

User Experience

Beyond bubbles

Or: Why are KGs not mainstream yet?





THE SEMANTIC WEB

A new form of Web content
that is meaningful to computers
will unleash a revolution of new possibilities

by
TIM BERNERS-LEE,
JAMES HENDLER and
ORA LASSILA

PHOTOILLUSTRATIONS BY MIGUEL SALMERON



Trend 6: Add Semantic Data Integration & Knowledge Graphs

Multirelationship data is complex.

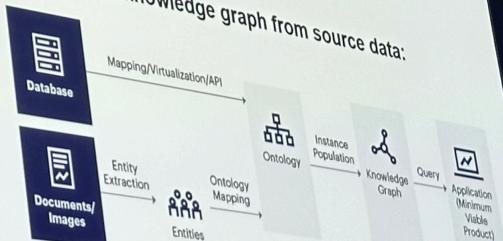
Real-world is *situational, layered and changing* — this represents context to the data (often missing).

W3C standards such as RDF, OWL, SPARQL enable your data to speak a common universal language.

Semantic integration enables efficient data understanding and ontology mapping.

Create scalable knowledge representations of data with associated meanings called “knowledge graphs.”

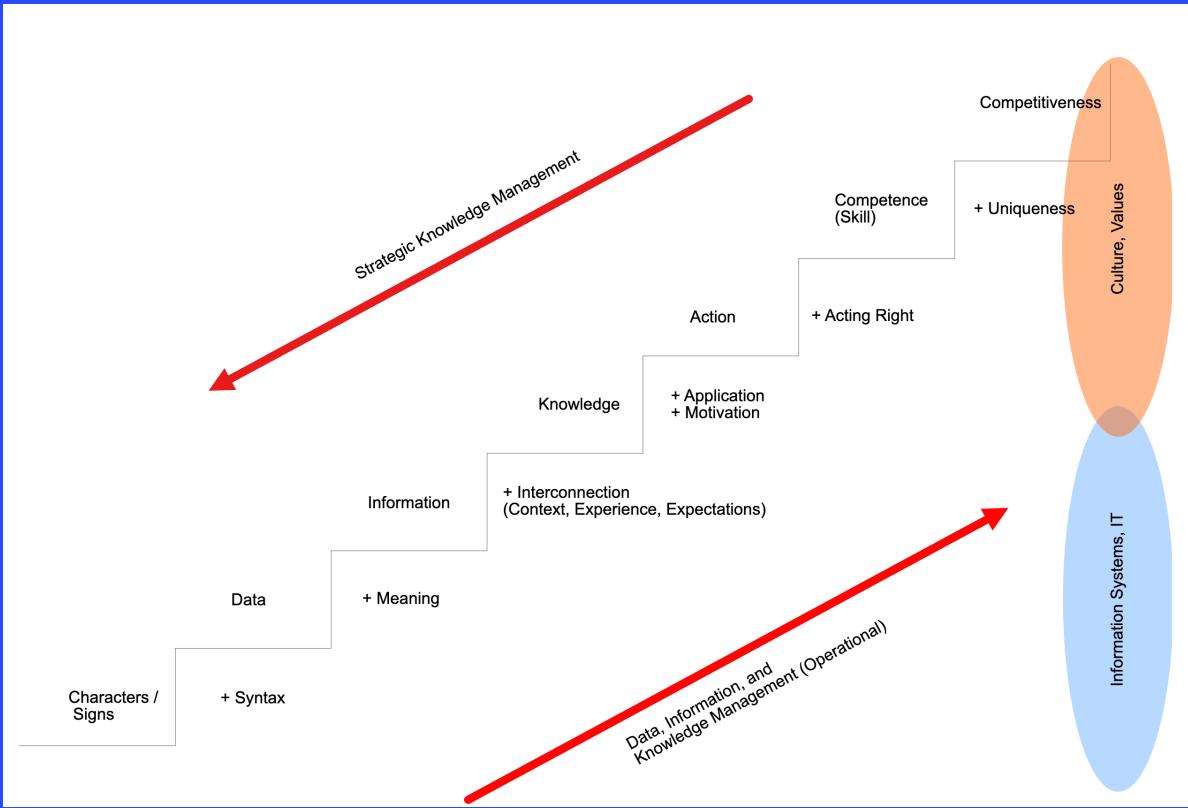
Populating a knowledge graph from source data:



A knowledge graph acquires and integrates data into an ontology (or many) and then makes it available to applications.



