

Digital transformation of democracy?

CHALLENGES AND OPPORTUNITIES

Axel Polleres – Distinguished Visiting Austrian Chair Professor at Stanford University

Website: <http://polleres.net>

Twitter: @AxelPolleres

Digitization & Democracy: Threat or Opportunity?



Tim Berners-Lee: I invented the web.
Here are three things we need to change
to save it

It has taken all of us to build the web we have, and now it is up to all of us to build
the web we want - for everyone



1 Sir Tim Berners-Lee, inventor of the worldwide web. Photograph: Sarah Lee for the Guardian

<https://www.theguardian.com/technology/2017/mar/11/tim-berners-lee-web-inventor-save-internet>

- 1) We've lost control of our personal data
- 2) It's too easy for misinformation to spread on the web
- 3) Political advertising online **needs transparency and understanding**



<https://www.youtube.com/watch?v=G6DOhioBfyY&feature=youtu.be&t=773>

“I’m actually not sure
we shouldn’t be
regulated”

DIGITIZATION AND DEMOCRACY

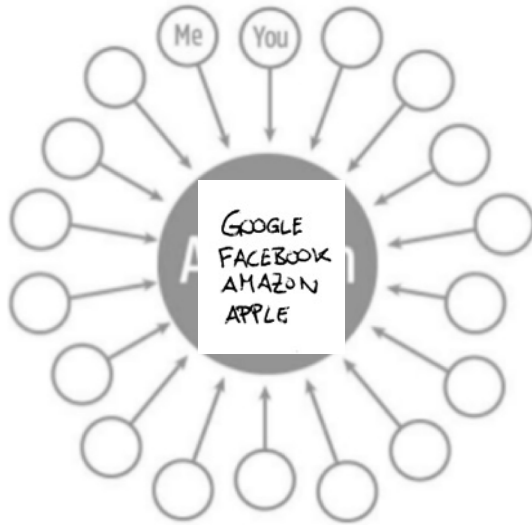
OPPORTUNITY

- More versatile forms of democracy become possible?
 - › Grass-roots movements
- Automated Accountability
 - › GDPR? Blockchain in Public Administration
- eGovernment (e.g. eID)
 - › Improved efficiency
- Open Data
 - › Improved transparency
- ...

THREAT

- “AI” to manipulate opinions, loss of control of personal information
 - › Cambridge Analytica et al.
- Web Fragmentation,
- Net Neutrality
 - › Recent US FCC
- eGovernment (e.g. eID)
 - › “Improved” surveillance?
- Open Data
 - › Misinterpretations, Misuse?
-

What if ... we had full control of our personal data?



EU GDPR:

- Data portability
- Full transparency
- Understandable Consent
- Revokable Consent
- Right for Erasure
- Significant fines for personal data breaches

Regulation (EU) 2016/679

REGULATIONS

REGULATION (EU) 2016/679 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL
of 27 April 2016
on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation)

What' missing?

EU GDPR:

- Data portability → Standard exchange formats
- Full transparency → **Open** Architectures
- Understandable Consent → **Decentralized** transparency records
- Revokable Consent → Policy Templates & Consent Dashboard
- Right for Erasure
- Significant fines for personal data breaches



Data Privacy Controls and Vocabularies

A W3C Workshop on Privacy and Linked Data

17–18 April 2018, WU Wien, Vienna, Austria, Europe



Scalable Policy-aware linked data architecture for privacy, transparency and compliance



European Commission

Horizon 2020
European Union funding
for Research & Innovation



Why Decentralization?

EU GDPR:

- Data portability → Standard exchange formats
- Full transparency → **Open** Architectures
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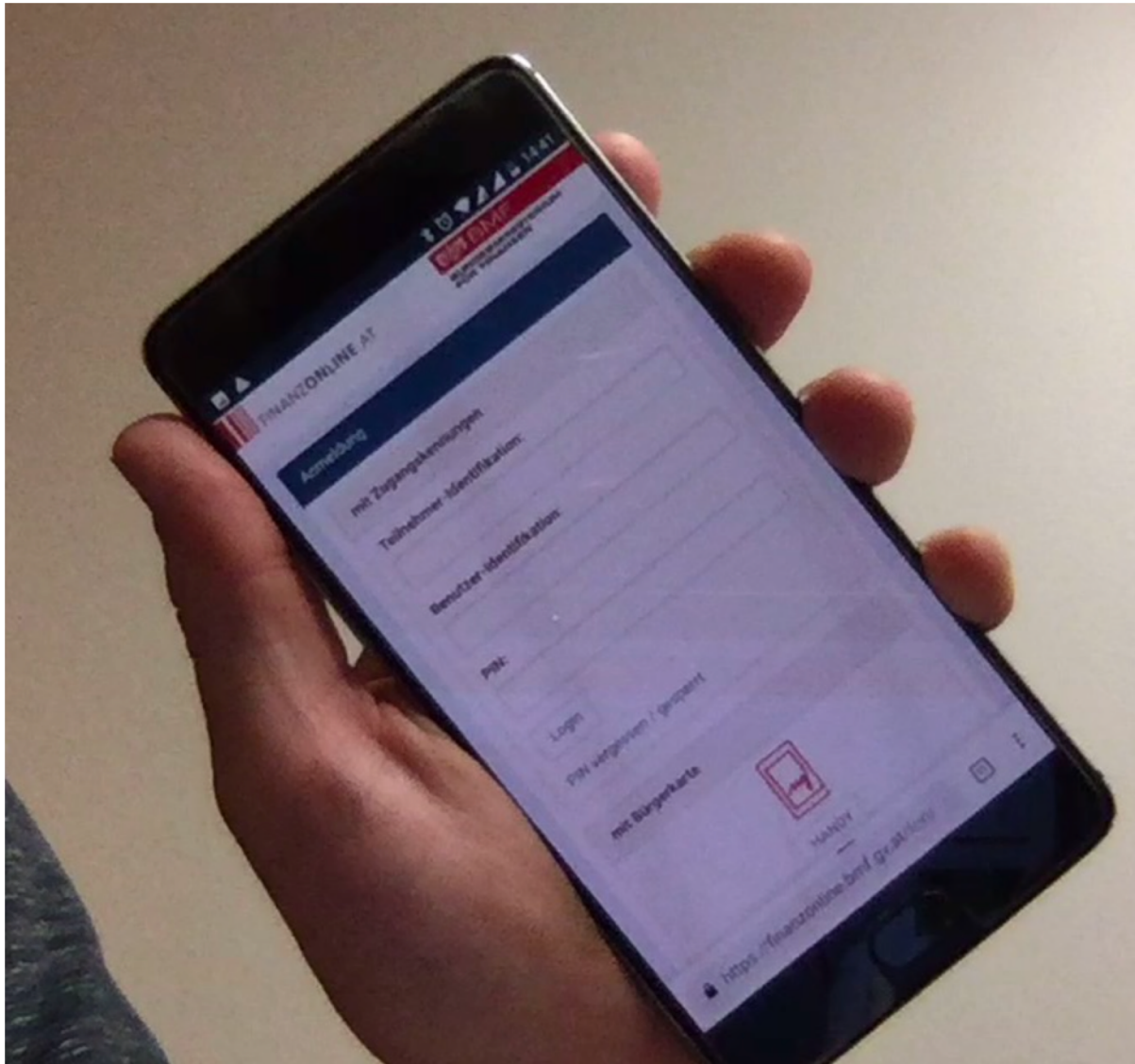
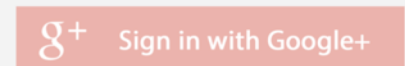
eID: Threat or Opportunity?

