



# On the way to a Holding Ontology

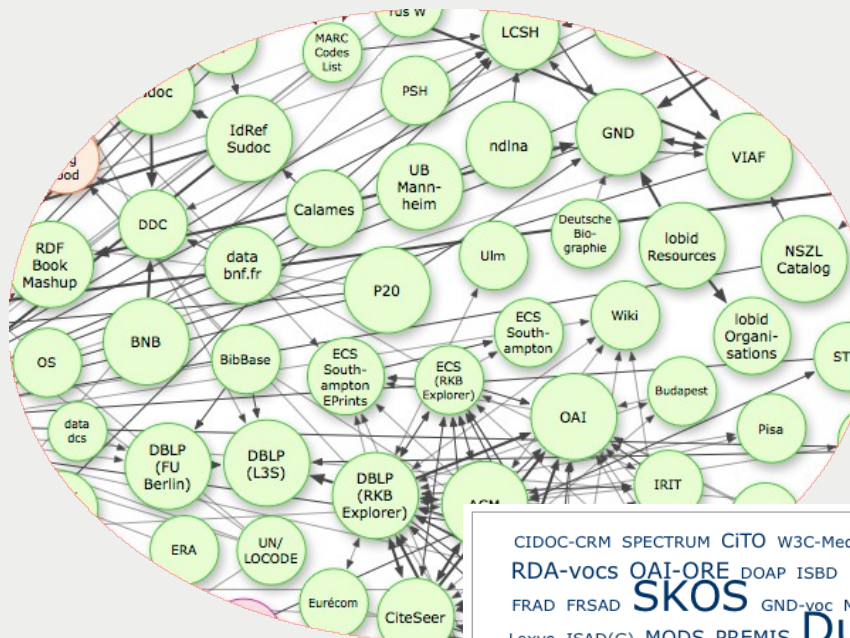
## DINI KIM WG Holdings

Carsten Klee  
Jakob Voß



# Cow path is paved

- ➔ More & more RDF data from libraries and related organizations
- ➔ Good guidelines (W3C LLD, Working Group Titles best practice guide, LLD Book)
- ➔ ..but no descriptions of holding



CIDOC-CRM SPECTRUM CITO W3C-Media-Ontology Music-Ontology FOAF EDM  
 RDA-VOCS OAI-ORE DOAP ISBD BIBO CC-REL SIOC FRBR FRBRcore  
 FRAD FRSD SKOS GND-voc MADS EXIF OPM W3C-Geo-voc UMBEL vCard  
 Lexvo ISAD(G) MODS PREMIS Dublin-Core DC-Collection-vocs  
 MARC-Relators VoID schema.org Open-Graph EAC-CPF MARC EAD CDWA P/META TEI

