

Session outline...

- About Wikimedia Deutschland
- What is.. Linked Open Data?
- Wikidata the largest open data knowledge graph
- A look at the software in the heart of Wikidata: Wikibase
- Wikibase, Cultural Heritage Institutions and the Linked Open Data Web
- An in-depth examination of use cases
- Interactive discussion with participant's use cases experiences





...and a few words about the presenter



Alan Ang, Partner Manager

- responsible for connecting with global institutions and organizations, and onboarding them to Wikidata and Wikibase.
- point of contact and information exchange for Partners, WMDE's software department, and Wiki Communities.
- love working with socially-minded people and organizations, especially on issues relating to opening, diversifying, decolonizing and democratizing knowledge.

Wikimedia Deutschland



We are a **non-profit** organization 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

Wikimedia Deutschland aims to give **everyone free access to more knowledge** by delivering innovative and useful open-source software.

We develop and maintain **Wikibase** and **Wikidata**, that are run on the servers of the Wikimedia Foundation.

To ensure we build the right products, **users must play a central role** in our product development processes. We adopt a **community-centered development approach** where our community of users informs product development, and us building transparency around our work.





Our Linked Open Data vision

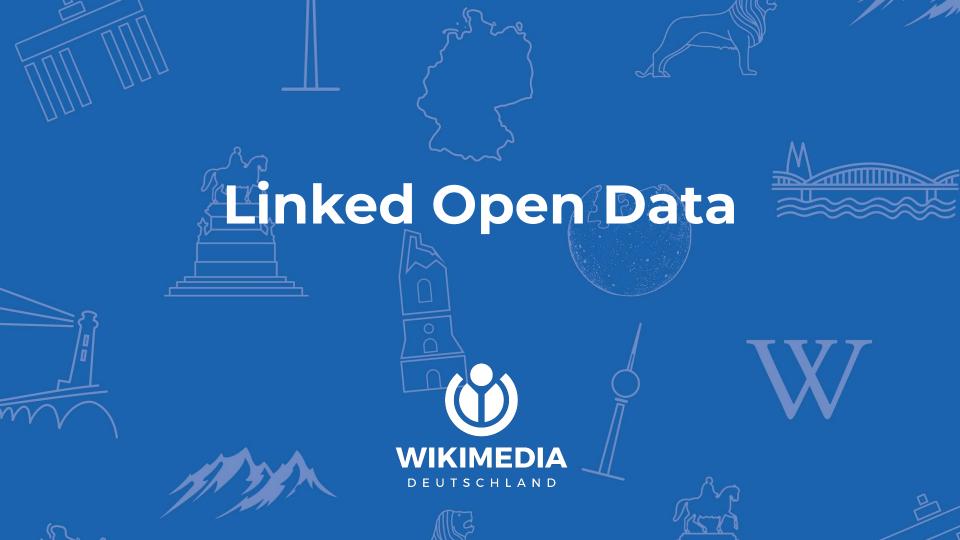
"We work towards a future in which people share the power to collect and organize the data that shapes humanity's understanding of the world.

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



Linked Open Data

Z,

Linked Data + Open Data

Open Data

...Data which is **released under an open license**, which does not impede its **reuse for free**.

Sir Tim Berners-Lee

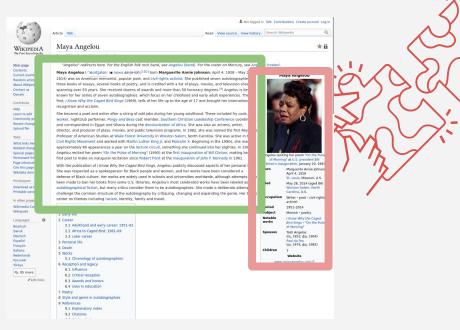
...Data that is openly accessible, exploitable, editable and shared by anyone for any purpose.

