

Linked Open Data

for BYTE

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WIKIMEDIA
DEUTSCHLAND

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Agenda

- Open data & our Linked Open Data vision
- About Wikimedia Deutschland
- About Wikidata & Wikibase
- Use cases
- Discussion

Linked Open Data

Open Data

...is data that is openly accessible, exploitable, editable and shared by anyone for any purpose. Open data is licensed under an open license.

https://en.wikipedia.org/wiki/Open_data

Linked Data

...is structured data which is interlinked with other data so it becomes more useful through semantic queries.

https://en.wikipedia.org/wiki/Linked_data



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5* Open Data Model

- ★ make your stuff available on the Web (whatever format) under an open license
- ★★ make it available as structured data (e.g., Excel instead of image scan of a table)
- ★★★ make it available in a non-proprietary open format (e.g., CSV instead of Excel)
- ★★★★ use URIs to denote things, so that people can point at your stuff
- ★★★★★ link your data to other data to provide context



Sir Tim Berners-Lee's 5-star Open Data. (o. D.). <https://5stardata.info/en/>



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Linked Open Data vision

“We work towards a future in which people share the power to collect and organize the data that shapes humanity's understanding of the world.

Diverse communities around the world participate in Wikidata and in a network of specialized Wikibases, co-creating an open and free global knowledge graph in a thriving Linked Open Data web.

This is the basis upon which people, companies and institutions of all sizes can generate new insights, build new apps and services, and change the world for the better.”



Source: [Wikimedia Linked Open Data Strategy 2021](#)

Wikimedia Deutschland

We are a **non-profit** organisation based in **Berlin**. The **German chapter** of the global **Wikimedia Movement**.

We work to provide more **people** with more **access** to more **knowledge**.



Software development

We have a dedicated software development department. Our role is to ensure that Wikimedia Deutschland **gives everyone free access to more knowledge** by delivering innovative and useful **open source software**.

We develop and maintain **Wikibase**. We also develop and maintain **Wikidata**, which is run on the servers of the Wikimedia Foundation.



Software development

The WMDE software teams build products for a large international community of users

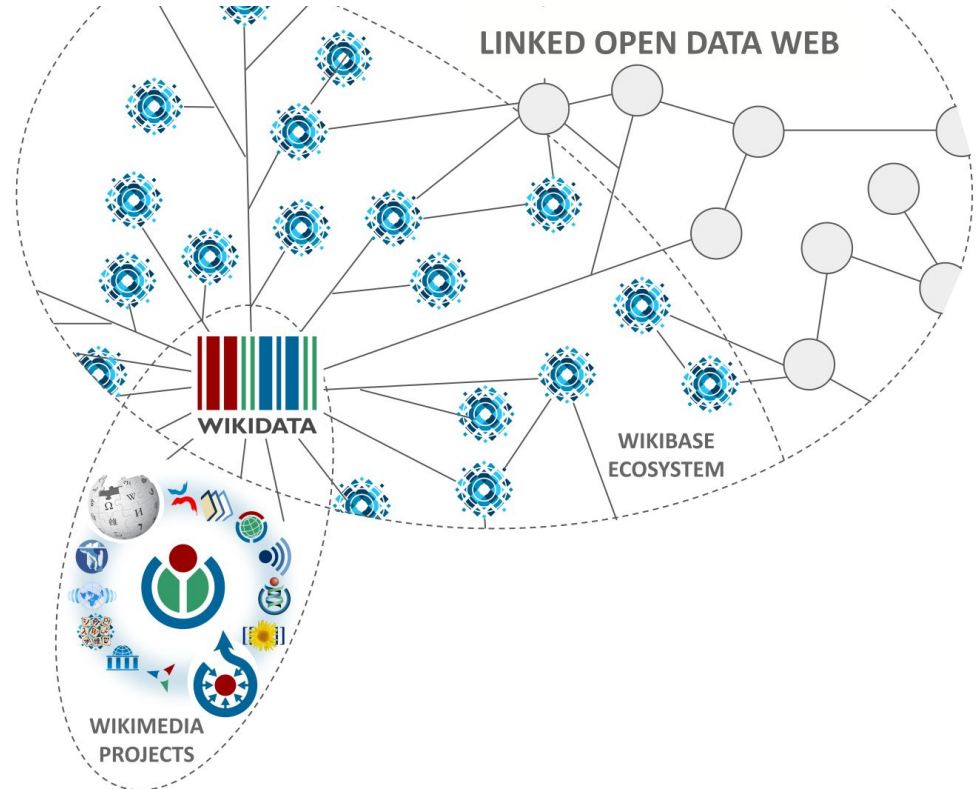
To ensure we build the right products, these users must play a central role in our product development processes

