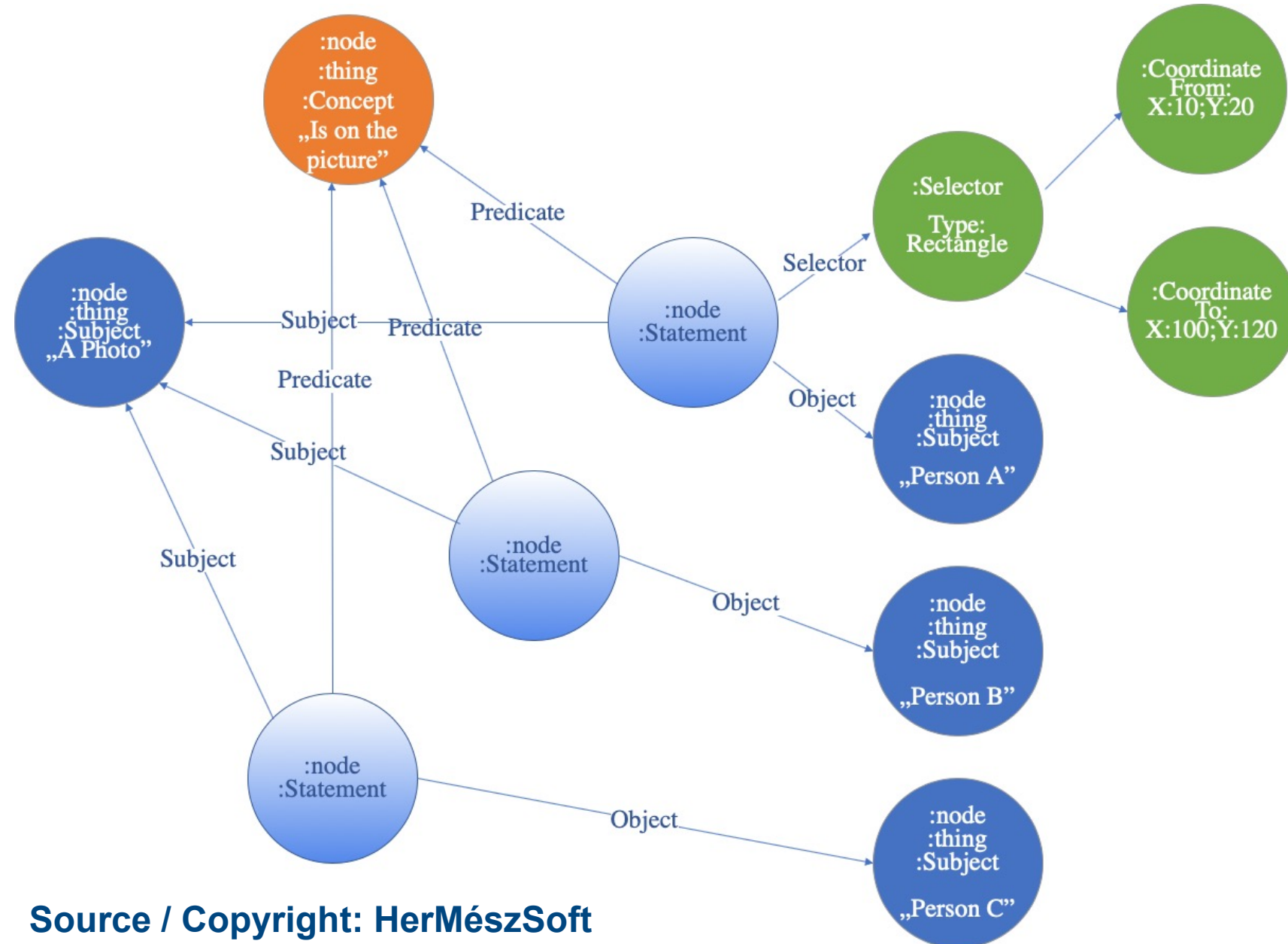


# Generic 'dynamically expandable value set' knowledge graph



- When creating a triplet, the predicate is not stored as the quality of the relationship between the records, instead the predicate is built into the relationship chain as a record.
- The common point of relationships is the statement that is able to make a piece of elementary statement about a given subject.
- The object of the statement may be another object, literal value, 'itemized' literal value.