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



Linked Data

Wikipedia



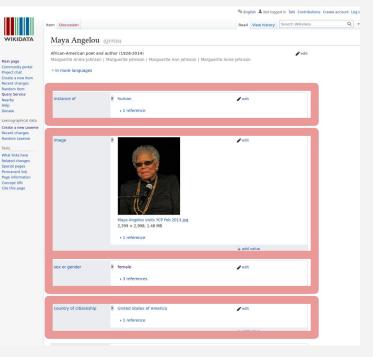
Wikidata

Project chat

Nearby

Donate

Concept URI



5* Open Data Model

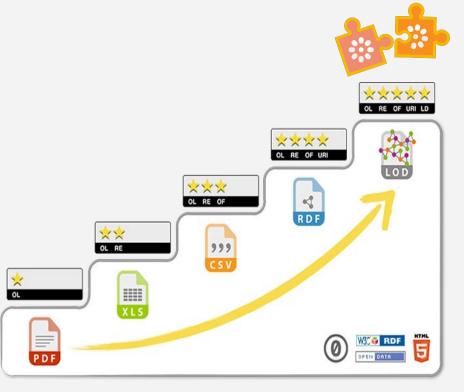
★ make your stuff available on the Web (whatever format) under an open license

★★ 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

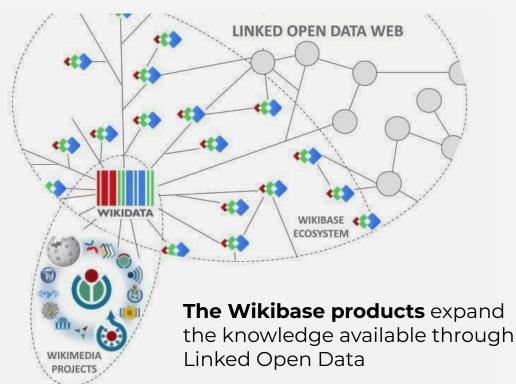
★★★★★ link your data to other data to provide context



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

Wikidata and the Wikibase ecosystem are the foundation of our Linked Open Data work

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





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







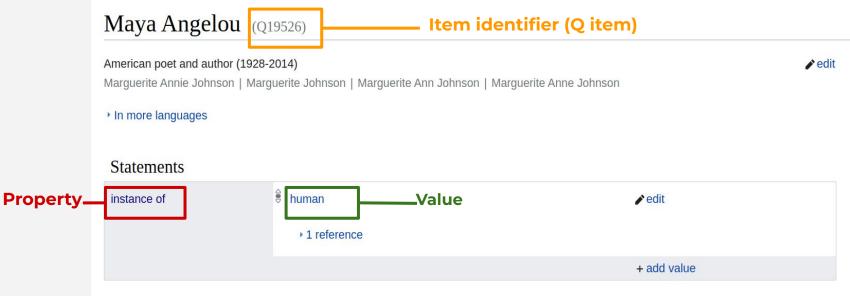
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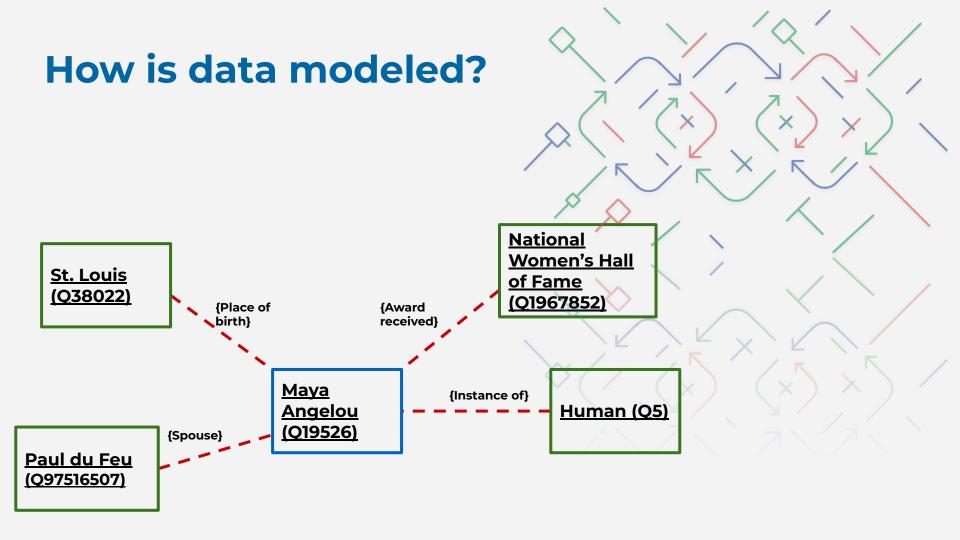
How is data modeled?