- "Handy-Signatur"
Austria

VS.

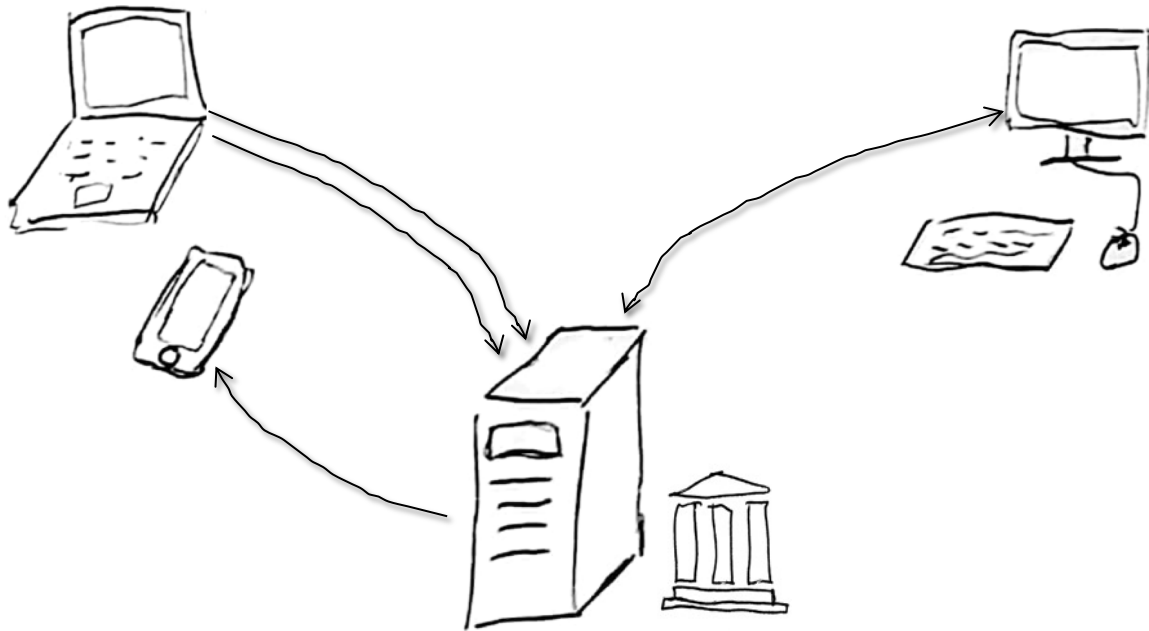


VS.

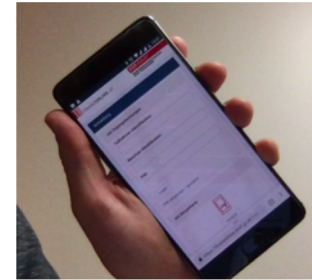


eID: Threat or Opportunity?

- Handy-Signatur/Bürgerkarte:
 - › eGovernment services
 - › Valid signature e.g. for private contracts
 - › Maintained via a central, trusted third-party (A-Trust)



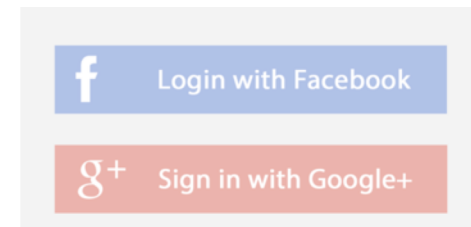
- + : 2-step verification via TAN and 2 devices, considered very secure
- - : all Authentications/Signatures go through a central, national trusted party



VS.

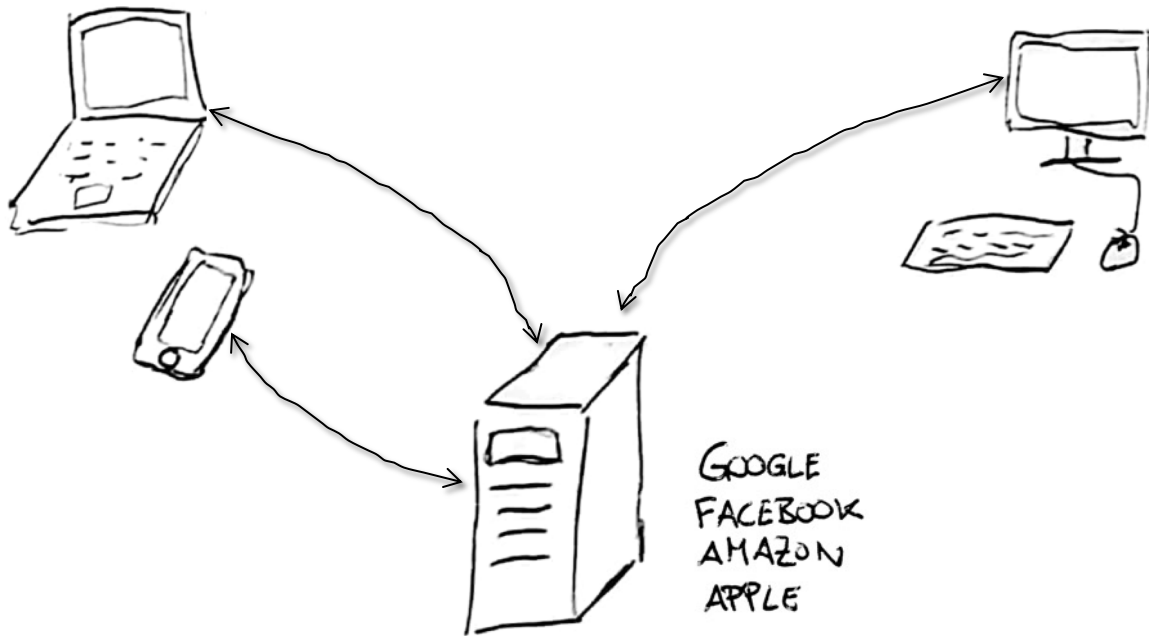


VS.

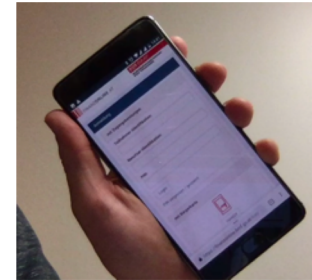


eID: Threat or Opportunity?