# The Structure of General Statements

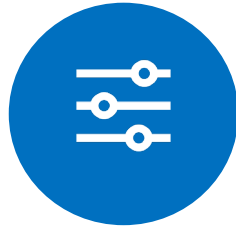


- The “triplet” is used to define elementary statements
- To add more specific data, statements must be made about a statement
- All statements are equally true until we make a “false” statement about that statement
- The statement “tree” can be branched to infinity
- The framework does not provide guidance on how to deal with competing statements

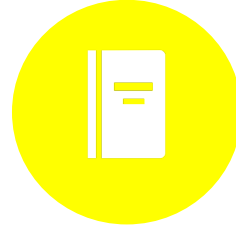
# Anatomy of Statements: The Structure of a Quintuplet



**SUBJECT:**  
THE SUBJECT  
IS THE  
DOCUMENT TO  
WHICH THE  
STATEMENT  
APPLIES



**SELECTOR:**  
THE POSITION  
OF THE  
STATEMENT  
ALONGSIDE THE  
DIMENSIONS OF  
THE DOCUMENT  
TYPE OF THE  
SUBJECT



**PREDICATE:**  
THE PREDICATE  
IS A  
VOCABULARY  
ELEMENT  
TIPIFYING THE  
STATEMENT,  
WITH AN  
EXTENDABLE  
VALUE SET



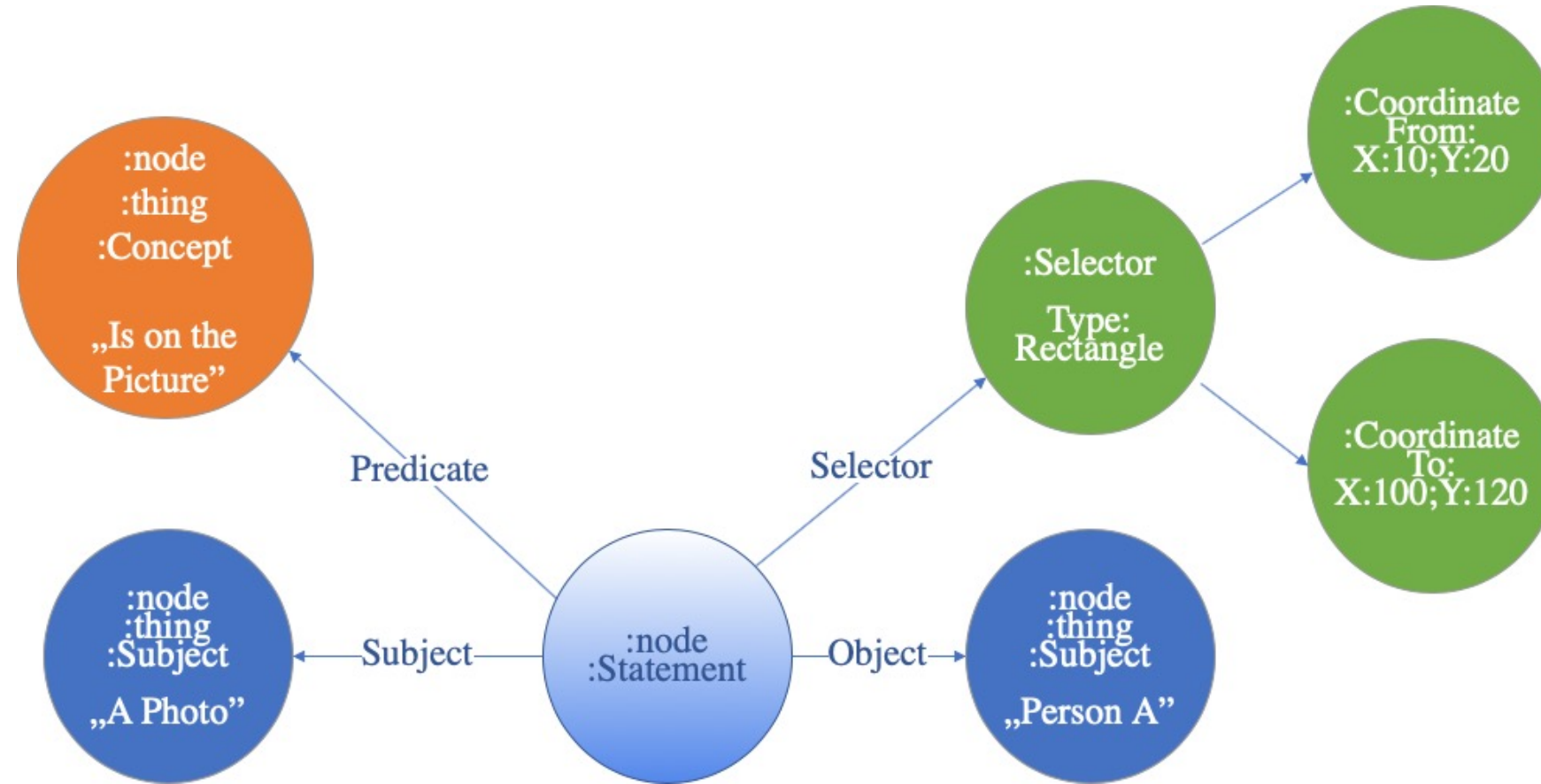
**OBJECT:**  
THE OBJECT IS  
THE BODY OF  
THE  
STATEMENT  
THAT CAN  
STORE A  
LITERAL  
VALUE, POINT  
TO AN ENTITY  
AVAILABLE IN  
ANOTHER  
SYSTEM