Users model the world in terms of "triples".

Triple structure: Item, Property, Value



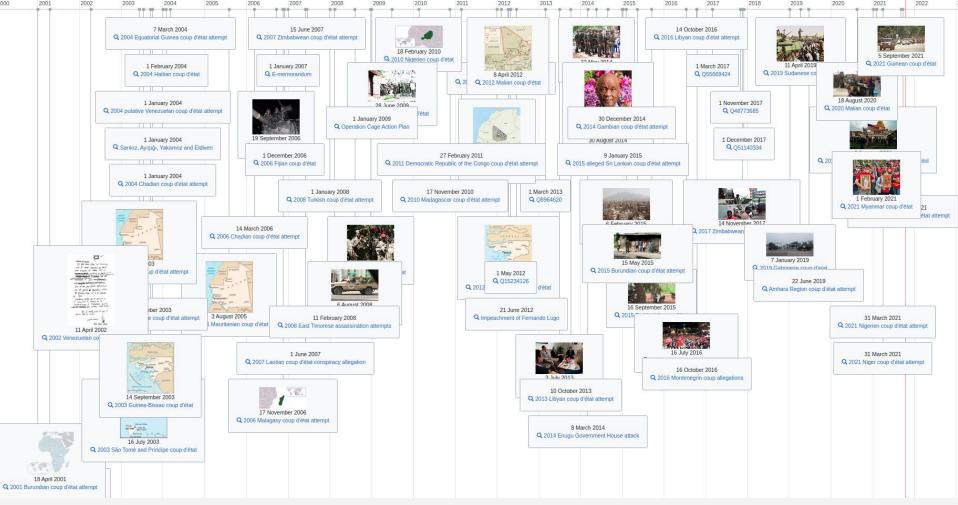




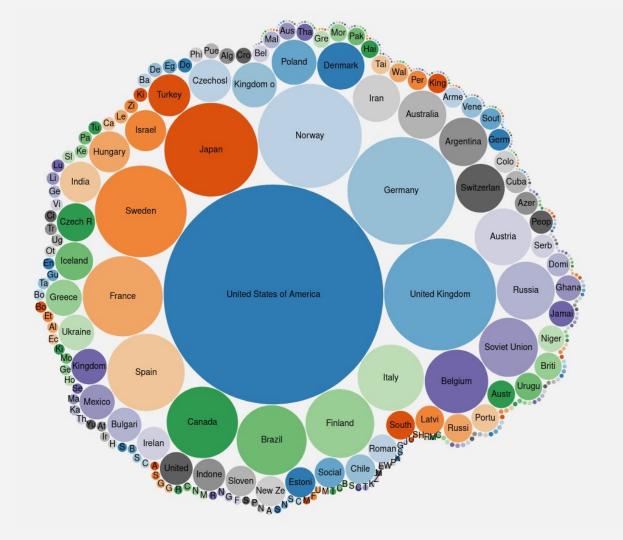
Querying Wikidata Wikidata Query Service ☼ More tools Examples 1 #defaultView:Map 2 SELECT ?item ?itemLabel ?coord ?image 4 { ?item wdt:P708 wd:Q869096. ?item wdt:P625 ?coord. 7 OPTIONAL { 8 ?item wdt:P18 ?image 9 } SERVICE wikibase: label { bd:serviceParam wikibase: language "en". } 11 } C Q Map → Q 14 results in 183 ms </> Code ♣ Download + S Link → Aalter-Brug Heirbrug Waasmunster Zeveneken Lokeren Lochristi Maria-Aalter Lovendegem Oudenbos Bellem Vinderhout Heiende Beervelde Point(3.726667 51.053056) Q Saint Bavo Cathedral Zele Kruiskerke ingene

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Example Wikidata query: timeline of coups d'etat during the 21st century