- eIDs issued by commercial entities?



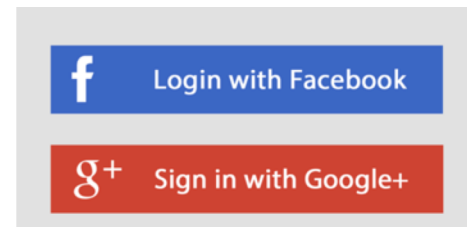
- + : not state controlled... wait?
- - : central authority with a commercial interest



VS.

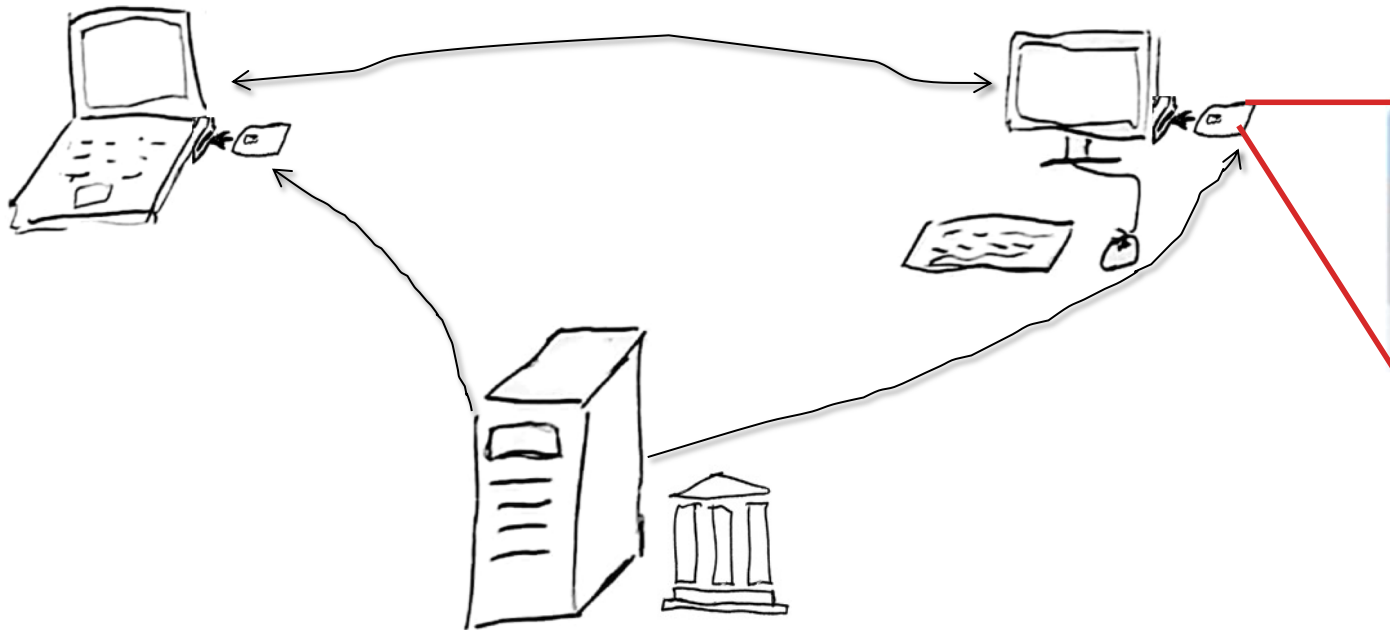


VS.

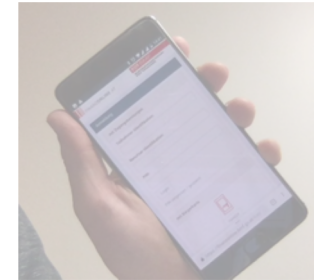


eID: Threat or Opportunity?

- Estonian eID
 - › Digital ID since 2001
 - › iVoting since 2005
 - › incl. eResidency for foreigners



- + : more lightweight, 2 services can use the credentials without going through a central server
- - : less convenient/secure? (security threat detected Aug 2017)



VS.

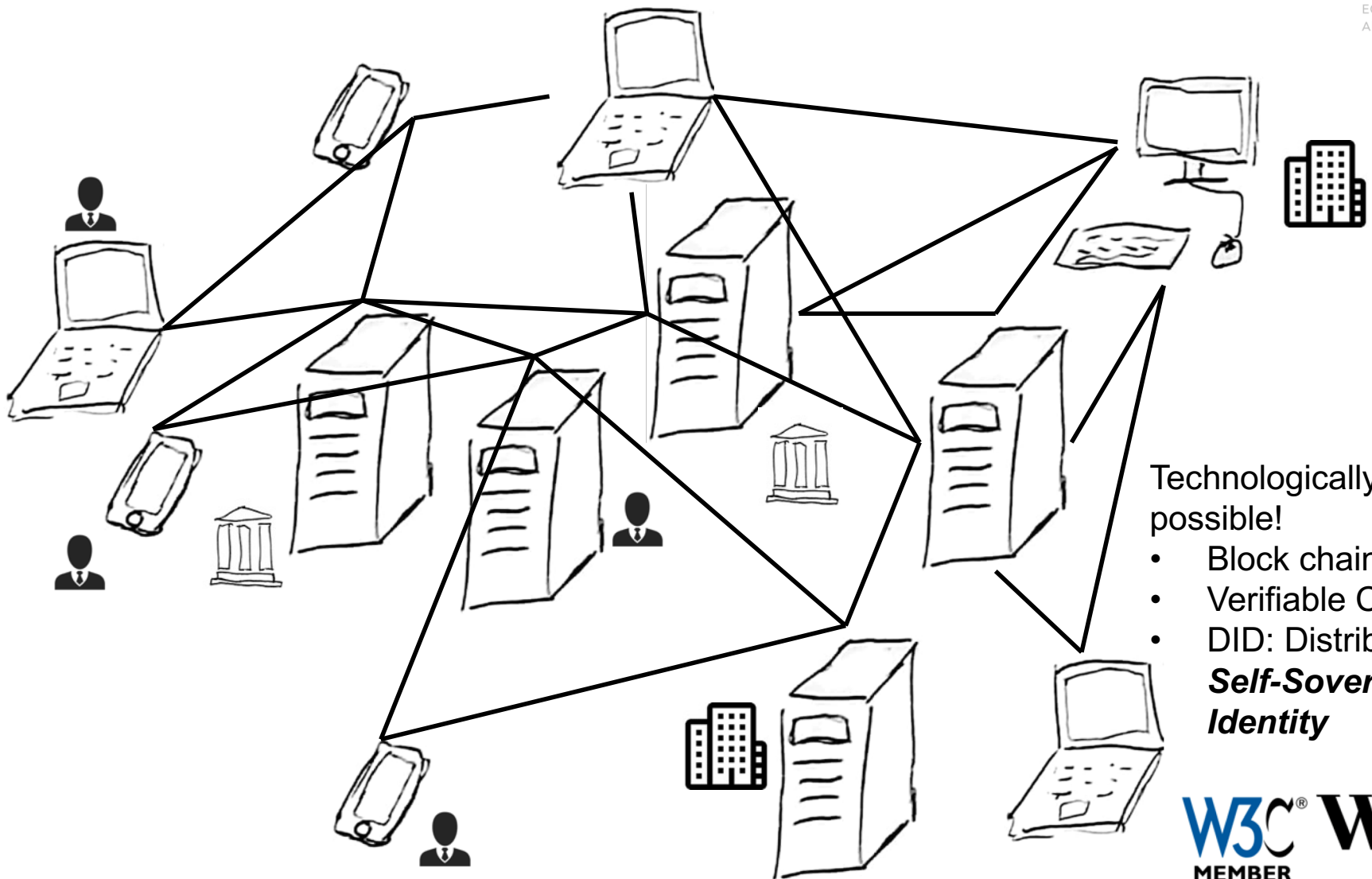


VS.