We adopt a **community-centered development** approach
In practice this means that our community of users inform product development and we work to ensure transparency around our work

Foundation of our Linked Open Data work

Wikidata provides data and an ontology that others can use, and build upon.

The Wikibase products expand the knowledge available through Linked Open Data



Linked Open Data and the role of Wikibase

Wikibase is an open-source software suite for creating collaborative knowledge bases, opening the door to the Linked Open Data web.



Wikidata



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Wikidata: the basics

- **Wikimedia project** started in 2012
- **Free** and **open** knowledge base
- Contains **structured data**
- **Linked** to other databases
- Data available under **CC0 licence**
- Based on **statements** and **references**
- Made for **humans** and **machines**
- **Multilingual**
- **Collaborative**



How is data modeled?

Users model the world in terms of **“triples”**. Triple structure: **Item, Property, Value**

Maya Angelou (Q19526) — **Item identifier (Q item)**

American poet and author (1928-2014)

 edit

Marguerite Annie Johnson | Marguerite Johnson | Marguerite Ann Johnson | Marguerite Anne Johnson

[In more languages](#)

Statements

Property — instance of

 human — **Value**

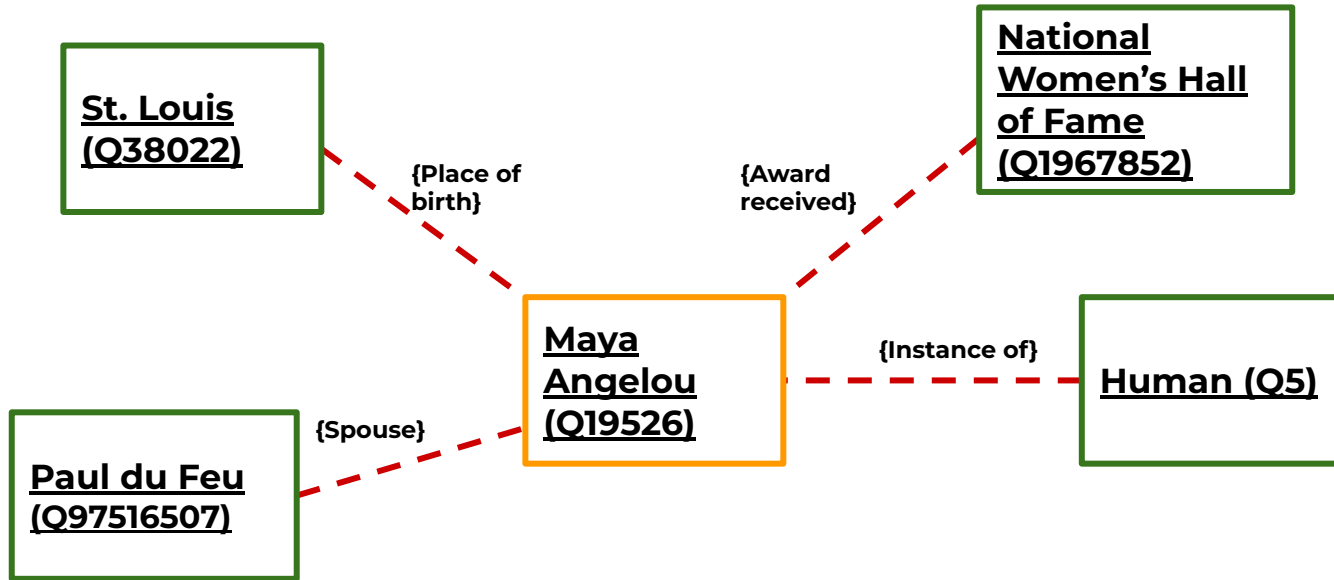
 edit

[1 reference](#)

[+ add value](#)

How is data modeled?