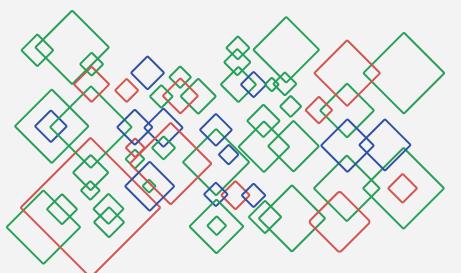


Example Wikidata query:

Number of musicians in Wikidata by country



Linked Open Data and the role of Wikibase



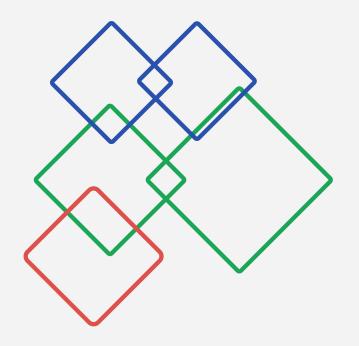
Wikibase is free software that stores and organizes information that can be collaboratively edited and read by humans and by computers, translated into multiple languages and shared with the rest of the world as part of the Linked Open Data (LOD) web.





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...

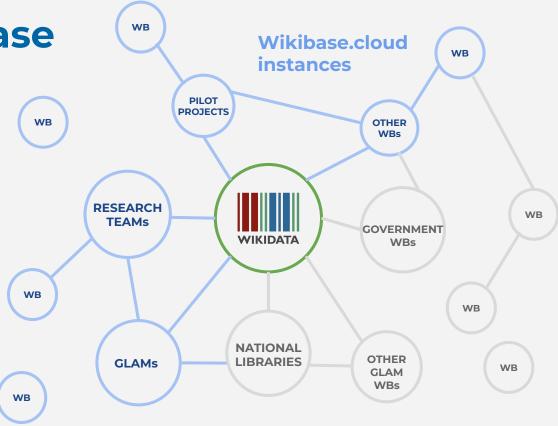
- Structured data collections that call for a **flexible** data model
- Linking databases to external sources
- Collaborative projects where many people edit and manipulate data
- Data that should be both human and machine-readable
- Projects involving multilingual labeling



A future Wikibase ecosystem

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

It's 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.



Self-hosted Wikibase Suite instances

Suite and 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 Wikibase.cloud user account)
Customisation	High	Generic

Wikibase.cloud

Wikibase.cloud is a new platform based on WBstack code, but managed and maintained by Wikimedia Deutschland.

It is a **"Wikibase as a service"** platform that will offer open knowledge projects a new way to create Wikibases quickly and easily.

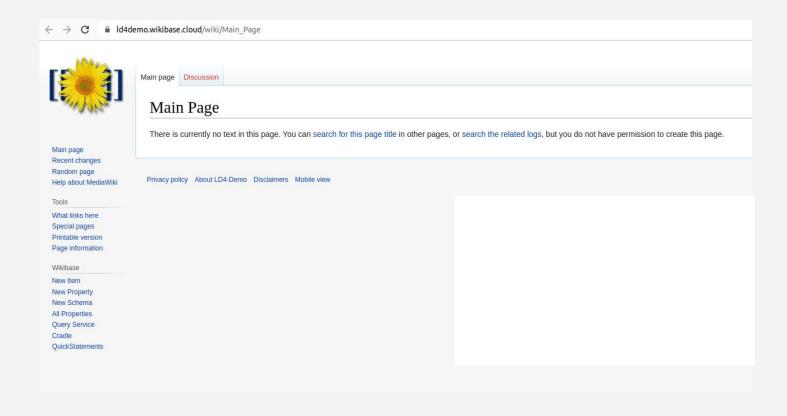
- Join <u>here</u>.
- See project page <u>here</u>.





Create a Wiki			
Site Name (i)			
T E.g., Goat Collective			
Site Domain (i)			
Free Subdomain			
E.g. goat-collective .wiki.opencura.com			
Your User 😙			
💄 E.g., Addshore			
Terms of Use			
☐ I agree to the <u>Terms of Use</u> .			
CREATE WIKI			

You now have a Wikibase instance!