 Login with Facebook

 Sign in with Google+

eID: Alternative?



Technologically possible!

- Block chain
- Verifiable Claims
- DID: Distributed, **Self-Sovereign Identity**

eID: Alternative?

Self-Sovereign Identity



"The central problem of the future is, how do we return control of our identities to the people themselves?"

- Edward Snowden



PERKINS COIE
COUNSEL TO GREAT COMPANIES

"DLT is generally well-suited to serve as the underlying technology for SSI because it offers a way to create a single source of identity that can be trusted by everyone, that is completely portable, but that no one entity owns or controls."



"...we think self-sovereign [identity] solutions are likely to be the standard against which other platforms will need to be held."



Craig Newmark
Founder, Craigslist

"I'd like to use [blockchain] for verifiable identity."

- Combine digital human rights with industrial use of personal data.

DIGITIZATION AND DEMOCRACY

OPPORTUNITY

- eGovernment (e.g. eID)
 - › Improved efficiency
- More versatile forms of democracy become possible?
- **Open Data**
 - › **Improved transparency**
- Automated Accountability
 - › GDPR? Blockchain in Public Administration
- ...

THREAT

- eGovernment (e.g. eID)
 - › “Improved” surveillance?
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- **Open Data**
 - › **Misinterpretations, Misuse?**
- Web Fragmentation, Net Neutrality
 - › Recent US FCC
-

Open Data: What is it?

Privacy

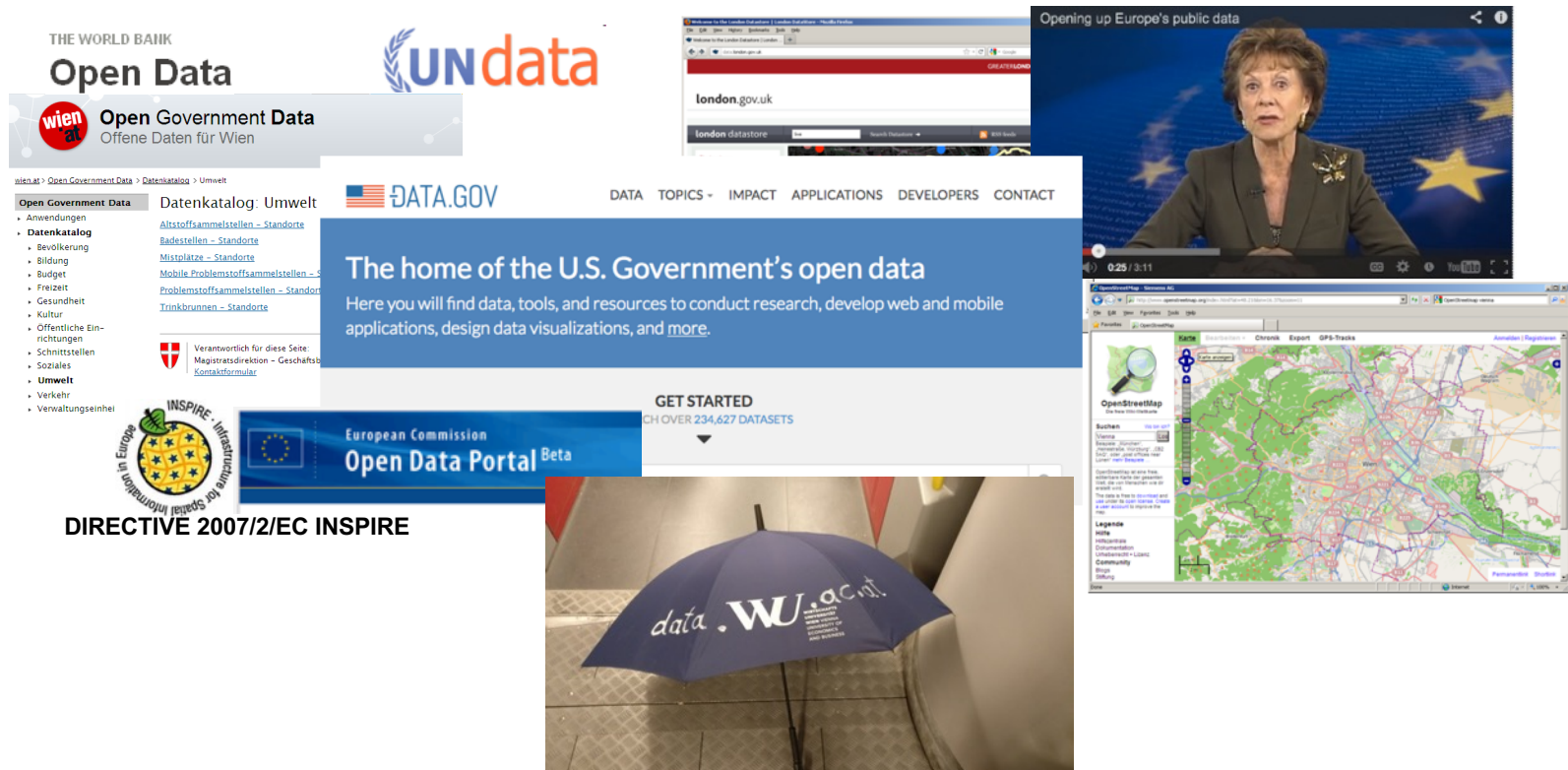


Transparency

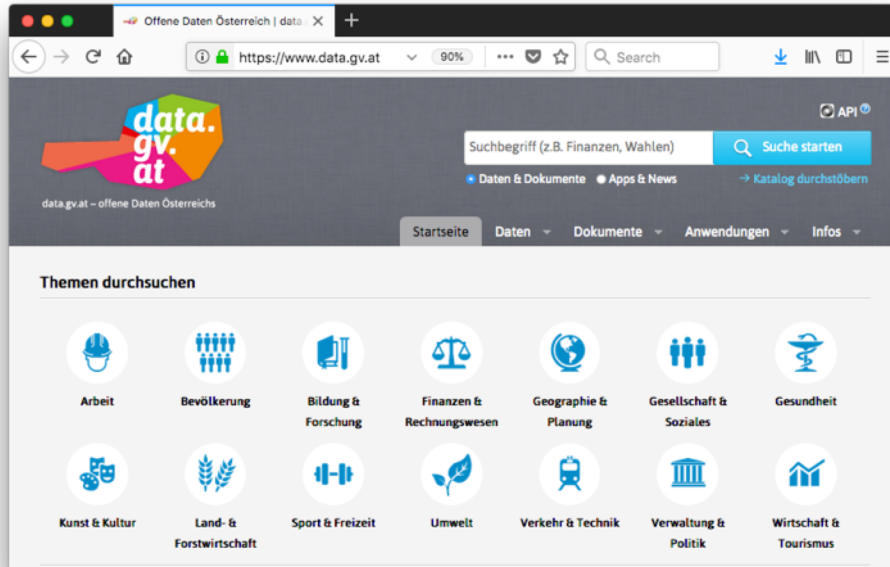


Open Data is a Global Trend!