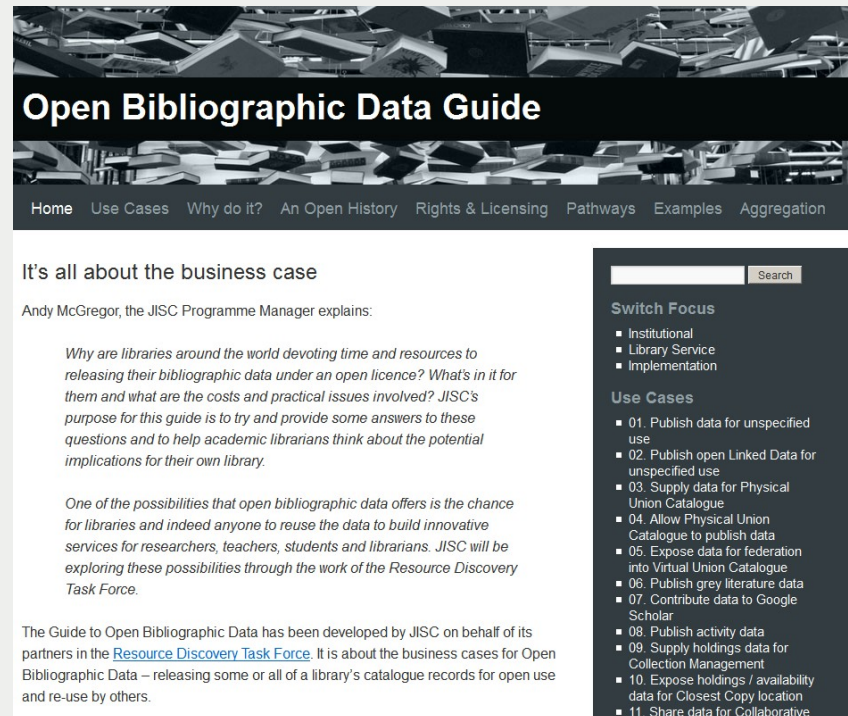




# Why holdings?

## → Use cases

- Final Report 25 October 2011 (W3C LLD Incubator Group)
- Open Bibliographic Data Guide (JISC / UK RDTF)



**Open Bibliographic Data Guide**

Home Use Cases Why do it? An Open History Rights & Licensing Pathways Examples Aggregation

**It's all about the business case**

Andy McGregor, the JISC Programme Manager explains:

*Why are libraries around the world devoting time and resources to releasing their bibliographic data under an open licence? What's in it for them and what are the costs and practical issues involved? JISC's purpose for this guide is to try and provide some answers to these questions and to help academic librarians think about the potential implications for their own library.*

*One of the possibilities that open bibliographic data offers is the chance for libraries and indeed anyone to reuse the data to build innovative services for researchers, teachers, students and librarians. JISC will be exploring these possibilities through the work of the Resource Discovery Task Force.*

The Guide to Open Bibliographic Data has been developed by JISC on behalf of its partners in the [Resource Discovery Task Force](#). It is about the business cases for Open Bibliographic Data – releasing some or all of a library's catalogue records for open use and re-use by others.

Search

**Switch Focus**

- Institutional
- Library Service
- Implementation

**Use Cases**

- 01. Publish data for unspecified use
- 02. Publish open Linked Data for unspecified use
- 03. Supply data for Physical Union Catalogue
- 04. Allow Physical Union Catalogue to publish data
- 05. Expose data for federation into Virtual Union Catalogue
- 06. Publish grey literature data
- 07. Contribute data to Google Scholar
- 08. Publish activity data
- 09. Supply holdings data for Collection Management
- 10. Expose holdings / availability data for Closest Copy location
- 11. Share data for Collaborative






## Use case 1 & 2

The supply of records containing holdings data to a shared service

1. in order to support collection management.
2. in order to enhance discovery, location and delivery services.



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[Title search](#)  
[Ejournals \[by subject\]](#)  
[Newspapers](#)  
[Directory of library codes](#)

**Special subject collections (SSG)** in the system of literature supply supported by the Deutsche Forschungsgemeinschaft (German Research Foundation)

(To display titles attached to a special subject collection please click on SSG-number)

SSG-Nr.	SSG	Bibliothek
<a href="#">0</a>	General and Comparative Religious Studies	<a href="#">Tübingen UB &lt;21&gt;</a>
<a href="#">1</a>	Theology	<a href="#">Tübingen UB &lt;21&gt;</a>
<a href="#">2</a>	Law	<a href="#">Berlin SBB Haus Potsdamer Str. &lt;1a&gt;</a>
<a href="#">2.1</a>	Criminology and Criminalistics	<a href="#">Tübingen Inst. Kriminolog. &lt;21/110&gt;</a>
<a href="#">2.2</a>	Atomic Energy Law	<a href="#">Göttingen Inst. Völkerrecht &lt;7/041&gt;</a>
<a href="#">3.1</a>	Economics, World Economics	<a href="#">Kiel ZBW WGL &lt;206&gt;</a>
<a href="#">3.2</a>	Applied Economics	<a href="#">Köln USB &lt;38&gt;</a>
<a href="#">3.3</a>	Insurance	<a href="#">Köln USB &lt;38&gt;</a>
<a href="#">3.4</a>	Social Sciences	<a href="#">Köln USB &lt;38&gt;</a>
<a href="#">3.5</a>	Communication and Media Studies, Publicity	<a href="#">Leipzig UB &lt;15&gt;</a>
<a href="#">3.6</a>	Political Science, Peace Research	<a href="#">Hamburg SUB &lt;18&gt;</a>
<a href="#">3.61</a>	Parties and unions from Europe and Northamerica (non-conventional literature)	<a href="#">Bibliothek Bonn F.-Ebert-Stiftung &lt;Bo 133&gt;</a>
<a href="#">3.7</a>	Administration	<a href="#">Hamburg SUB &lt;18&gt;</a>
<a href="#">3.8</a>	Local Government Administration (German speaking countries)	<a href="#">Berlin SenatsB &lt;109/720&gt;</a>