Linking data: items are linked to each other



Querying Wikidata



Wikidata Query Service

Examples

Help

More tools

Wikidata Query Builder

The Wikidata Query Builder provides a visual interface for building a simple Wikidata query. It is ideal for users with little or no experience in [SPARQL](#), the powerful query language. The Query Builder doesn't offer SPARQL's full functionality, but you can always open your query in the Query Service, where you can view, edit or expand it via the link above the results. [Feedback is welcome here](#).

Query

Find all items...

With Without Property matching Value References

Add condition

Settings

Limit the number of results to
 Show IDs instead of labels (may prevent timeout)

Run query Get a shareable link

[Show query in the Query Service](#)

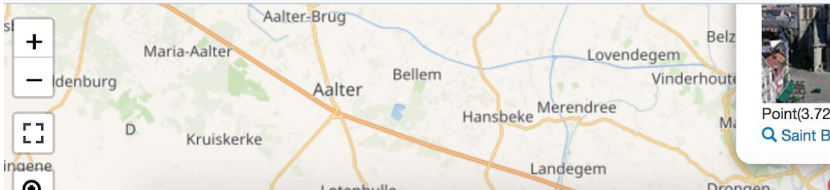
Results

Results will be displayed here

```
1 #defaultView:Map
2 SELECT ?item ?itemLabel ?coord ?image
3 WHERE
4 {
5   ?item wdt:P708 wd:Q869096.
6   ?item wdt:P625 ?coord.
7   OPTIONAL {
8     ?item wdt:P18 ?image
9   }
10  SERVICE wikibase:label { bd:serviceParam wikibase:language "en".
11 }
```



Map

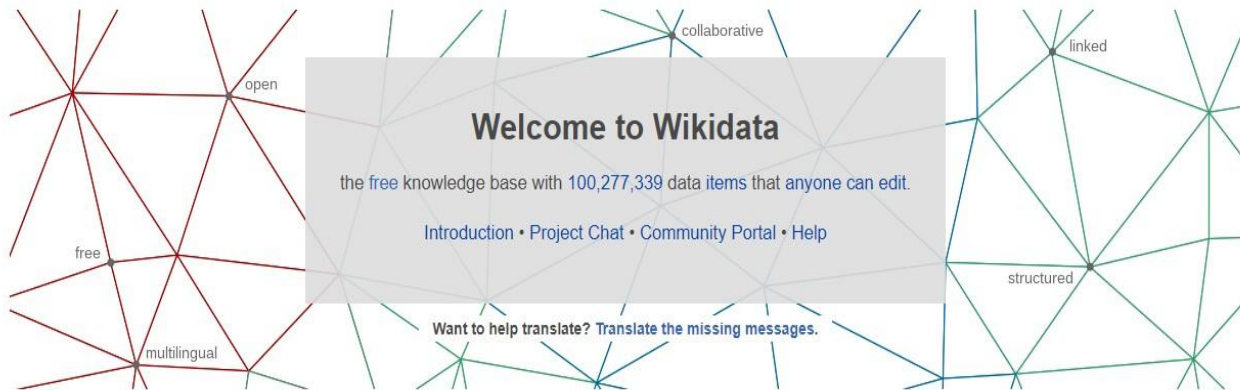


About the Query Builder

Licensed under [BSD 3-Clause License](#)
Last build at [Thu, 19 Aug 2021 08:44:30 GMT](#)
[View Source](#)
[Report a bug](#)

About us

[Privacy Policy](#)
[Wikimedia Deutschland](#)
[Made by the Wikidata team](#)



- Main page
- Community portal
- Project chat
- Create a new Item
- Recent changes
- Random Item
- Query Service
- Nearby
- Help
- Donate

- Lexicographical data
- Create a new Lexeme
- Recent changes
- Random Lexeme

- Tools
- What links here
- Related changes
- Special pages
- Permanent link
- Page information
- Wikidata item

- In other projects
- Wikimedia Commons
- MediaWiki
- Meta-Wiki
- Multilingual Wikisource

- Wikispecies
- Wikibooks
- Wikimania
- Wikinews
- Wikipedia
- Wikiquote
- Wikisource
- Wikiversity

Welcome!