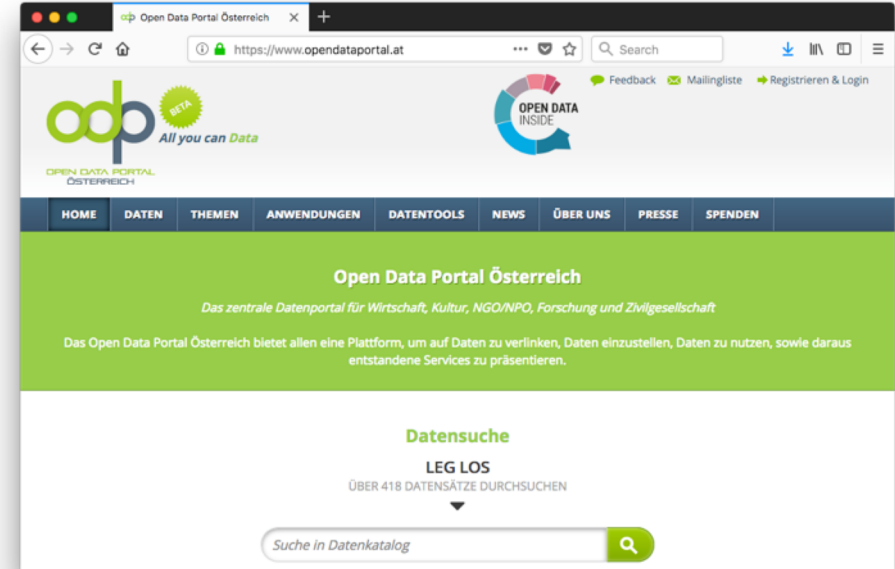
EU & Austria, but also the (previous) US and UK administrations are/were pushing Open Data!



Open Data in Austria



[data.gv.at](https://www.data.gv.at)



[opendataportal.at](https://www.opendataportal.at)



UN Public Service Award 2014!

Open Data as a means for transparency and democracy – Example: offenerhaushalt.at

Funktionelle Gliederung ⓘ Rechnungsabschluss ⓘ

Einnahmen Ausgaben



Gruppe/Abschnitt/Unterabschnitt suchen

suchen...

OK!

Gruppe	Betrag in Euro
Soziale Wohlfahrt und ...	2.665.434.157
Vertretungskörper und ...	2.435.653.344
Gesundheit	2.337.644.868
Unterricht, Erziehung, ...	2.322.597.891
Finanzwirtschaft	1.209.042.541
Straßen- und Wasserb...	1.032.395.027
Dienstleistungen	814.679.272
Kunst, Kultur und Kultus	292.599.045
Öffentliche Ordnung un...	181.800.664
Wirtschaftsförderung	89.676.860
Summe	13.381.523.668

Detailansicht →

www.offenerhaushalt.at/gemeinde/wien/

Open Data risks:

Perception of Key Barriers in Using and Publishing Open Data

Martin Beno, Kathrin Figl, Jürgen Umbrich, Axel...

Department of Information Systems and Operations Management, Vienna University of Economics and Business (WU Wien), Austria; {martin.beno;kathrin.figl;jurgen.umbrich;axel.p...}
 *Complexity Science Hub Vienna, Austria;

Abstract: There is a growing body of literature recognizing the benefits of open data, but many potential data providers are unwilling to publish their data. Users are often faced with difficulties when attempting to use open data. This paper systematically collect and assess these barriers are rare. Based on a review on prior literature on barriers and the results of an empirical study, we draw conclusions about the relative importance of the barriers. We compare our findings with an online survey in Austria and internationally. Using a comparison to a previous conference paper presented at the Open Government Data Conference, we discuss new additional barriers and how they extend the discussion.

Data inaccuracy

Obsolete, non-valid data

Not machine readable

Metadata inaccuracy

No potential use of the data

- No API provided
- API slow or unresponsive
- API limitations
- Registration required before gaining access to data
- Difficult browsing/ searching
- No information about the quality of the data
- No information given about the content of the dataset

Language barriers

Data is not available for download

Duplicate datasets

Only non-value-adding data published

No central portal for the data

Restricted access to a certain group of users

Data is behind a paywall

“Freedom of Information” vs. “Amtsgeheimnis”

Open Data sustainability and commitment by the government

- › improvements, etc.
- › Quality and Usability of Open Data

Lack of business models

Open Data is not a priority

Resistance to change, risk-averse culture

No sale of data possible when an Open Data license is used

Embedding Open Data in the strategy and work process

Disruption of existing business model. (Such as charging money for the data)