## Use case 3 & 4

3. Expose bibliographic data including holdings and potentially availability
  - that can be used to provide a closest copy location service.
4. Creating the opportunity for third parties
  - to develop local and wider services of value
  - some of which may potentially drive increased attention and traffic back to the library and its holdings.



By MJ Suhonos - MyTPL  
iPhone App



## Use case 5

### 5. Search engines having greater knowledge of institutional holdings

Google search results for 0163-9374

Scholar: Ungefähr 49 Ergebnisse (0,04 Sek.)

Suchen: **in den Zusammenfassungen** überall

Tip: Suchen Sie nur nach Ergebnissen auf Deutsch. Sie können Ihre Sprache in den Scholar-Einstellungen festlegen.

<p>Beliebige Zeit</p> <p>Seit 2013</p> <p>Seit 2012</p> <p>Seit 2009</p> <p>Zeitraum wählen...</p>	<p><a href="#">Theory versus Practice in Cataloging Education in Oman: Students' Perspectives</a> KZ Al Hiji, OS Fadlallah - Cataloging &amp; Classification Quarterly, 2013 - Taylor &amp; Francis Zitieren Mehr</p>	Volltext@SBB
<p>Nach Relevanz sortieren</p> <p>Nach Datum sortieren</p>	<p><a href="#">Tracing the Conceptions and Treatment of Genre in Anglo-American Cataloging</a> HL Lee, L Zhang - Cataloging &amp; Classification Quarterly, 2013 - Taylor &amp; Francis Zitieren Mehr</p>	Volltext@SBB
<p>Web-Suche</p> <p>Seiten auf Deutsch</p>	<p><a href="#">The Use of RDA Elements in Support of FRBR User Tasks</a> P Hider, YH Liu - Cataloging &amp; Classification Quarterly, 2013 - Taylor &amp; Francis Zitieren Mehr</p>	Volltext@SBB
<p><input type="checkbox"/> Patente einschließen</p> <p><input type="checkbox"/> Zitate einschließen</p>	<p><a href="#">Using Linked Open Data to Enhance Subject Access in Online Primary Sources</a> T Lindquist, M Dulock, J Tomroos... - Cataloging &amp; ..., 2013 - Taylor &amp; Francis Zitieren Mehr</p>	Volltext@SBB
<p><input checked="" type="checkbox"/> Alert erstellen</p>	<p><a href="#">The Road to BIBFRAME: The Evolution of the Idea of Bibliographic Transition into a Post-MARC Future</a> A Kroeger - Cataloging &amp; Classification Quarterly, 2013 - Taylor &amp; Francis Zitieren Mehr</p>	Volltext@SBB
	<p><a href="#">A Review of "Indexing and Retrieval of Non-Text Information" edited by Diane Rasmussen Neal. Berlin: De Gruyter. 2012. vi, 431 p. illus. ISBN 978-3-11-026057-1. ...</a> H Vermeij - Cataloging &amp; Classification Quarterly, 2013 - Taylor &amp; Francis Zitieren Mehr</p>	Volltext@SBB
	<p><a href="#">A Review of "Demystifying Serials Cataloging: A Book of Examples" by Fang Huang Gao, Heather Tennison, and Janet A. Weber. Santa Barbara, CA: Libraries ...</a> KM Randall - Cataloging &amp; Classification Quarterly, 2013 - Taylor &amp; Francis Zitieren Mehr</p>	Volltext@SBB
	<p><a href="#">A Review of "Theoretical Foundations for Digital Libraries: The 5S (Societies, Scenarios, Spaces, Structures, Streams) Approach" by Edward A. Fox, Marcos André ...</a> A Weiss - Cataloging &amp; Classification Quarterly, 2013 - Taylor &amp; Francis Zitieren Mehr</p>	Volltext@SBB