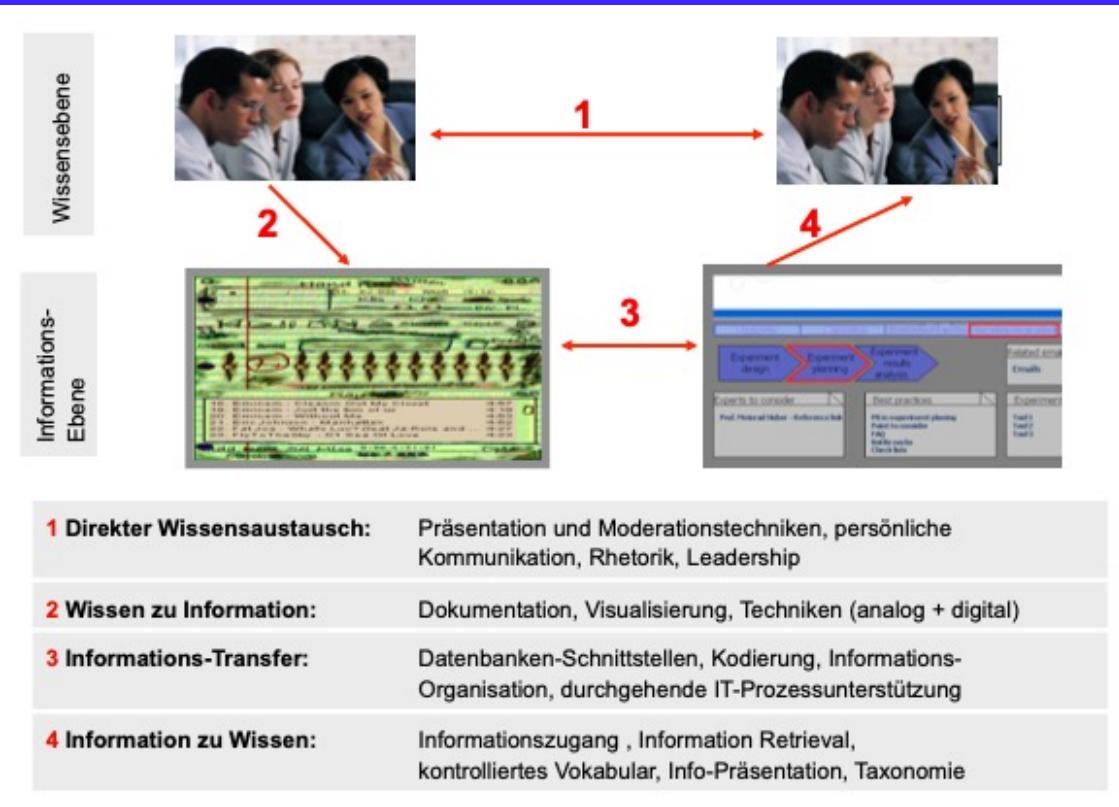




**Knowledge:
Information +
Interconnection**

Interconnection:

Context, Experience, Expectations



LLMs will solve
this!?



Peter Kühnis
@PeterFreakwater

Frage: ist es gängige Vorgehensweise in Deutschland dass Ermittler als Bananen getarnt unterwegs sind ?

Verdeckte Ermittler

Getarnt als Bananen, stellten die Beamten in den vermeintlichen Obstkisten nicht weniger als 740 Kilo Kokain sicher.

Aus der Kronen Zeitung

11:07 nachm. · 27. Apr. 2024 · 172.110 Mal angezeigt

204

418

5.832

139



Undercover investigators

Disguised as bananas, the officers seized no less than 740 kilos of cocaine in the supposed fruit crates.

Here, "die Beamten" (the officers) is the subject performing the action, "stellten sicher" (secured) is the verb describing the action, and "nicht weniger als 740 Kilo **„Banane“**" (no less than 740 kilograms of cocaine) is the object that the action is being performed upon. The sentence "Getarnt als Bananen" (Disguised as bananas) acts as an additional descriptive phrase indicating the manner in which the officers were disguised during their operation.



Extracting meaning from text can be hard.

Emphasis changes everything.

I never said she stole my money.

Someone else may have said it, but it wasn't me.

I **never said she stole my money.**

I didn't make the claim at any point in time.