**LIFECYCLE:**  
THE LIFE CYCLE OF A  
STATEMENT CARRIES,  
AMONG OTHER THINGS,  
THE TIME OF CREATION,  
THE CREATING AGENT, AS  
WELL AS THE BEGINNING  
AND THE END OF THE  
VALIDITY PERIOD OF  
THE STATEMENT,  
AND THE “CERTAINTY”  
CLASSIFICATION OF THE  
STATEMENT.

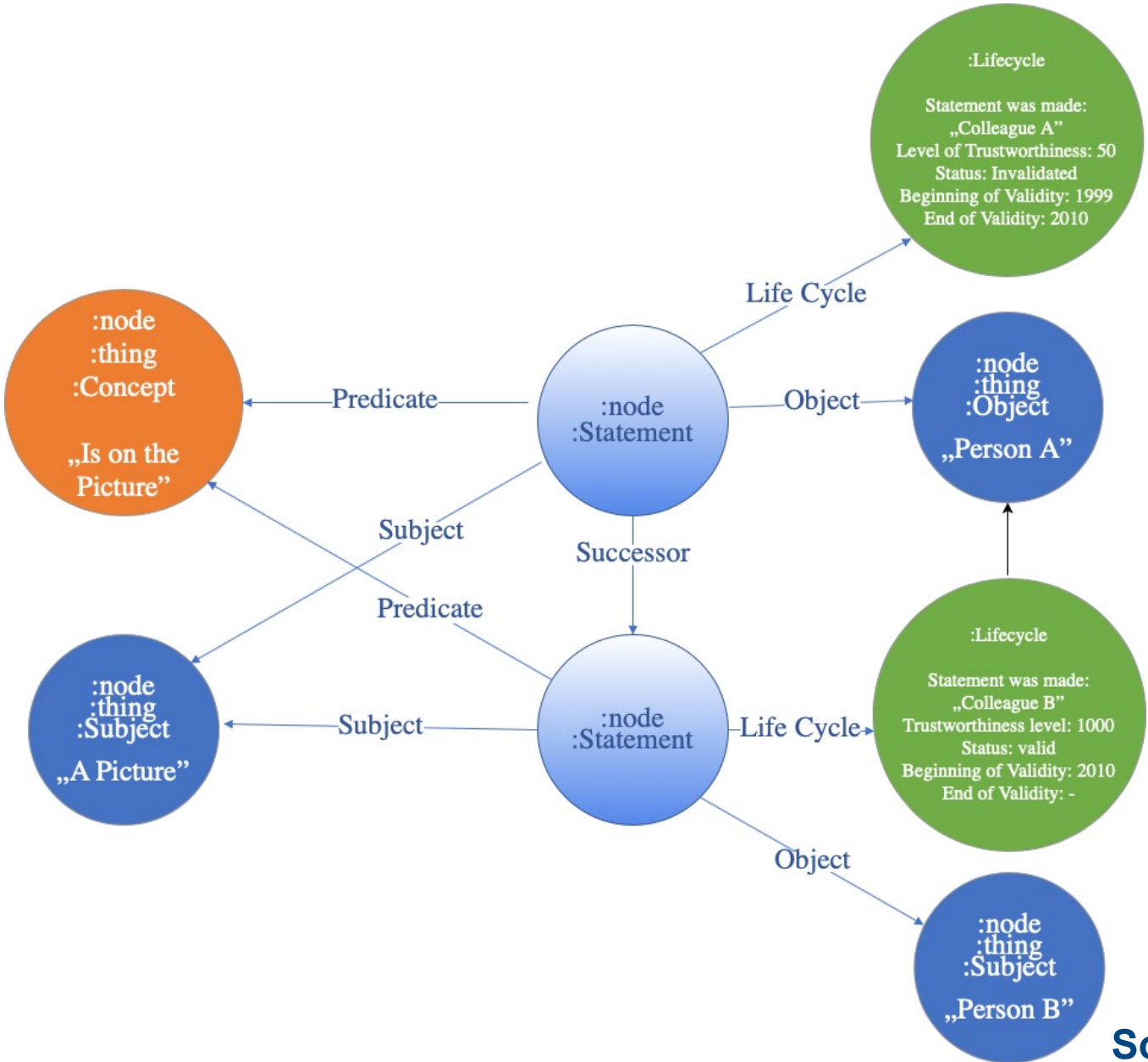


# IIIF – localisation of abstract statements



- The framework specializes in displaying / visualising metadata
- The statements are placed on a virtual canvas
- At the visualisation of an image the given annotations, metadata can be placed in the viewer in an exact manner
- The abstraction formulated in the framework can be extended to all types of media content, by defining the appropriate coordinate system