## Working Group Holdings



- ➔ founded in April 2013
- ➔ Mailinglist [dini-ag-kim-bestandsdaten@lists.dnb.de](mailto:dini-ag-kim-bestandsdaten@lists.dnb.de)
- ➔ Wiki <https://wiki.dnb.de/x/johZB>
- ➔ GitHub  
<https://github.com/organizations/dini-ag-kim/teams/448741>
- ➔ Discussion in English





## What are our goals?

### ➔ Best Practice Guide

- ➔ how to publish holding data in RDF
- ➔ reuse of existing vocabularies
- ➔ examples and mappings based on existing data and formats (MARC, PICA)





# Analysis of Standards/Formats related to holdings

## → Standards/Formats

- ISO 20775
- ISO 18626 Interlibrary Loan Transactions
- Holdings Statements for Bibliographic Items Z39.71-2006
- MARC21 Holdings
- ZETA

Label	Description	Comment	Possible Terms					
1	identifier for the bibliographic item		5.1 Item Identification Area					
3	Institution Identifier	Data element in the Location Data Area indicating an institution such as a library, organization, collection, consortium, a physical site.	5.2.1 Institution Identifier					
4	Sublocation Identifier	Data element in the Location Data Area indicating a subdivision or collection within the institution represented by the institution identifier.	5.2.2 Sublocation Identifier					
5	Copy Identifier	Data element in the Location Data Area indicating the specific copy of a bibliographic unit for which holdings are being recorded.	5.2.3 Copy Identifier					
6	Call Number	Data element in the Location Data Area indicating the physical location of a bibliographic item or bibliographic unit in a collection.	5.2.4 Call Number					
7	Date of Report	Data area that gives the date on which the holdings statement was created or last updated, thus indicating the currency of the information.	5.3 Date of Report Area					
8	Type of Unit Designator	This data element specifies the component of the bibliographic item found in the General Holdings and/or the Extent of Holdings areas.	5.4.1 Type of Unit Designator					
9	Physical Form Designator	This data element specifies the physical form of the unit to which the following general holdings information and/or extent of holdings pertain.	5.4.2 Physical Form Designator					
10	Completeness Designator	This data element gives general guidance on the extent of the institution's holdings of the item. For serial publications, it indicates the portion of the serial's published run that is held by the library. The value used is based on the institution's own estimation of its holdings at the time of recording.	5.4.3 Completeness Designator					
11	Acquisition Status Designator	This data element specifies acquisition status for the unit at the time of the holdings report.	5.4.4 Acquisition Status Designator					
12	Retention Designator	This data element specifies the retention policy for the unit at the time of the holdings report.	5.4.5 Retention Designator					
13	Name of Unit	The data element name of unit is usually given only when the holdings of a secondary bibliographic unit are being recorded. For single-part secondary units, the name of unit may be the only data element required to express Extent of Holdings.	5.5.2 Name of Unit					