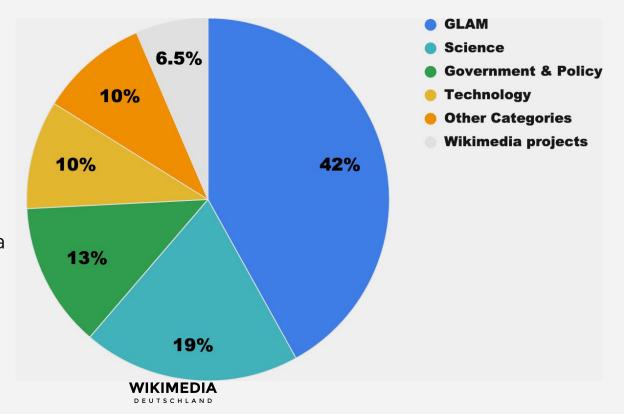




Wikibases at a glance

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 decentralized knowledge graph.



^{*}GLAM stands for galleries, libraries, archives, and museums

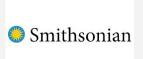
Wikibase in the library context

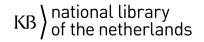
Wikibase is being evaluated by libraries as a tool to help them **store** and manage their structured data, as well as connect to the world of linked open data.

- German National Library (DNB)
- Finnish National Library
- National Library of the Czech Republic
- National Library of Luxembourg
- The Smithsonian Libraries
- National Library of the Netherlands







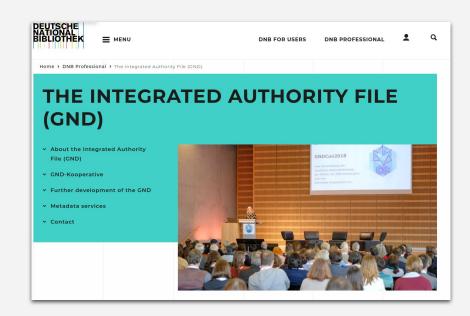






German National Library

- The German National Library is piloting Wikibase for its integrated authority file
- The Gemeinsame Normdatei
 represents and describes entities
 then used in cataloging. It is
 authoritative across
 German-speaking countries
- The idea is to enable collaborative maintenance of the authority file
- See Wikibase instance <u>here</u>.
- DNB talks Wikibase <u>video</u>.





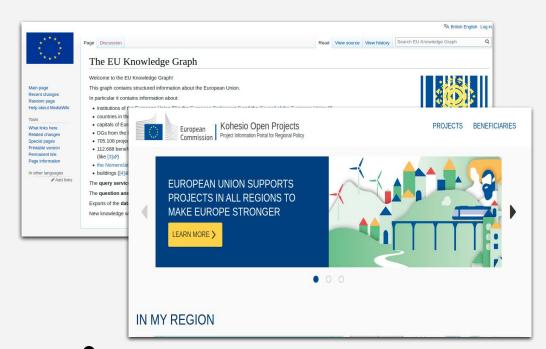
Ministry of Culture, Luxembourg

- 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 a normative rule book for content.
- Wikibase EDTF extension: adds support for the Extended Date/Time Format (EDTF) Specification to Wikibase via a new data type. See video <u>here</u>.
- <u>Automated Values extension</u>: that allows defining rules to automatically set labels or aliases based on Statement values. See video <u>here</u>.
- See video <u>here</u> and deck <u>here</u>.



EU Commission

- The <u>EU Knowledge Graph</u> 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 <u>here</u>.





Factgrid

- Run by the **Gotha Research Centre** and hosted by the **University of Erfurt**
- Started out as a project to document the history of the Illuminati
- Now a **collaborative historical** database used by historians
- Secured funding to act as a research data repository
- See Wikibase instance here.