Wikidata is a free and open knowledge base that can be read and edited by both humans and machines.

Wikidata acts as central storage for the **structured data** of its Wikimedia sister projects including Wikipedia, Wikivoyage, Wiktionary, Wikisource, and others.

Wikidata also provides support to many other sites and services beyond just Wikimedia projects! The content of Wikidata is available under a free license[?], exported using standard formats, and can be interlinked to other open data sets on the linked data web.

Get involved

For a complete starters' guide, visit the **community portal**.

Learn about Wikidata

- What is Wikidata? Read the **Wikidata introduction**.
- Explore Wikidata by looking at a featured showcase item for author **Douglas Adams (Q42)**.
- Get started with Wikidata's **SPARQL query service**.

Contribute to Wikidata

Learn about data

New to the wonderful world of data? Develop and improve your data literacy through content designed to get you up to speed and feeling comfortable with the fundamentals in no time.



Item: *Earth* (Q2)



Property: *highest point* (P610)



custom value: *Mount Everest* (Q513)

Current highlights

- attempted assassination of Imran Khan (Q115036627)
- Listenbourg (Q114985162)





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- Special pages
- Printable version

Special page

Create account

Language: Deutsch | English | Esperanto | français | español | italiano | Nederlands

Username (help me choose)

Password

It is recommended to use a unique password that you are not using on any other website.

Confirm password

Email address (optional)

To protect the wiki against automated account creation, we kindly ask you to enter the words that appear below in the box (more info):

CAPTCHA Security check



Can't see the image?

Wikidata is made by people like you.



1,764,773,189

edits



100,277,157

items



24,027

recent contributors

Log in - Wikidata

wikidata.org/w/index.php?title=Special:UserLogin&returnto=Wikidata%3AMain+Page



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Special page

Log in

Language: Deutsch | English | Esperanto | français | español | italiano | Nederlands

Username

Password

Keep me logged in

[Help with logging in](#)

[Forgot your password?](#)

Don't have an account?

Wikibase



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Wikibase is the software underlying Wikidata

It is a **free** and **open source** software suite launched in 2012 by **Wikimedia Deutschland**. We continue to develop and maintain it today.

Wikibase powers **Wikidata** and increasingly, a wide range of other **linked open data projects**.



What does Wikibase offer

- Users can **create** and **manage** their own linked open **knowledge base**
- Its flexibility allows users to build their own **data model** to suit their needs
- A MediaWiki interface means users can easily **access** and **update** data
- Just like on Wikidata, users can interact with their data using **SPARQL**, the powerful query language



Wikibase is ideal for..