I never **said she stole my money.**

I may have implied or thought it, but didn't say it.

I never said **she stole my money.**

Someone else may have stolen it, but it wasn't her.

I never said she **stole my money.**

She may have borrowed or been given it.

I never said she stole **my money.**

She stole someone else's money.

I never said she stole my **money.**

She may have stolen something else.

Dana Gourarie



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People 1st 2nd 3rd+ Seniority Locations Current company All filters Reset

Marc Kuonen · 1st
Frag mich
Wohlen
Cheryl Meister, Michel Aeberhard, and 1 other mutual connection [Message](#)

Angela Stempfle · 1st
CI/CD Middleware & Software Engineer | DevOps | OpenSource | Java
Bern
Stefan Lengacher, Rony Meyer, and 32 other mutual connections [Message](#)

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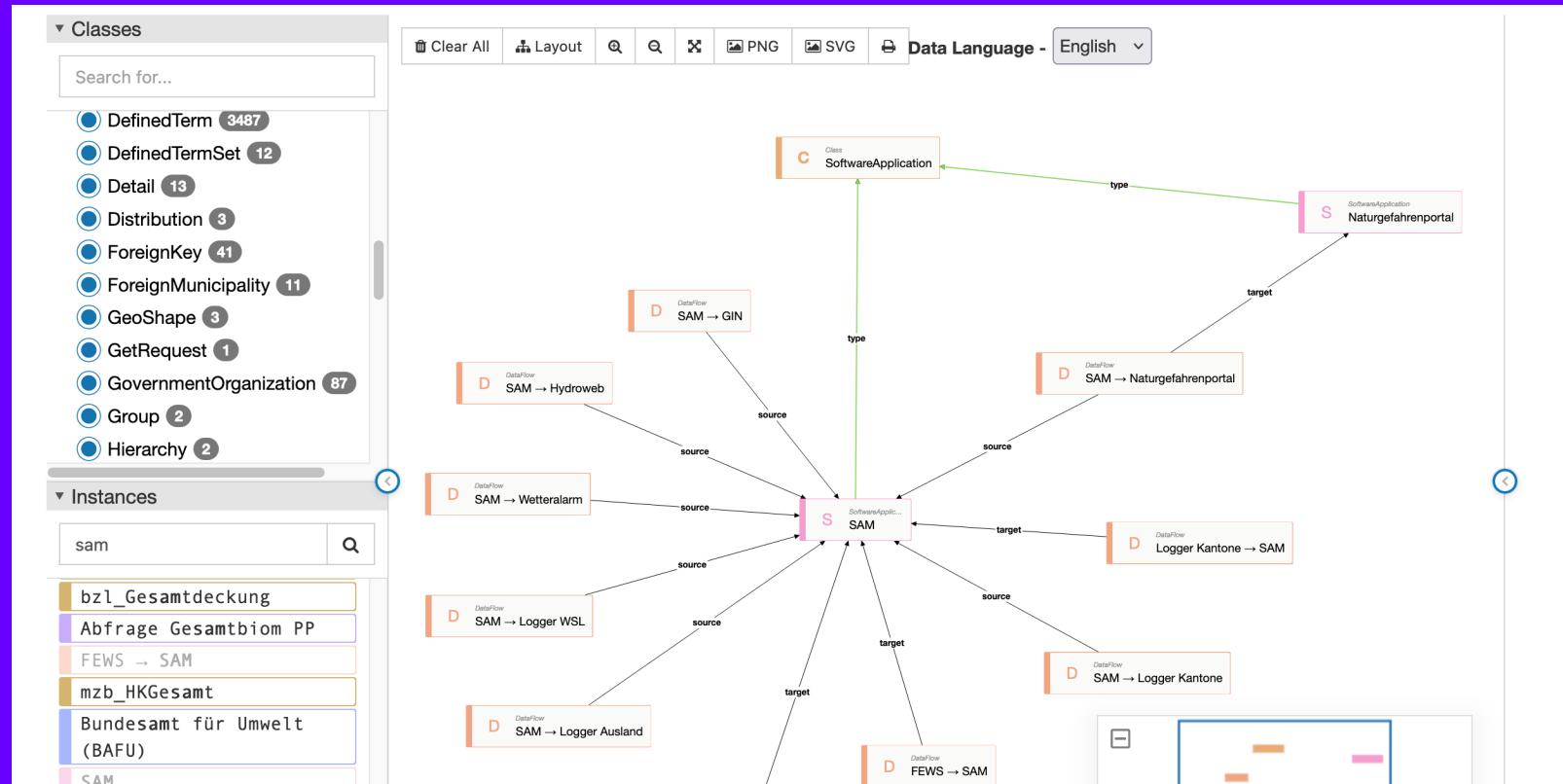
Dominique Burger · 1st
Software Engineer für AEM Forms bei ajila
Sursee
Manuel Schilt and Marc Luginbühl are mutual connections [Message](#)