# Normalized Life Cycle Management of Statements



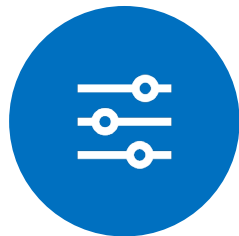
- An illustration of a hierarchy of conflicting statements
- Easy to select statements currently accepted
- Preserving the history of statements
- Statement protection: "Immutable" data

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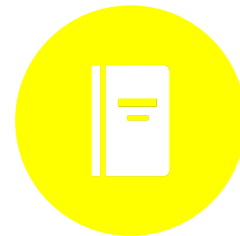
# Cataloguing Module – Local Namespace



ENTITY TYPE:  
THE DEFINITION OF  
THE POSSIBLE  
REPRESENTATIONS  
OF THE ENTITIES  
MANAGED IN THE  
SYSTEM



AVAILABLE  
PROPERTY:  
THE DEFINITION  
OF NAMESPACE  
ELEMENTS  
CREATED FOR  
TYPES.



ENTITY:  
ENTITIES AND  
RECORDS  
MANAGED IN  
THE SYSTEM



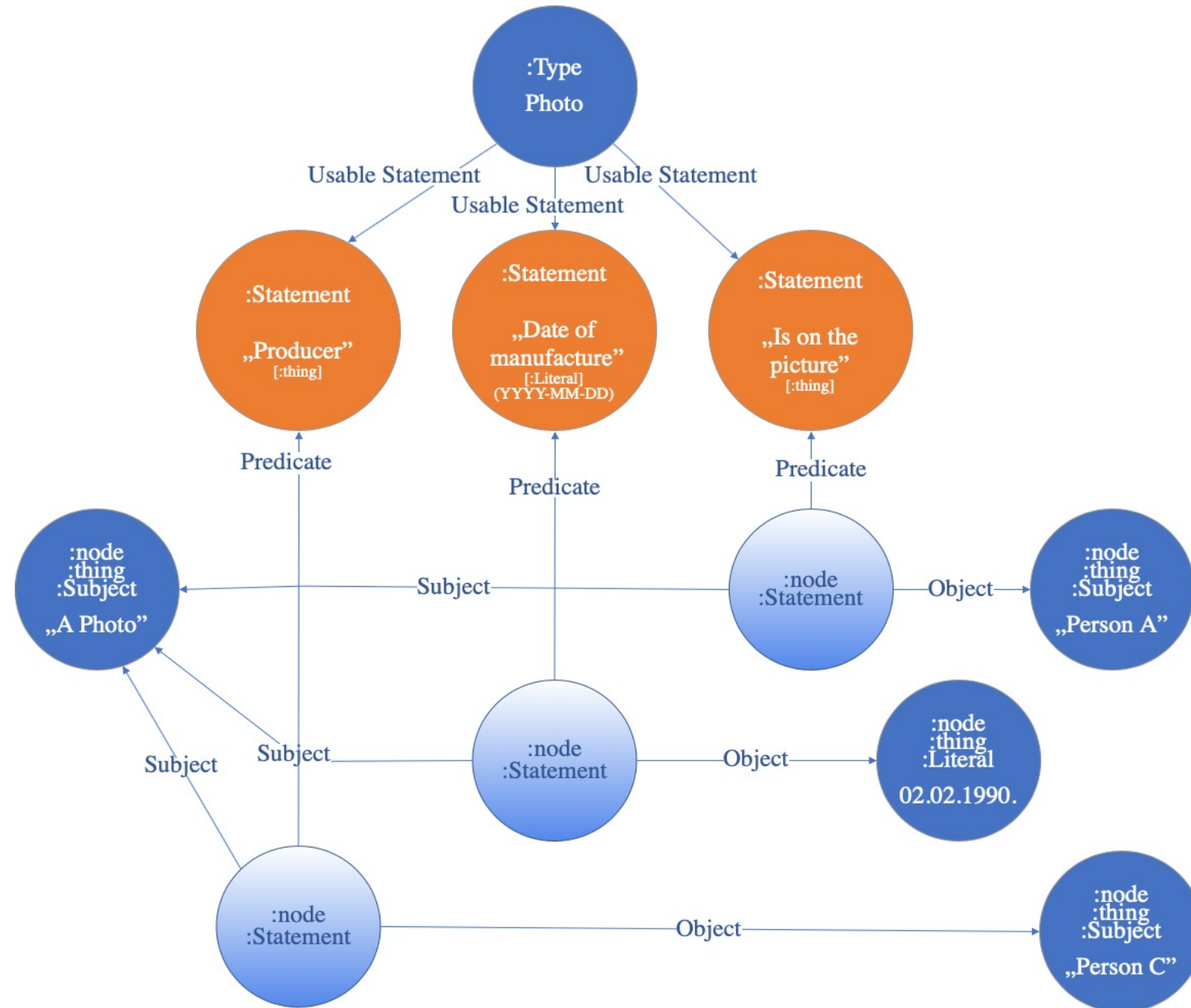
PROPERTY:  
STATEMENTS  
MANAGED IN  
THE SYSTEM



EVENT:  
RECORD OF  
THE CHANGES  
IN THE  
SYSTEM

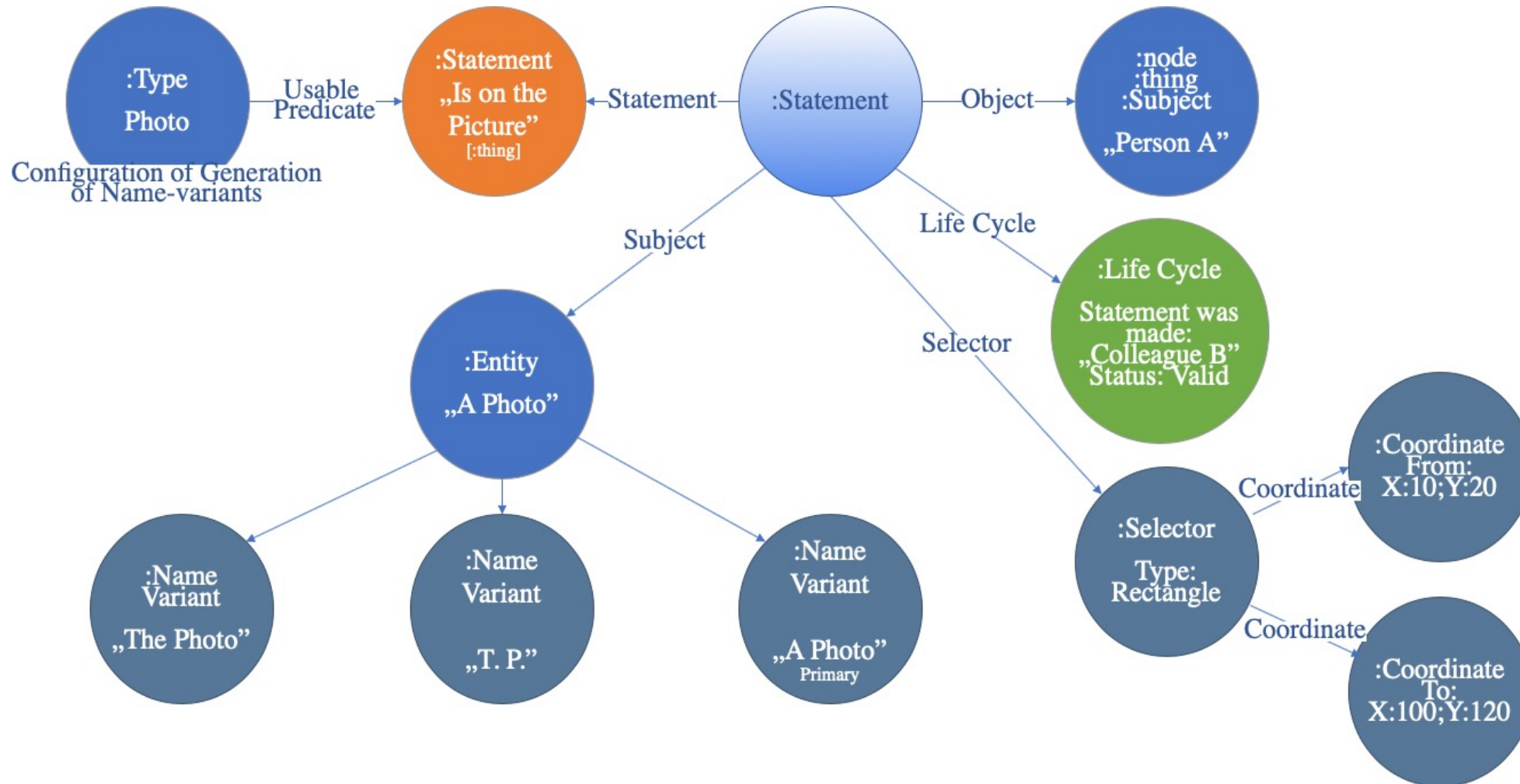


# Customizable Set of Values for Record Types



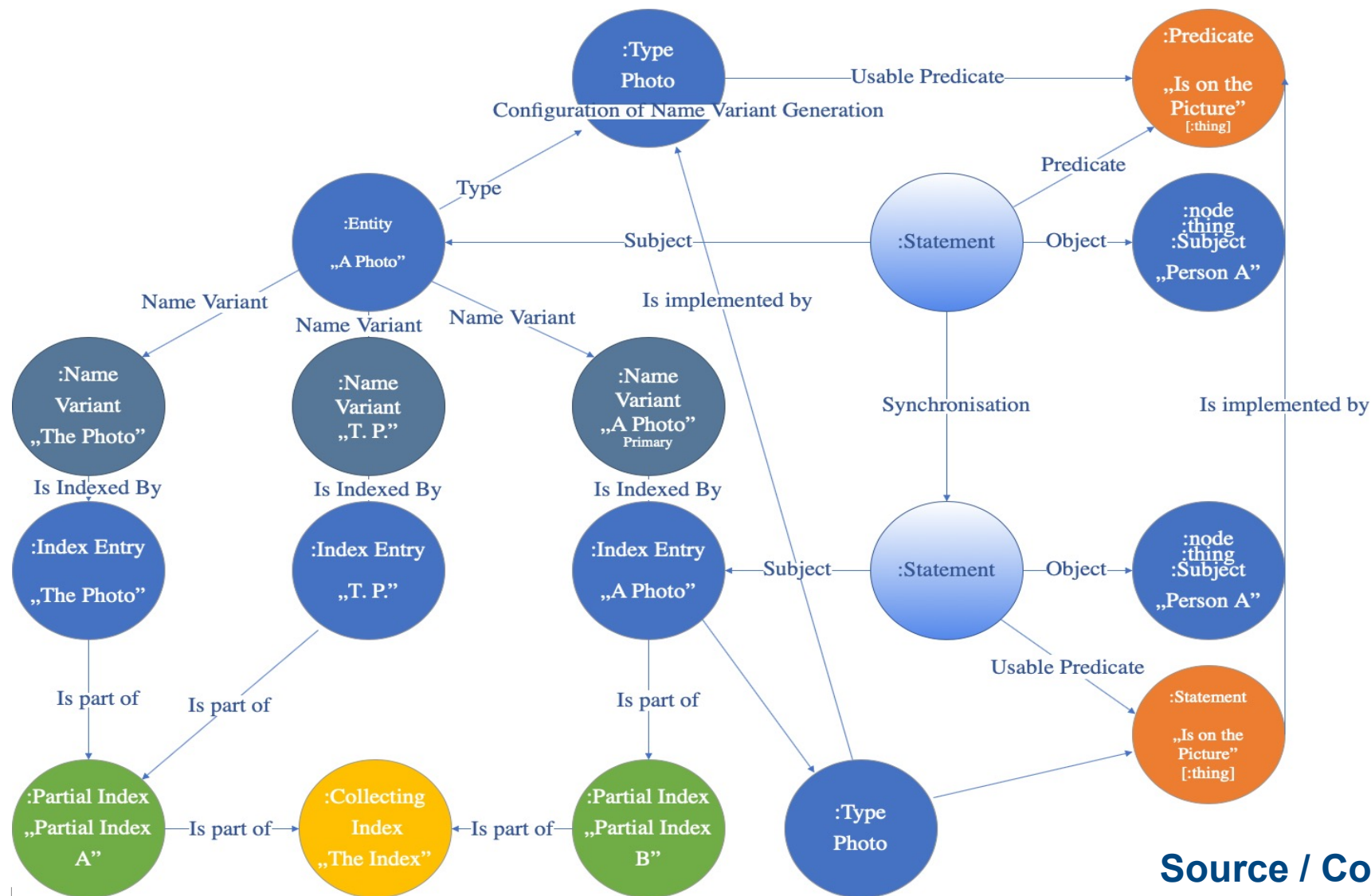
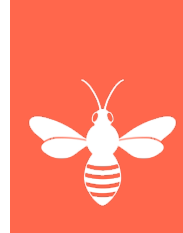
- Entry types exist as part of the data model
- Possible statements (vocabulary) handled by a particular type are freely expandable
- At the statement level, the type of data, the precision of the data, the position of the data on the “canvas” defined by the statement can be defined
- Statement types protection: “Immutable” data

# Authority Record simplified Graph Representation



- Individually configurable vocabulary set
- Elemental, individually positionable statements
- Normalized handling of complex data
  - “Immutable” statements
- Historical managing
- Automatically derived name variants based on statements