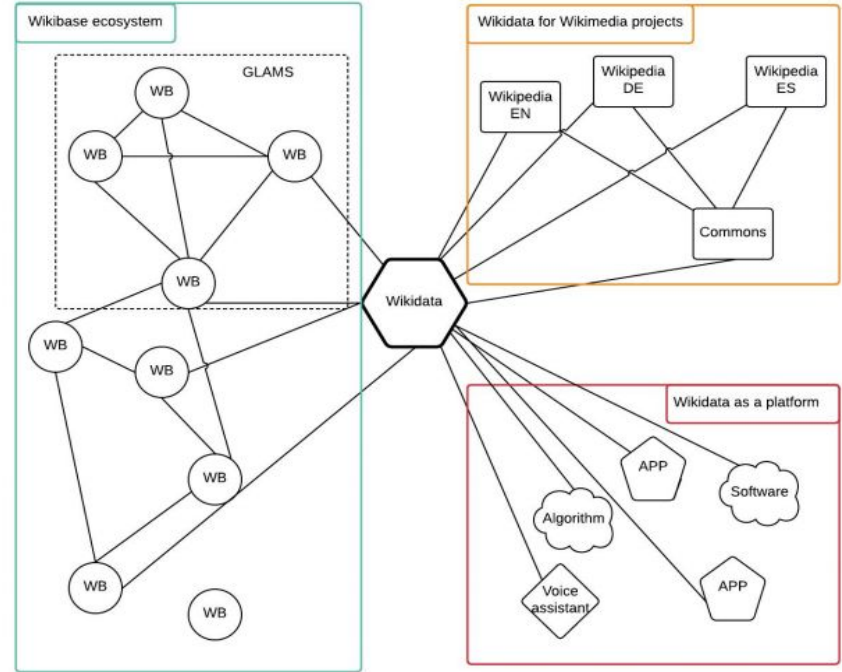
- Structured data collections that call for a **flexible** data model
- **Linking** databases to external sources
- **Collaborative projects** where lots of people edit and manipulate data
- Data that should be **both human and machine** readable
- Projects involving **multilingual labeling**



Wikibase Ecosystem

Wikibase makes it easier than ever before to **create, connect, and grow** a collaborative linked knowledge base.

We are enabling the co-creation of the **world's largest knowledge graph** of free and open data which will be used to **create new knowledge** for the world.



Suite vs. Cloud overview

	Wikibase Suite (manual install/ via Docker images)	Wikibase Cloud (SaaS)
Hosting	Self managed	Hosted by WMDE (Europe, GDPR-compliant)
Technical experience (installation)	Intermediate to Expert	Novice
Number of Wikibases	Unlimited	6 (per user account)
Customisation	High	Generic