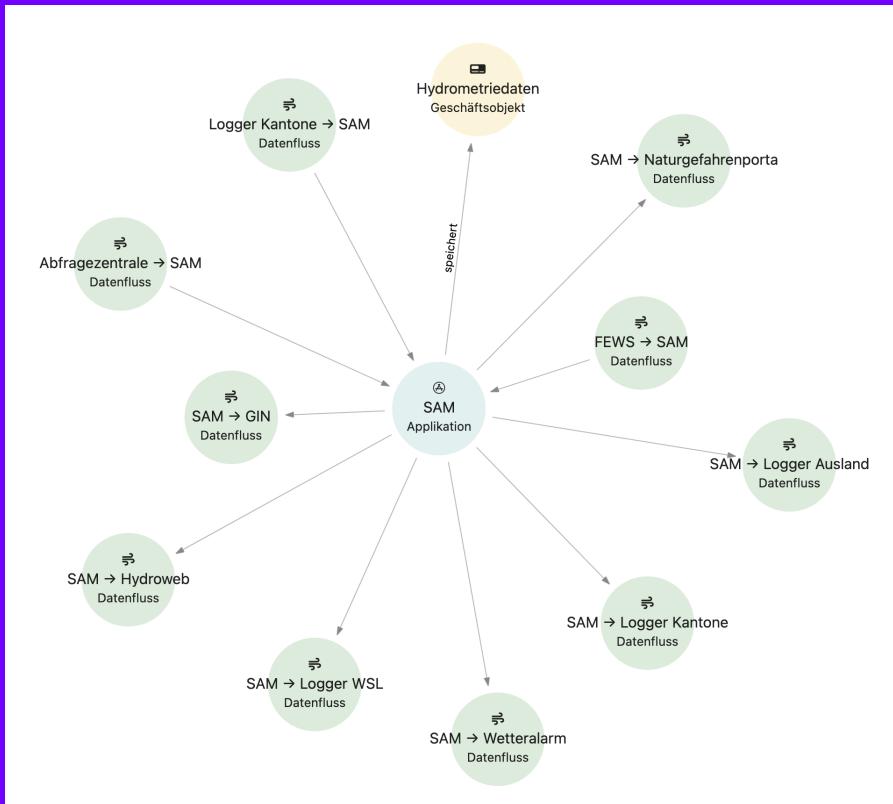
Mathias Herzog · 1st
Cloud Consultant at peakscale.ch
Bern
Matthias Fritschi, Robert Randall, and 30 other mutual connections [Message](#)

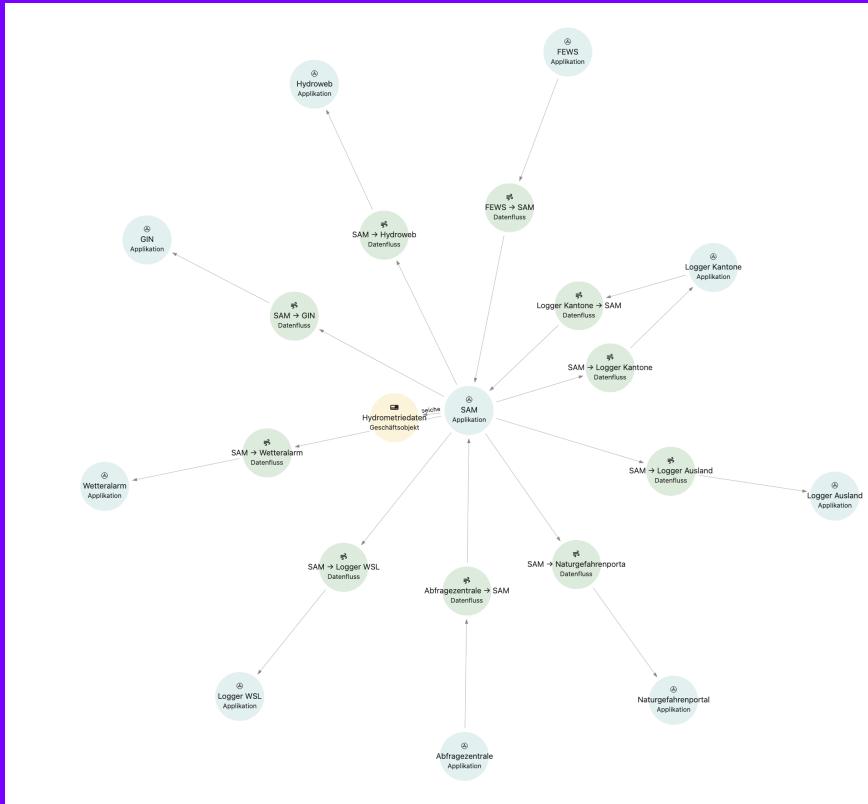
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You can LEARN everything it depends on you!
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Marc-André Beck is a mutual connection [Message](#)