Uncertain economic impact

Lack of resources and time

Cost issues

Open Data risks: change in political agenda/priorities

Perception of Key Barriers in Using and F
Open Data

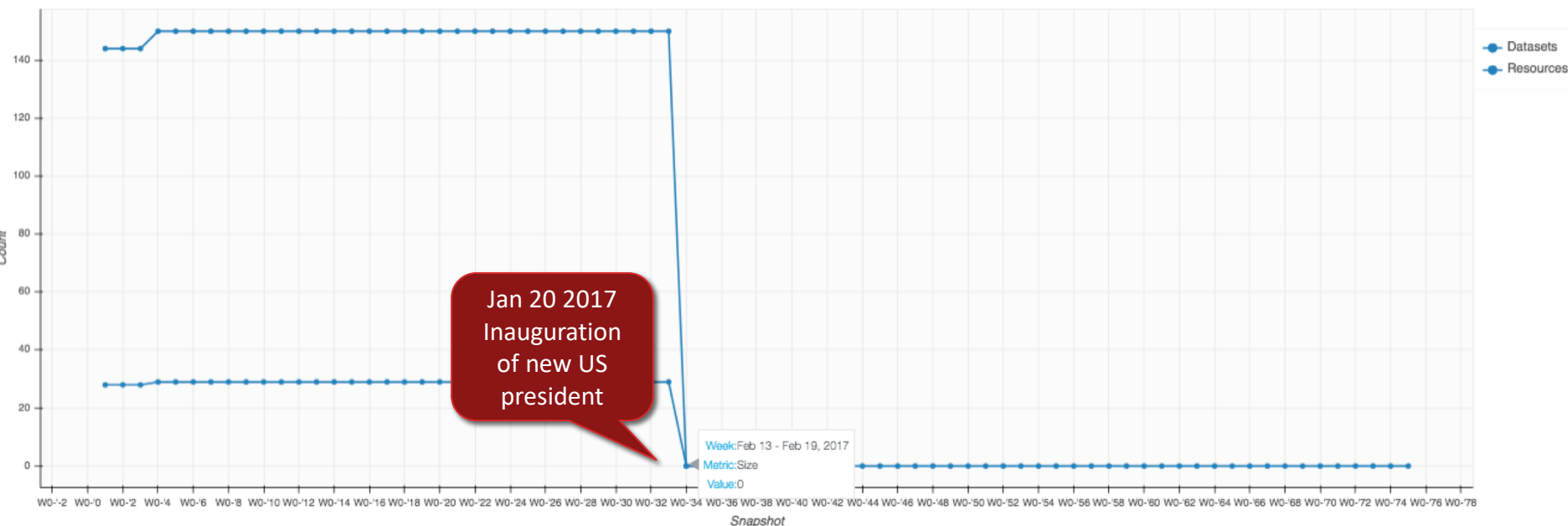
Martin Reno, Kathrin Figl, Jürgen Umbrich, A
Department of Economics, Vienna Unive

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API slow or unresponsive
API limitations
Registration required before
gaining access to data
Difficult browser

“Freedom of Information” vs.
“Amtsgeheimnis”

http://data.wu.ac.at/portalwatch/portal/open_whitehouse_gov/1804/

Portal Size



No potential use of the data
group of users
Data is behind a paywall

Lack of resources and time
Cost issues

Open Data risks: change in political agenda/priorities

Perception of Key Barriers in Using and Finding Open Data
Martin Reno, Kathrin Figl, Jürgen Umbrich, Alexander...
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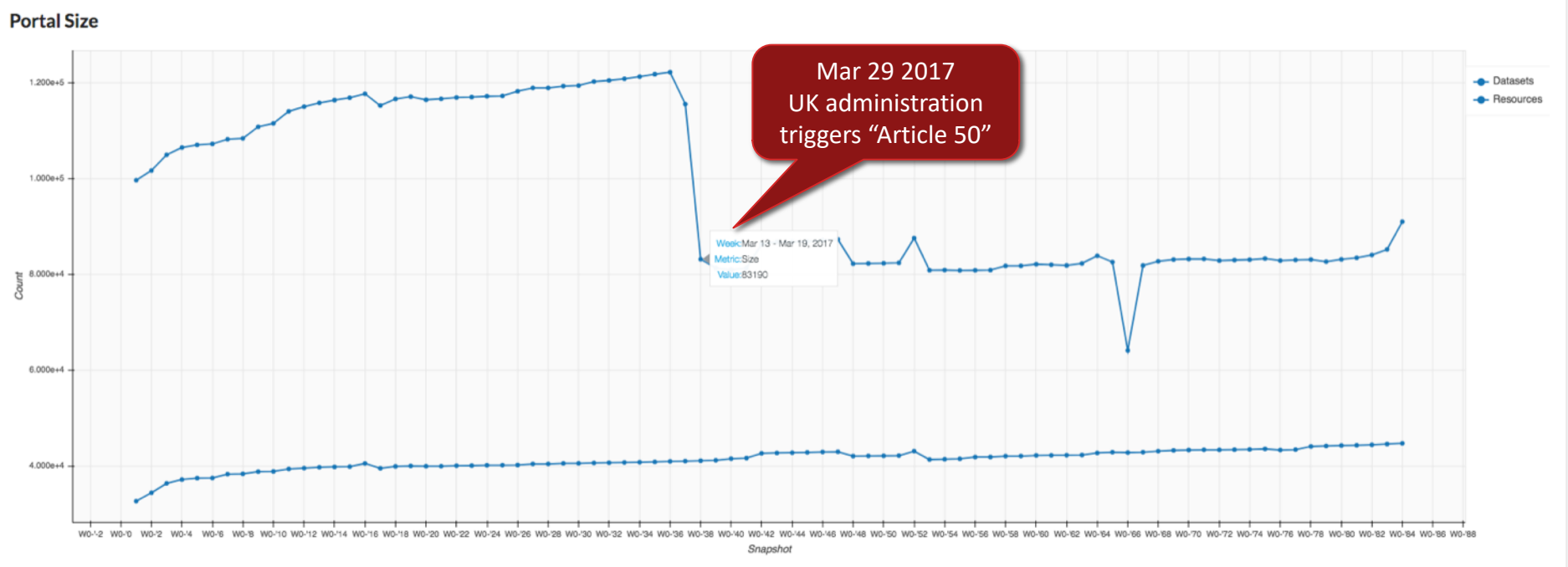
“Freedom of Information” vs. “Amtsgeheimnis”

http://data.wu.ac.at/portalwatch/portal/data_gov_uk/1815/evolution

Portal: data_gov_uk

Week: Apr 16 - Apr 22, 2018

Portal Evolution

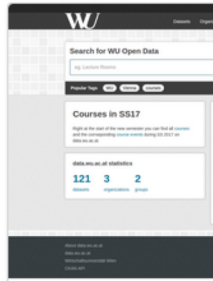


Mar 29 2017
UK administration
triggers “Article 50”

Week: Mar 13 - Mar 19, 2017
Metric: Size
Value: 83190

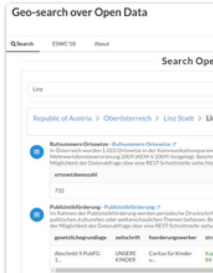
No potential... | TEC The Centre... | ...is behind a paywall | ...services and time | Cost issues

Ongoing Projects



WU Open Data Portal
WU lectures, rooms and other data.
data.wu.ac.at is an Open Data Portal where you can find data about lectures, rooms and other data at WU.