Use Cases

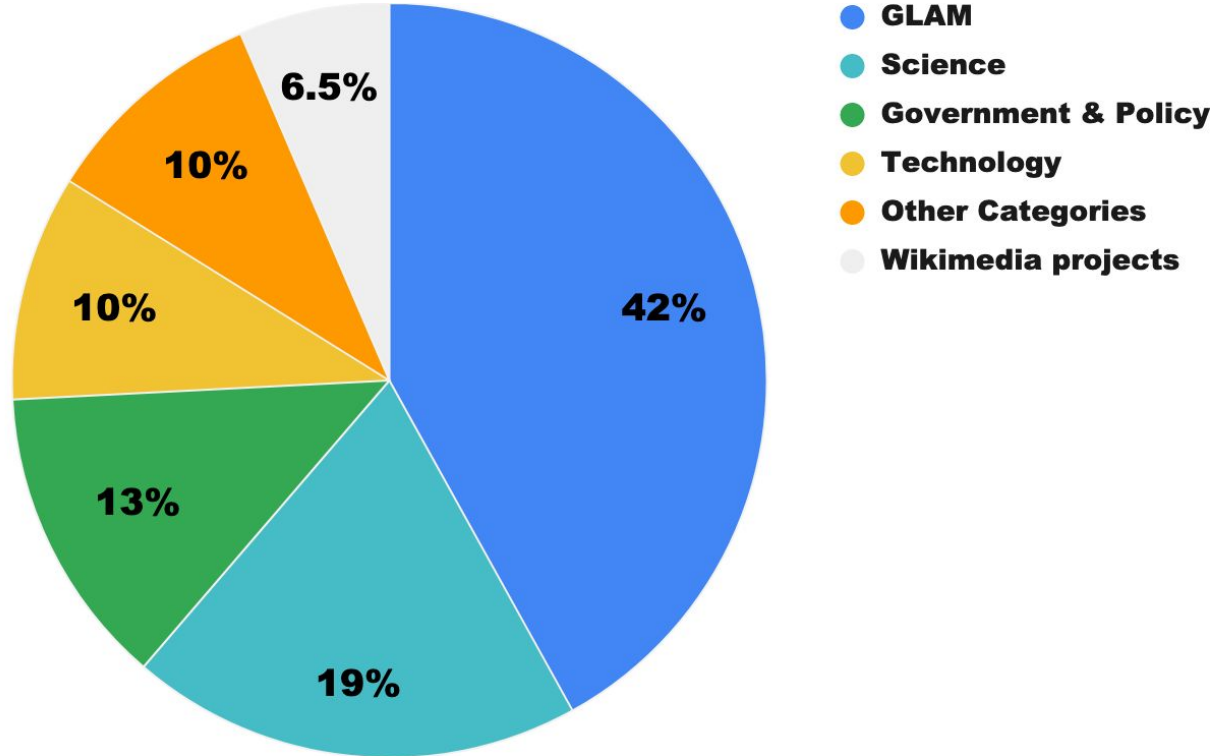


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Wikibases at a glance

The active Wikibases instances that we currently track span a number of disciplines.

This pie chart represents the % of Wikibase instances in each category, not the % of data they contribute to the decentralised knowledge graph.



*GLAM stands for galleries, libraries, archives, and museums

EU Commission

- The [EU Knowledge Graph](#) is a Wikibase instance managed and maintained by a team at the EU Commission
- It contains **general purpose data** about the European Union and its institutions, as well as data about **EU funding and its beneficiaries**
- It acts as a **data repository** for the [Kohesio](#) website .
- Video [here](#).

Page Discussion Read View source View history

The EU Knowledge Graph

Welcome to the EU Knowledge Graph

This graph contains structured data. In particular it contains information about:

- institutions of the European Union
- countries in the world as well as their capitals
- DGs from the European Commission
- 705.108 projects financed by the European Union
- 112.688 beneficiaries of these projects (like [3]#)
- the Nomenclature of Territorial Units for Statistics (NUTS)
- buildings ([4]#), canteens, etc.

The **query service** can be used to find information. The **question answering service** can be used to find information. Exports of the **data** contain information about the data. New knowledge will be added as it becomes available.

European Commission | Kohesio Open Projects | Project Information Portal for Regional Policy

PROJECTS BENEFICIARIES

EUROPEAN UNION SUPPORTS PROJECTS IN ALL REGIONS TO MAKE EUROPE STRONGER

LEARN MORE >

IN MY REGION

PROJECTS NEAR ME

TIB

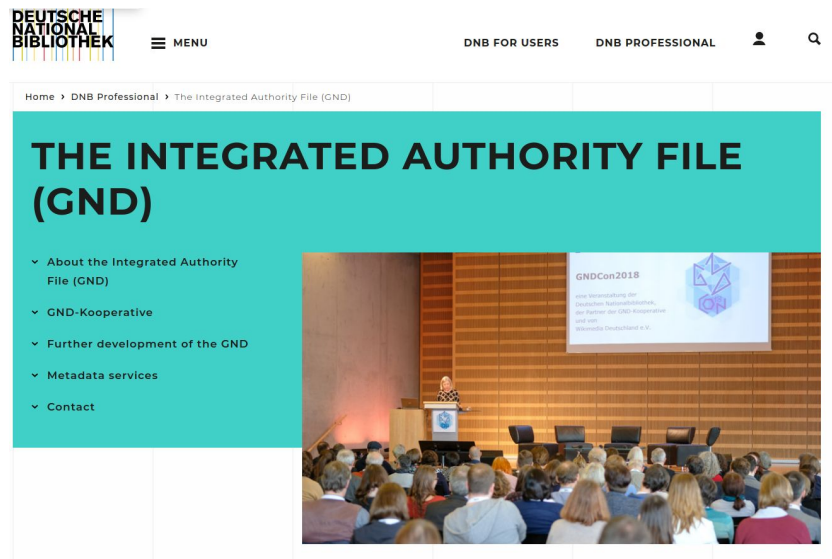
- Technical Information Library (Hannover) – [Leibniz Information Centre for Science and Technology and University Library](#) provides science, research, industry and business with literature and information - in both printed and electronic form.
- Also known as the **German National Library of Science and Technology** as well as Architecture, Chemistry, Computer Science, Mathematics and Physics.
- The library is committed to **openness, open access** to information, publications and scientific data: it aims to make information and knowledge more easily accessible, more transparent and better reusable.
- See [here](#) for TIB's video on Commons.