Main page

Ouery service Sample queries Advanced text search Recent changes Random page Reasonator

Project Spaces

Blog Projects Troubleshooting Data modeling SPAROL Lab

Work

New Item Mergeltems Batch fragments OuickStatements Directory of Properties New Property Help

Tools

What links here Related changes Special pages Printable version Permanent link

Main page Discussion

Main Page



Welcomel

on the FactGrid database, a project of the Gotha Research Centre G are using a MediaWiki with Wikidata's "wikibase" extension. Our mair

- Adam Weishaupt
- Paris

You will need to be logged in to see the "add statement" link with which explored with a data mining language, SPARQL, at our SPARQL End the aim to explore FactGrid data in other software environments or vi

Visit our

- FactGrid FAQ

 Ø for more information on why you might love to us
- Help Section for further assistance
- . Terms of Service if you want to have an account on FactGrid
- Project Section to take a look at work done on the collective platfo

The FactGrid database is an open collaborative and multilingual proje database might be a cool candidate. For more information and accou

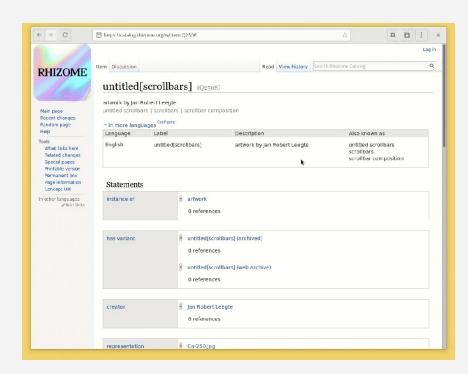
> Dr. Olaf Simons Gotha Research Centre at the University of Erfurt Am Schloßberg 2 99867 Gotha

office: +49-361-737-1722 mobile: +49-179-5196880 olaf.simons@pierre-marteau.com@



Rhizome

- Rhizome, an art organization in New York City, was one of the early adopters of Wikibase
- Started using Wikibase in 2015 for its archive of born-digital art and digital preservation activities
- The **flexible** model of Wikibase captures the constantly changing nature of digital art
- It enables work with:
 - Heterogeneous data
 - Flexible data structure



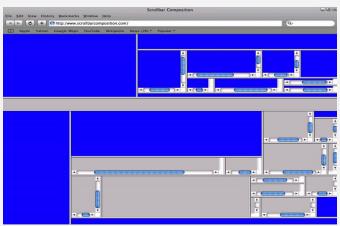


Why use Wikibase?

According to Rhizome:

- Ontological sandbox and space for experimentation
- Making claims and statements, not presenting "facts" and "truth"
- Multiple values per property useful for digital artifacts and artworks which don't have a single "canonical" version
- More nuanced approach to licensing compared to Wikidata / Wiki Commons
- Serves Rhizome's software preservation needs
- Connecting data across knowledge bases

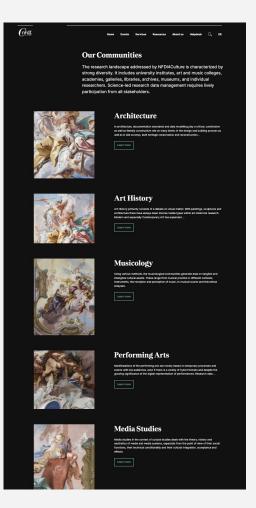




An example of Net Art; Detail from Jan Robert Leegte, "untitled[scrollbars]" (1997-2000) http://www.leegte.org/works/online/composition_blue/index.htm

Wikibase4Research and NFDI4Culture: Multimodal Cultural Heritage

- NFDI4Culture is a German consortium for Research Data on Material and Immaterial Cultural Heritage
- Open Science Lab at TIB, Hannover is a participant in the consortium leading the development of Wikibase as a software service for research data
- The main development has been the orchestration of Wikibase within a toolchain that includes a media viewer for 2D, 3D, and AV media and annotation – Semantic Kompakkt



Why use Wikibase? According to NFDI4Culture

- Open-source software with a large international community
- Allows to LOD-ify existing research data to take advantage of semantic capabilities in ongoing work with natural language text annotations, as well as media files
- Lower learning curve compared to other existing KG tools
- Not a single tool, but an "umbrella" of services

Rich media: 3D, 2D images, AV Semantic W3C®ndard search and annotations annotation

See video <u>here</u>

Enslaved.org

- Enslaved is a linked open database about the history of transatlantic slave trade
- Using Wikibase as a linking and reconciliation hub, Enslaved unites seven separate scholarly databases
- It contains more than 950 thousand* records about (People, Events, Places and sources)
- See website here: enslaved.org
- See Wikibase instance <u>here</u>.