Thomas Reto Strub · 1st
Project Manager Data & Analytics at Solothurner Spitäler AG
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Leiterin HR & Finanzen bei IMS Gruppe
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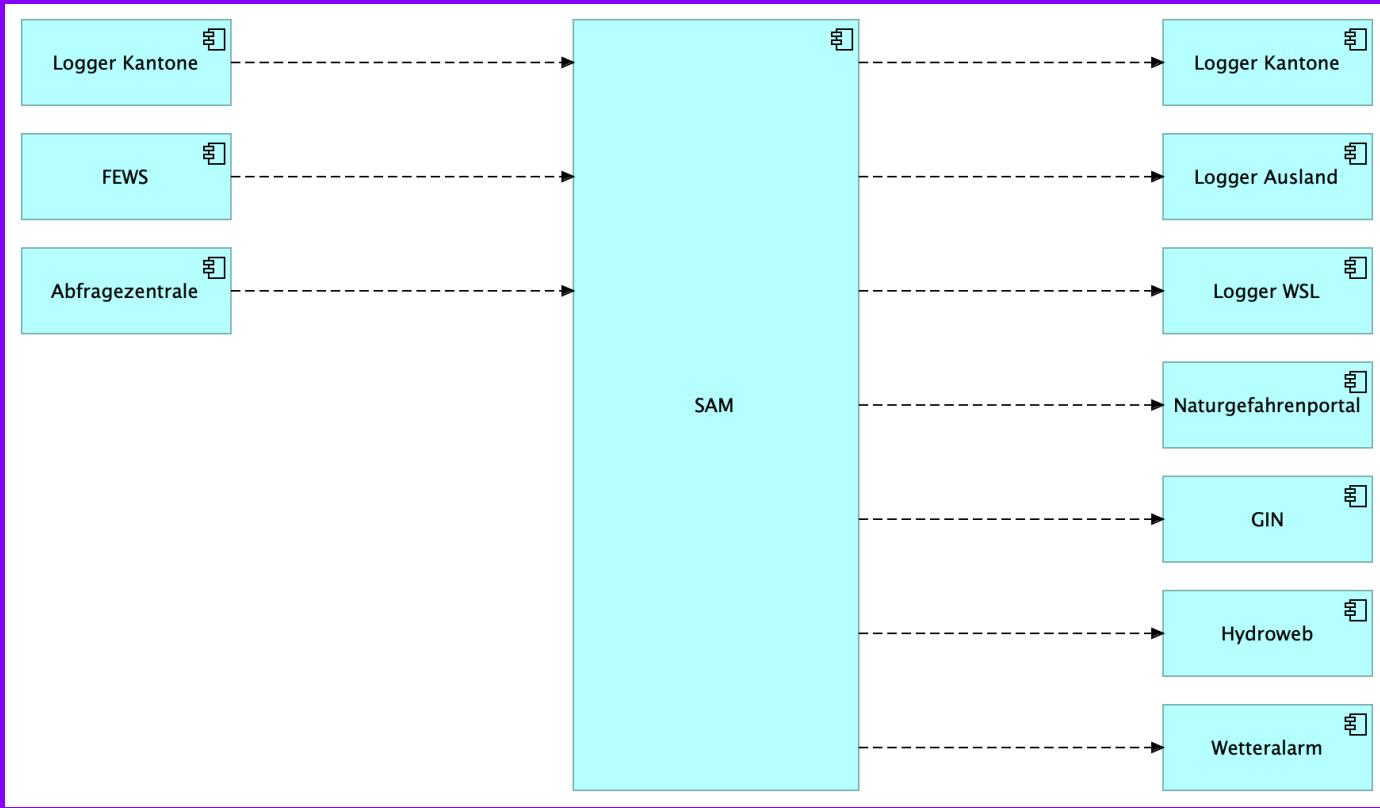




118 ハスルロードミシル
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LITERATURE, AND
SCIENCE.