Ministry of Culture, Luxembourg

- **Shared authority file** on persons
- **8 GLAM institutions** joining forces in a competency network on digital cultural heritage topics
 - Sharing of authority information as such, and as shared access points to holdings.
 - Using CIDOC-CRM ontology as a federation tool for data modelling and interfaces, and RDA-FR as normative rulebook for content.
- [Wikibase EDTF extension](#): adds support for the Extended Date/Time Format (EDTF) Specification to Wikibase via a new data type. See video [here](#).
- [Automated Values extension](#): that allows defining rules to automatically set labels or aliases based on Statement values. See video [here](#).
- See video [here](#) and deck [here](#).

German National Library

- The German National Library is piloting Wikibase for its **integrated authority file**
- The ***Gemeinsame Normdatei*** represents and describes entities then used in cataloguing. It is authoritative **across German-speaking** countries
- The idea is to enable **collaborative maintenance** of the authority file
- See Wikibase instance [here](#).
- DNB talks Wikibase [video](#).



The screenshot shows the website of the Deutsche Nationalbibliothek (German National Library). The header includes the library's name, a menu icon, and navigation links for 'DNB FOR USERS' and 'DNB PROFESSIONAL'. The main content area features a teal banner with the title 'THE INTEGRATED AUTHORITY FILE (GND)'. Below the banner is a navigation menu with links: 'About the Integrated Authority File (GND)', 'GND-Kooperative', 'Further development of the GND', 'Metadata services', and 'Contact'. To the right of the menu is a photograph of a conference room with a speaker at a podium and an audience. A presentation slide in the background is titled 'GNDCon2018' and mentions the 'Vereinigung der Deutschen Nationalbibliotheken'.



Discussion



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Recommendations

- **Build on** open standards. Don't invent your own.
- Use **standard** open licences. Don't invent your own. Ideally use CC-0. See also <https://research.okfn.org/avoiding-data-use-silos/>
- Be **bold** in terms of re-usability. Err towards the side of more freedom and anticipate regulation that will require more openness in the future.
- Link your data to other Linked Data sources via **external identifiers**, especially Wikidata.
- Don't just throw a CSV file on a server and think it's done. **Engage with a community**. For example, as a bare minimum, have a way to contact you about the data you publish and actually respond to it.
- Think **long-term**. Don't let this be a shiny project for 1 year and then vanish.
- Provide a **Linked Data Interface** (JSON, RDF, ...).

How to best involve Community

- Work with **open government data enthusiasts** like Open Knowledge and listen to what they ask for.
- **Highlight** great projects that make use of what you publish.
- Provide **space** (wiki, forum, mailinglist, ...) for the community to get together among themselves and with you. **Be there in that space.**
- Look for spaces that already exist where volunteers/experts already come together to mingle → how about Code for Munich etc?
- Be prepared **to dig into documentation** by the volunteers that appears to be on obscure websites that nobody within your realm has ever seen. E.g., <https://github.com/transportkollektiv/opendata-antipatterns>

Dedicated community spaces

The Wikibase user community **continues to grow**. Whether to remain informed about our continued work with **Wikibase.cloud** or to **engage with other community members**, there are a number of avenues to connect with the community:

- [Wikibase Community User Group](#)
- Mailing lists
 - [General user group](#)
 - [Wikibase.cloud](#)
- [Telegram channel](#)
- [Monthly Live Sessions](#)
- [Wikibase stakeholder group](#)



Joining the Wikibase community

Further support resources are available on mediawiki.org, including detailed **documentation** on how to set up Wikibase using the **docker images** or **manually**. You can also find a useful **FAQ**.

If you're looking for **technical support**, we maintain a space on [meta](#) where third party support providers can list their services.





Let's stay in touch!

Reach out to us!

swe_partnerships@wikimedia.de



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