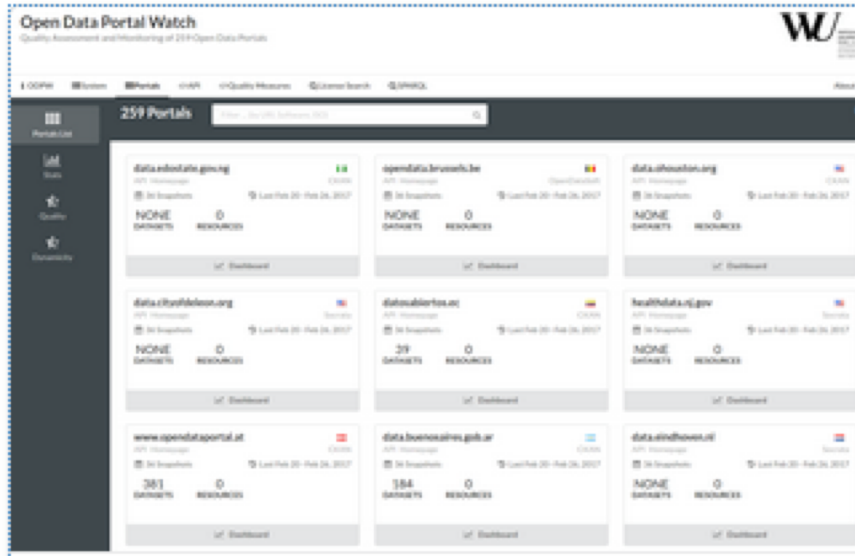
121 datasets



Geo-search over Open Data

Geo-semantic labelling of datasets

Geo-entities search in the datasets found on Open Data catalogs and their respective metadata descriptions.



Open Data Portal Watch

Monitoring & exposing portals' metadata

Open Data Portal Watch assesses the evolution of the (meta) data quality of about 260 Open Data portals over since September 2014.

259 portals

Jupyter Notebook Server

Programming & Documentation

Notebook documents are documents which contain both computer code (e.g. python) and human-readable rich text elements.

<> Only available within local WU Vienna network

Open Data AT Assistant

Search chatbot for Austrian datasets

The assistant will help you to explore the content of the austrian open data portals: data.gv.at and opendataportal.at.



Ongoing Projects (data.wu.ac.at)



Projects

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CSV Engine
Tools and services for processing and enriching CSV files
CSV Search
Available Services:
- CSV Clean: A service to parse and clean various types of CSV documents for structural metadata extraction. The cleaned file is CSV downloaded and uses the TSV as value separator.
- CSV Profiler: This service analyzes the input CSV and provides basic information and metrics such as the resulting column data types, and the completeness of columns.
- CSV Metadata Editor: This is a graphical form for generating metadata about a submitted CSV file. The metadata is combined with the CSV in the final metadata open file.
- API: Documentation of the RESTful CSV Engine API.

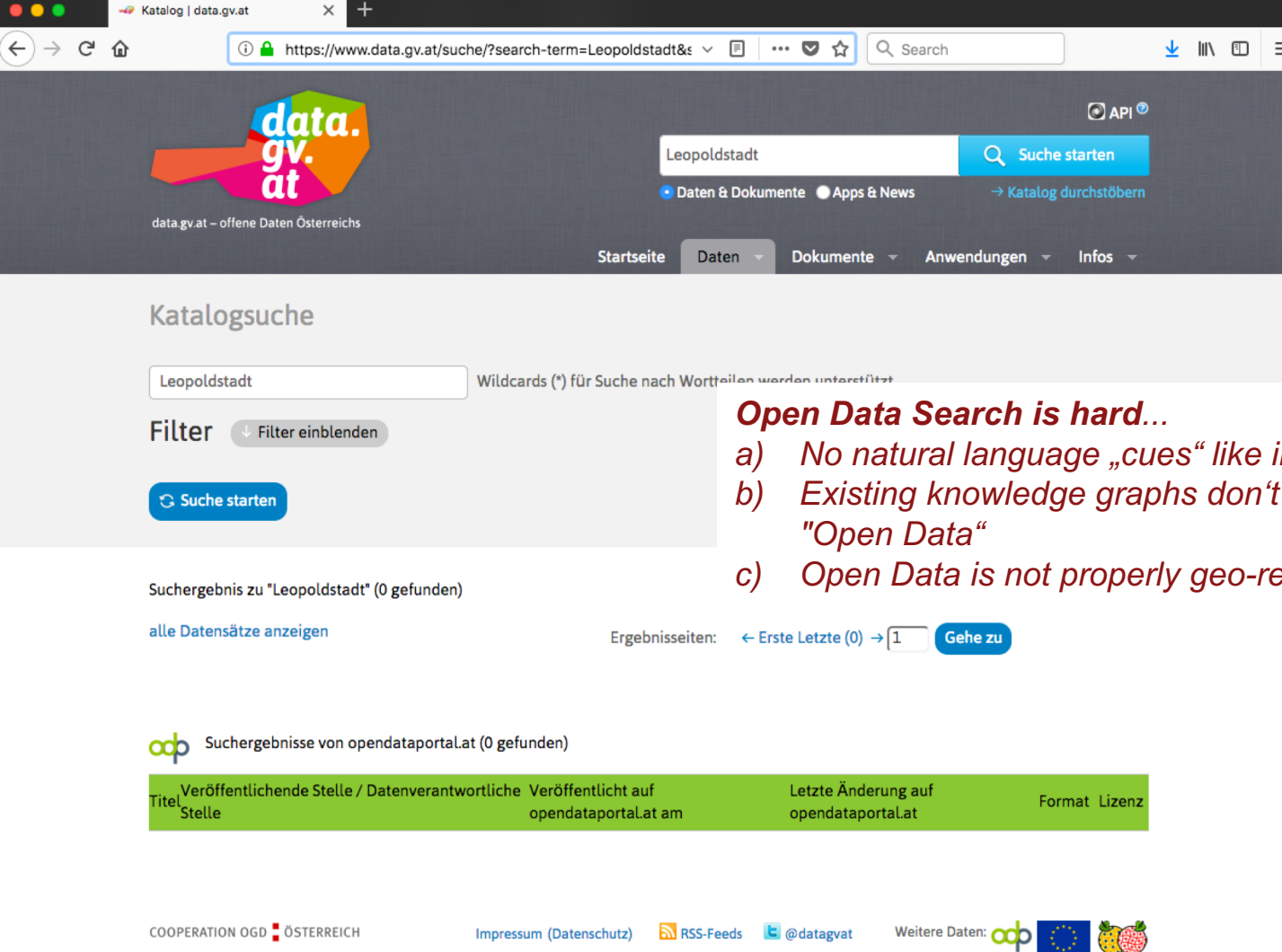
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Geo-search over Open Data
Search Open Data
Linz
Republic of Austria > Oberösterreich > Linz Stadt > Linz
Spatial entity Full-text results
Büfnummern-Ordnung - Büfnummern-Ordnung 17
In Österreich werden 1.522 Ordnungszahlen in der Kennzeichnungsparameter - Entgelt- und Mehrwertsteuerverordnung 2009 (KEM-V 2009) festgelegt. Beschreibungen der Daten sowie der Möglichkeit der Datenabfrage über eine REST-Schnittstelle siehe <https://data.wu.ac.at/INQ/Ordnungszahlen>
732 Linz
Publikationsförderung - Publikationsförderung 17
Im Rahmen der Publikationsförderung werden periodische Druckchriften gefördert, die sich mit politischen, kulturellen oder wissenschaftlichen Themen befassen. Beschreibungen der Daten sowie der Möglichkeit der Datenabfrage über eine REST-Schnittstelle siehe <https://data.wu.ac.at/Publikationsfoerderung>
gesetzlichegrundlage: jaltchriftl. foerderungswerber: strasse: plz: ort: foerderungsbetrag: jahr: status:
Abschreibl II PubMG UNISERE KINDER Caritas für Kinder Kausimnerstraße 94 4020 Linz 2017 abgelaufe

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Jupyter & Documentation
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Improving Open Data usability: Why Open Data Search is difficult



The screenshot shows a web browser window with the URL `https://www.data.gv.at/suche/?search-term=Leopoldstadt&...`. The search bar contains "Leopoldstadt" and the search button is labeled "Suche starten". Below the search bar, there are tabs for "Daten & Dokumente" and "Apps & News". The main content area shows "Katalogsuche" with the search term "Leopoldstadt" and a note that wildcards are supported. A "Filter" section is visible with a "Suche starten" button. Below this, it states "Suchergebnis zu 'Leopoldstadt' (0 gefunden)" and "alle Datensätze anzeigen". At the bottom, there is a section for "Suchergebnisse von opendataportal.at (0 gefunden)" with a table header.