Enslaved.org

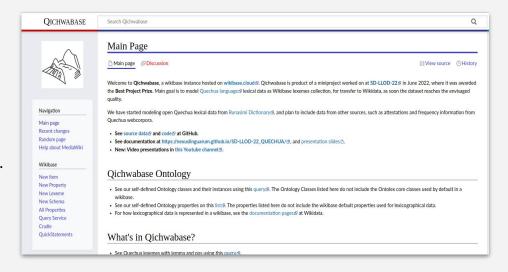
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Advanced Search **Advanced Search** Use the form below to set up a specific search parameter. All of the inputs are optional. Once filled out, select the "Search" button at the bottom of the page to view results based on the inputted parameters. Keep in mind that this search uses an 'AND' boolean operation, showing only the results that include all the parameters entered. Person Person Status Select Status To Ethnodescriptor Occupation Enter Ethnodescriptor Select Occupation Event Date Range Select Event Type Enter Start Year Enter End Year Place Place Name Place Type Enter Place Name Select Place Type Modern Country Select Country Source Source Type Select Source Type Select Project

Qichwabase

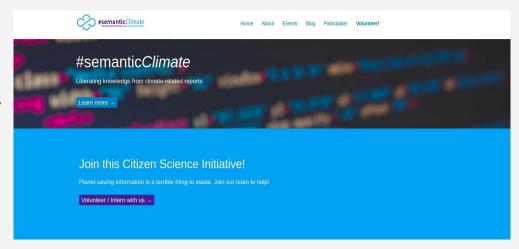
- Qichwabase, a Wikibase instance hosted on wikibase.cloud, is the product of a miniproject worked on at the 4th Summer Datathon on Linguistic Linked Open Data (SD-LLOD-22) in June 2022, where it was awarded the Best Project Prize.
- Main goal is to model Quechua language lexical data as Wikibase lexemes collection, for transfer to Wikidata, as soon the dataset reaches the envisaged quality.
- See a video explainer <u>here</u>.





#semanticClimate

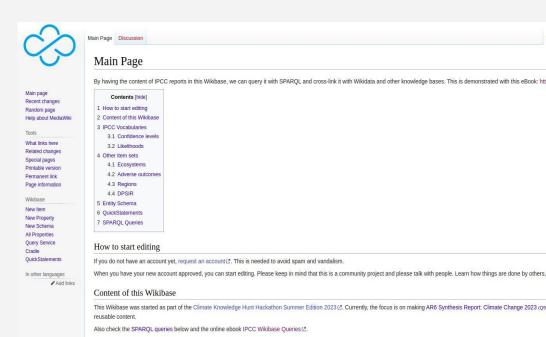
- #semanticClimate, is a citizen science initiative to semantic-ize UN's IPCC AR6 report to make the important climate knowledge in this more than 10,000-page PDF document more accessible to everyone on the Linked Open Data web
- Main goals are
 - to convert the IPCC documents from PDF into (a) HTML (b) XML
 - extract terms and explore their use and meaning
 - link terms to <u>Wikidata</u> and create <u>AMI-dictionaries</u>
 - create new structures for navigation, search, display





#semanticClimate

- Wikimedia Deutschland happy to play an active role as a responsible global citizen in making climate knowledge more accessible.
- See a Wikibase instance <u>here</u>.





Evans-Tibbs Archive(National Gallery of Art, US)

- The National Gallery of Art has been promoting greater diversity in its collections and exhibitions. As part of its efforts, the Gallery's Library has launched a Wikibase project to increase visibility, connectivity, and accessibility of African American artists and related art information using Wikibase.cloud.
- Access the database here.
- Read more about the project <u>here</u>.