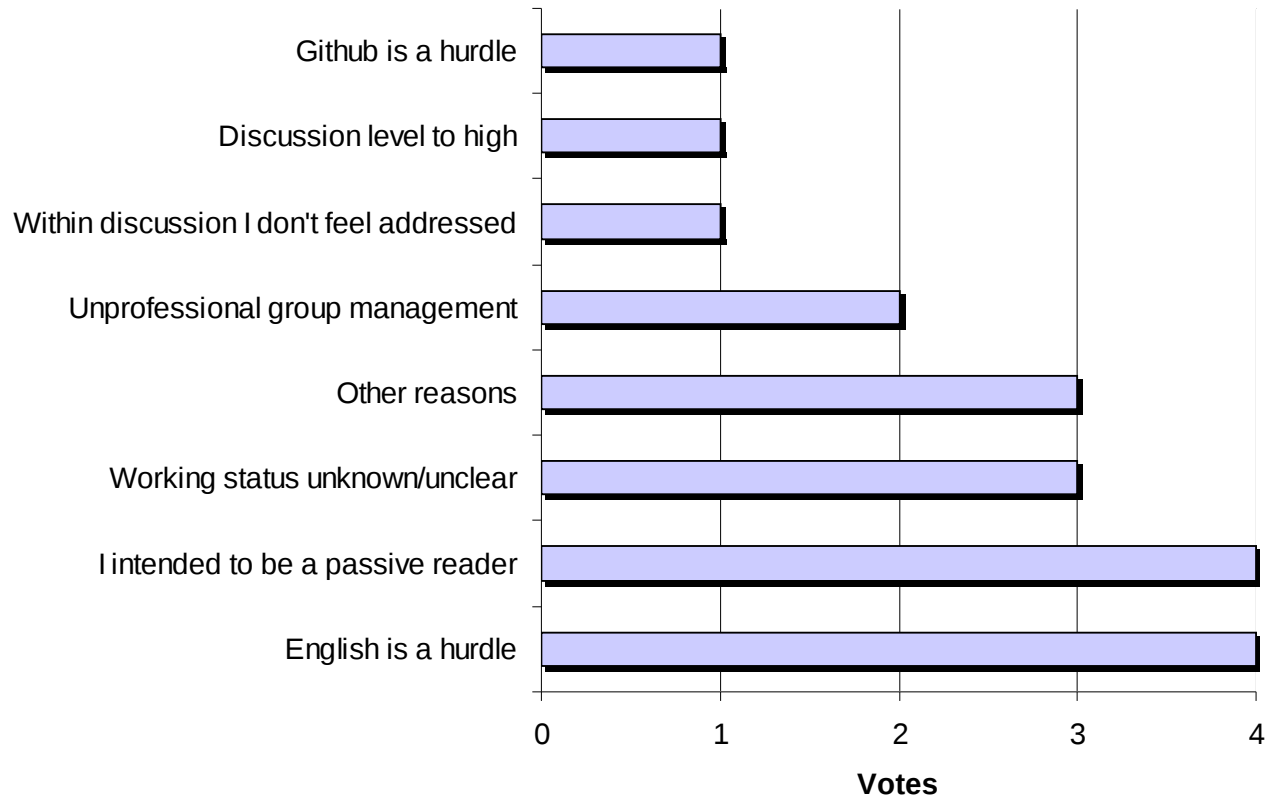
## Analysis of Ontologies and Vocabularies related to holdings

### ➔ **Ontologies/Vocabularies**

- ➔ Document Availability Information API (DAIA)
- ➔ Document Service Ontology (DSO)
- ➔ Simple Service Status Ontology (SSSO)
- ➔ Enumeration and Chronology of Periodicals Ontology (ECPO)
- ➔ Bibframe Holding Vocabulary
- ➔ ONIX-SOH Serials Online Holdings
- ➔ ONIX for Serials Coverage Statement
- ➔ Interlibrary loan code
- ➔ GLAM Item Ontology
- ➔ Library Holdings RDF Vocabulary
- ➔ Erlangen CRM
- ➔ DC Terms, FOAF, Good Relations etc.



## What hinders you from contributing to the holdings group?



➔ 90 postings by 9 of 36 subscribers since April



GBV

And now?

You are welcome to contribute to the group!

via

<http://lists.dnb.de/mailman/listinfo/dini-ag-kim-bestandsdaten>

or

<https://github.com/dini-ag-kim/holding-ontology>

- is your data covered by the Holding Ontology?