Titel	Veröffentlichende Stelle / Datenverantwortliche	Veröffentlicht auf	Letzte Änderung auf	Format	Lizenz
Stelle		opendataportal.at am	opendataportal.at		

COOPERATION OGD ÖSTERREICH

 Impressum (Datenschutz)

 RSS-Feeds

 @datagvat

 Weitere Daten:   

Open Data Search is hard...

- No natural language „cues“ like in Web tables...
- Existing knowledge graphs don't cover the domain of "Open Data"
- Open Data is not properly geo-referenced

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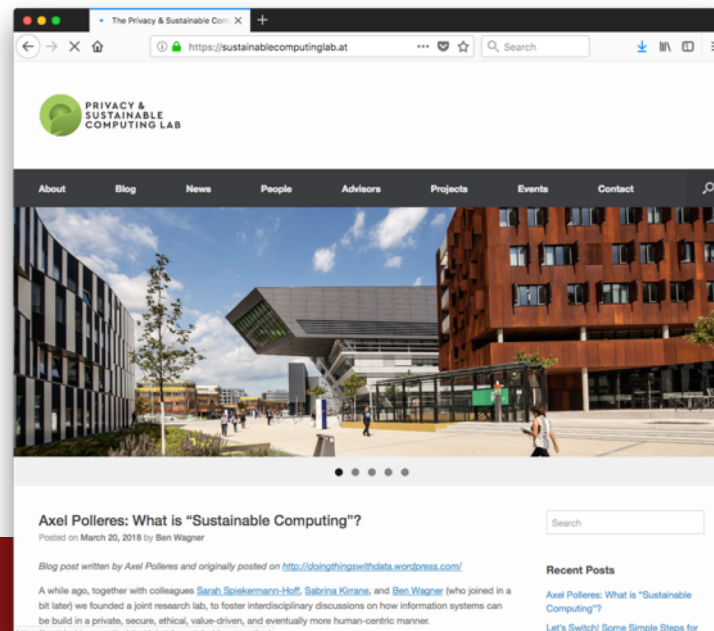
r Notebook Server
Sharing & Documentation
r documents are documents which contain computer code (e.g. python) and human-readable elements.
available within local WU Vienna network

Open Data Assistant
Multilingual search chatbot for Open Data
The assistant supports cross-lingual search by integrating metadata of 7 open data portals in 7 different languages.

Take-home: Democracy needs Sustainable Computing

- In order to secure democracy in digitization we need to ensure
 - › **Privacy,**
 - › **Transparency,**
 - › **Decentralization,** and
 - › **Usability**
- We need a general discussion about “**Sustainable Computing**” needs to be a substantial part of “**Sustainable Governance**”

sustainablecomputinglab.at



Thank
you!

doingthingswithdata.wordpress.com

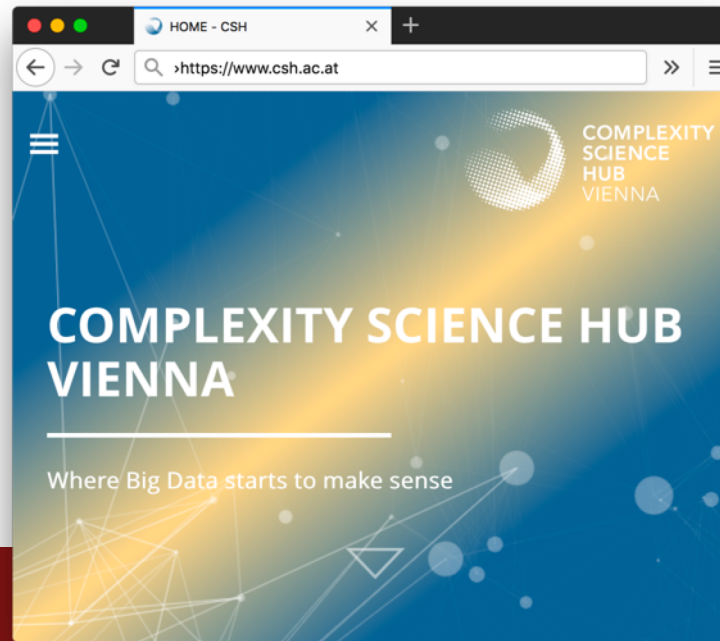
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sustainablecomputinglab.at

csh.ac.at

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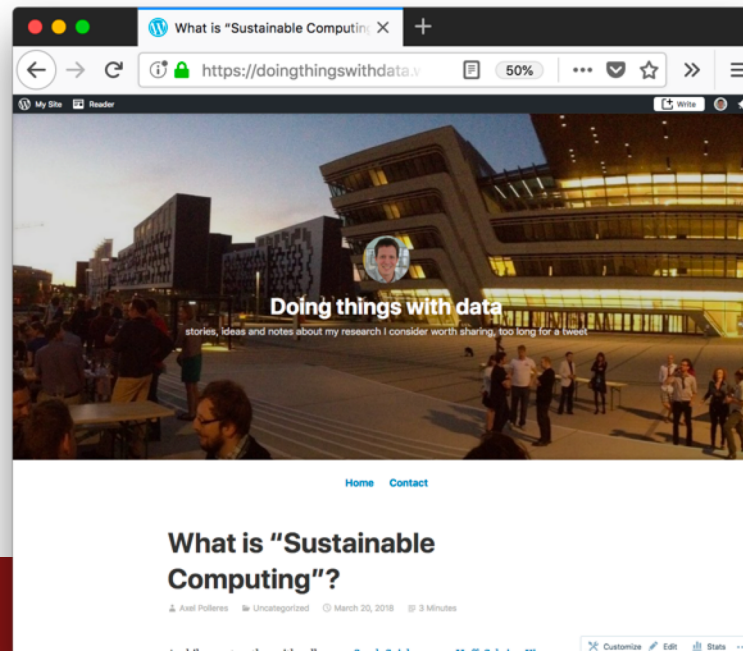
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