Evans-Tibbs Archive

(National Gallery of Art, US)

Creating Linked Data with Wikibase. Cloud: Evans-Tibbs Archive Wikibase Project National

Jung Soo Bae, Librarian, National Gallery of Art Library

National Gallery of Art

Mission & Goals

- Increase visibility, connectivity, & accessibility of artists of African diaspora in the library's Evans-Tibbs Archive & related art information.
- Test Wikibase.cloud* for creating, managing, & accessing the information.
- Examine the potential for Wikibase.cloud/Linked Data applications on the library's entity management & discovery.
- * Wikibase.cloud: a free cloud-based Linked Data system hosted by Wikimedia Germany.

Project Overview

- · Duration: September 2021- May 2023 (expected)
- · Platform: Wikibase.cloud (https://www.wikibase.cloud/)
- · Tools: Wikibase QuickStatement/Add-ons, OpenRefine, Google Sheet & Python
- Team: 3 librarians and 1 library technician

Data Model

Entity	Artist	Artwork	Collection	Exhibition	Publication	Organization
Property	name, birth/ death dates, birth/death locations, education, field of work, notable work, official website, external identifier, etc.	creator, title, location of creation, made from material, dimensions statement, copyright status, owned by, exhibition history, etc.	location, collection creator, inception, has part, owned by, exhibition history, etc.	title, start time, end time, organizer, location, subject, exhibited artist, curator, catalog, etc.	title, subtitle, author, editor, publisher, publication date/place, language, subject, copyright, identifier, etc.	location, inception, parent organization, official website, etc.

Websites

- Evans-Tibbs Archive Wikibase Project www.wikidata.org/wiki/Wikidata:WikiProject National Gallery of Art Library/Wikibase EvansTibbs
- Evans-Tibbs Archive Wikibase User Interface https://mercury7.wikibase.cloud/wiki/Main Page

Workflow

- · Create a project plan
- Create a Wikibase instance & review functionalities
- · Create data models

Create Basic Data · Creat

Plan

Upload Data

Evaluate

- · Create properties & basic items in Wikibase.cloud
- Collect Data

 Create data collection policy
 Collect data from internal/external resources
 - Create new Wikibase items & upload properties/ values for the items in Wikibase.cloud
- Test Data Query Perform SPARQL queries & check data quality
 - Perform evaluations & create documentation

Challenges

- · Lack of use cases & resources for Wikibase.cloud
- · Issues in bottom-up ontology design in data modeling
- Partial functionalities due to the ongoing development of Wikibase.cloud (disabled federated import feature, issues in batch uploading URLs & inserting images, etc.)

Lessons Learned

- · Wikibase.cloud is effective for data storage, curation, & retrieval of internal data in the Linked Data environment!
- · Easy creation of Linked Data without maintaining IT server/infrastructure
- · Full control of data ownership & data management
- · Effective user management
- · No approval process & easy creation of properties

Acknowledgement NGA Library Team: Sarah Osborne Bender, Anna Tomlinson, and Emily Sawyer contribute to this project.

RIWATCH Museum

- Documents and preserves indigenous cultures of North East India
- Ethnographic museum with collections from indigenous people of Arunachal Pradesh, India.
- A Wikibase.cloud instance to store the metadata of museum collections
- Access the database <u>here</u>.
- Read more about the engagement <u>here</u>.





Wikibase World

- Wikibase instance of all the Wikibase instances! Check it out <u>here</u>.
- Want to know what Wikibase instances are on Wikibase.cloud? See them here!





Next Steps

- Collaborate with Wikimedia Portugal to understand the Wikidata/Wikibase projects among the institutions, including identifying where the blockers are
- Follow up with relevant use case examples specific to WMPT identified projects
- Continue to support WMPT's future Wikidata Days events.
- Currently in the process of
 - Capacity Building: creating a playlist of 7-min videos on "How-to" Wikidata for libraries-related users
 - Mutual Learning: deep dive into specific Wikidata & Wikibase use cases from selected institutions





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
- General user group Mailing list
- Wikibase.cloud mailing list
- <u>Telegram channel</u>
- Monthly Live Sessions
- Wikibase stakeholder group

Discover more wikibase instances and get inspired:

- Wikibase.cloud discovery
- Wikibase World



Support and Resources

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 <u>meta</u> where third-party support providers can list their services.