- provide RDF examples

<https://github.com/dini-ag-kim/holding-ontology-examples>



# What kind of holding data?

Holding Ontology should enable to clearly answer:

1. What holdings does a library have?
  2. What documents are included in or exemplified by a holding?
  3. What can patrons do with a holding?
  4. Where is a holding located?
  5. What are unique properties of a holding?
  6. What is a patron doing with a holding?
- Clarify fuzzy terms terms such as  
*holding, document, copy, item, piece, copy, ...*



## Core Concepts (1/2)

*Why create new RDF classes? Reuse existing ones!*

**frbr:Item** an exemplar/copy of a document  
(aka *holding*)

**bibo:Document = foaf:Document** an abstract or concrete work which an frbr:Item is exemplar of

**foaf:Agent** a person or organization  
(a library, a patron. . .)

**schema:Place = gr:Location** a place or location  
(a library building, a floor, a stack. . .)

## Core Concepts (2/2)

*Why put everything in one ontology? Create micro-ontologies!*

**dso:DocumentService** a service that includes a document  
(lending, accessing, copying...)

**ssso:ServiceEvent** a service that is also an event (e.g. lending of  
item X by patron Y during time Z)

**ecpo:Chronology** enumerations and chronology of a periodical or  
series (e.g. volume 5, issue 3 till now)

Here “a service that” refers to **service:Service** defined in the  
Service Ontology to describe services both abstract and concrete.

## Micro-Ontologies (classes/properties/individuals)

- ▶ **Service Ontology** (4/8/0)  
<http://dini-ag-kim.github.io/service-ontology/>
- ▶ **Document Service Ontology (DSO)** (5/2/0)  
<http://purl.org/ontology/dso>
- ▶ **Simple Service Status Ontology (SSSO)** (8/2/0)  
<http://purl.org/ontology/ssso>
- ▶ **Holding Ontology** (0/10/0)  
<http://dini-ag-kim.github.io/holding-ontology/>
- ▶ **Enumeration and Chronology of Periodicals Ontology (ECPO)** (3/29/2) <http://purl.org/ontology/ecpo>
- ▶ **DAIA Ontology (DAIA)** (0/4/0)  
<http://gbv.github.io/daiaspec>
- ▶ **PAIA Ontology (PAIA)** (2/1/2)  
<http://purl.org/ontology/paia>

# What kind of holding data? (1/2)

## 1. What holdings does a library have?

- ▶ `$library a foaf:Agent ;`  
`holding:holds [ a frbr:Item ] .`
- ▶ *This alone does not imply services (see 3.)*

## 2. What documents are included/exemplified by a holding?

- ▶ `$holding a frbr:Item;`  
`holding:exemplar [ a bibo:Document ] .`
- ▶ `$holding a frbr:Item;`  
`ecpo:hasChronolgy [ a ecpo:Chronology ] .`
- ▶ Part/whole relationships:  
`dcterms:hasPart, holding:narrowerExemplar...`

## 3. What can patrons do with a holding?

Services and Offerings that include holding items  
(`daia:availableFor, service:providedBy...`)

# What kind of holding data? (1/2)

## 4. Where is a holding located?

- ▶ `$holding a frbr:Item ;`  
`schema:location $place ;`  
`holding:inCollection $col .`
- ▶ `$o a schema:Offer ;`  
`gr:includesObject $holding ;`  
`schema:availableAtOrFrom $place .`
- ▶ ...?

## 5. What are unique properties of a holding?

`holding:label` (aka call number, shelf mark...)

## 6. What is a patron doing with a holding?

holdings currently on loan or reserved expressible with PAIA ontology and Simple Service Status Ontology.



# Summary

The holding ontology combines

- ▶ existing ontologies (BibO, FOAF, GoodRelations, Schema.org)
- ▶ new micro-ontologies (DSO, SSSO, ECPO, DAIA, Service)
- ▶ and a couple of holding ontology properties

to all RDF terms required to describe holding information.

*work in progress, feedback welcome!*

<https://github.com/dini-ag-kim/holding-ontology>