# Relationship between Authority Record and Index Items Indexing Records



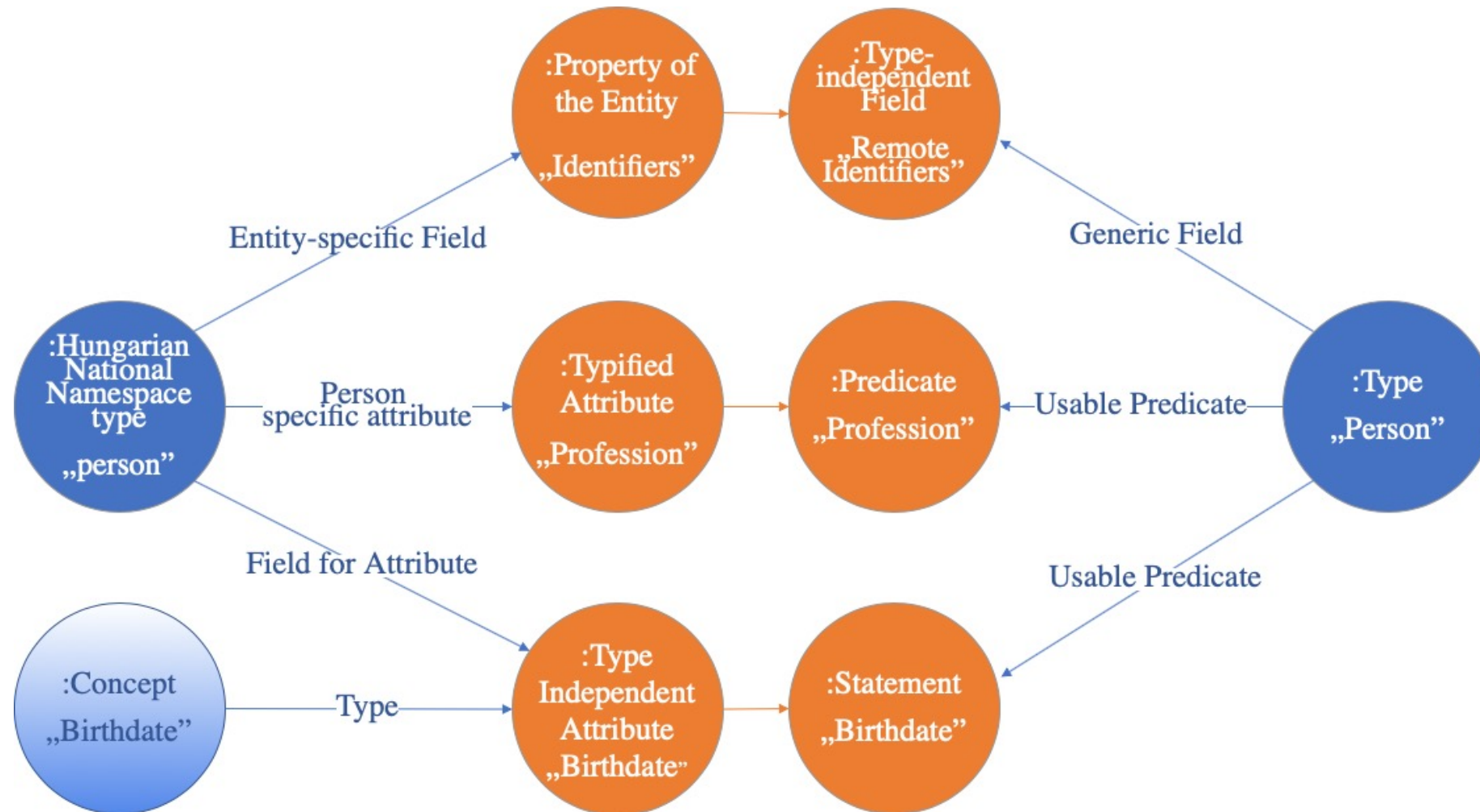
- Entity name variants are formed automatically based on the statements on the entity and the specified configuration
- Each name variant is represented by a separate Index item
- For namespace entities, index items are populated.
- The item is constantly synchronized to changes in the entity.
  - "Immutable" data
- Historical management

Source / Copyright: HerMészSoft



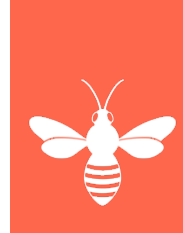
# Importing Entities

## from the Hungarian National Namespace



- The Hungarian National Namespace uses a concept-based dynamically expandable vocabulary to describe Entities.
- Each entity type has specific properties due to the nature of the particular Authority type implemented.
- The predicate of the typized fields is carried by the field name
- Type-independent fields can be evaluated based on a “concept”.

# Hungarian National Namespace Mapping for Import

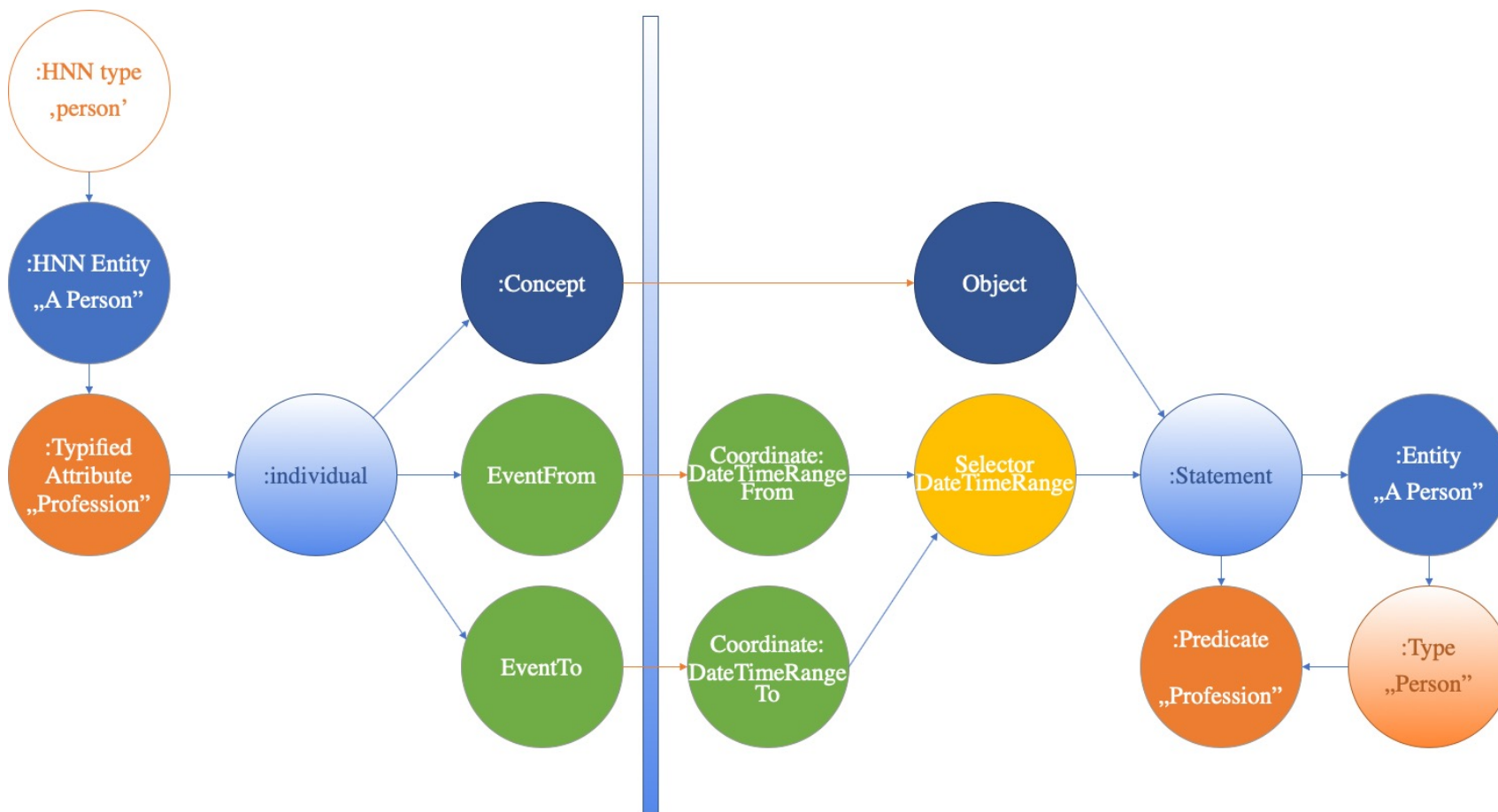


In the case of the type-specific fields of the Hungarian National Namespace, it can be clearly determined, which fields of the “individual” type of the obtained data structure should be included in which fields of the “statement”.

For type-independent fields, we determine which “Statement” is needed to store the value based on the “Concept” ID.

The expression types that carry a value in the HNN are: Individual (Entity, Concept, Event) and Literal.

Data fields for each expression type can be matched 1:1 to the local type (customizable) statement set









# folio



future of libraries is open

**More information  
about the projects:  
<http://hnlp.oszk.hu>  
<https://www.folio.org>**

Miklós Lendvay, HNSZL, [lendvay.miklos@oszk.hu](mailto:lendvay.miklos@oszk.hu)