ソニーベンツ M



package.json upgrade deps and fix paths 2 months ago

readme.md add npm banner 5 months ago

test.svg include localName in label 7 months ago

test.ttl use graphviz url 8 months ago

vite.config.js set base 8 months ago

[+ 36 deployments](#)

Languages

JavaScript 85.6% HTML 14.4%

README

npm v0.1.0

A simple RDF visualization tool based on [GraphViz](#).

Diagram descriptions are derived with [N3](#) rules and converted to [dot](#) notation.

The default rules make compact visualizations (only the subjects of some triple become nodes):

```

@prefix dcterms: <http://purl.org/dc/terms/> .
@prefix wd: <http://www.wikidata.org/entity/> .
@prefix dbo: <https://dbpedia.org/ontology/> .
@prefix dbpedia: <http://dbpedia.org/resource/> .

wd:Q12418
  dcterms:title "Mona Lisa" ;
  dcterms:creator dbpedia:Leonardo_da_Vinci .

wd:Q128910
  dcterms:title "The Last Supper" ;
  dcterms:creator dbpedia:Leonardo_da_Vinci .

dbpedia:Leonardo_da_Vinci
  dbo:birthName "Leonardo da Vinci" ;
  dbo:birthPlace dbpedia:Republic_of_Florence .

```

Q12418

title	Mona Lisa
-----------------------	-----------

Q128910

title	The Last Supper
-----------------------	-----------------

creator

creator

Leonardo_da_Vinci	
birthName	Leonardo da Vinci
birthPlace	Republic_of_Florence

Visualization rules can be customized (see the [documentation](#) for details).

Try it online [here](#).

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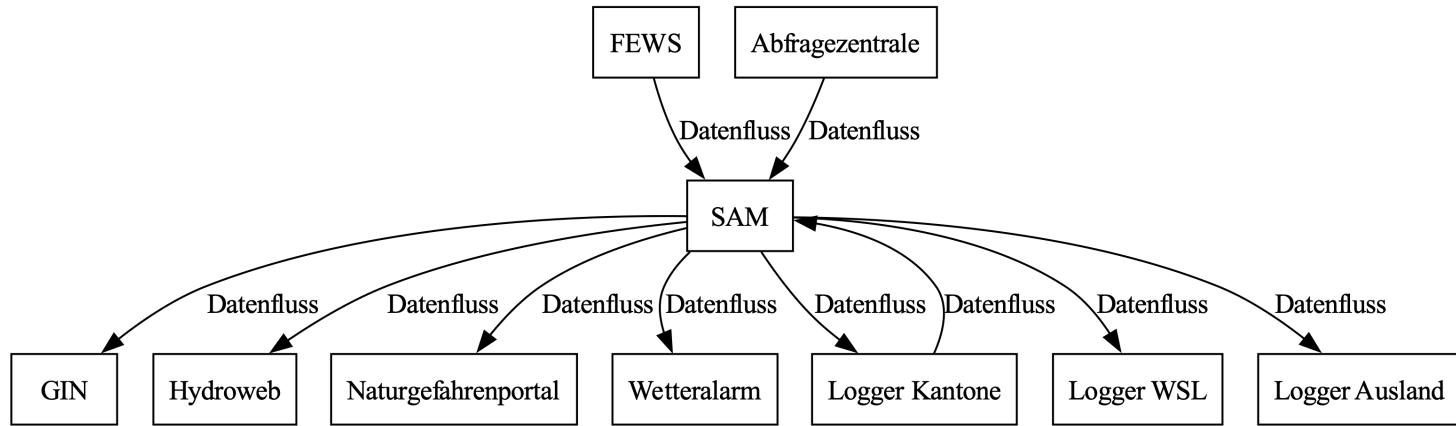


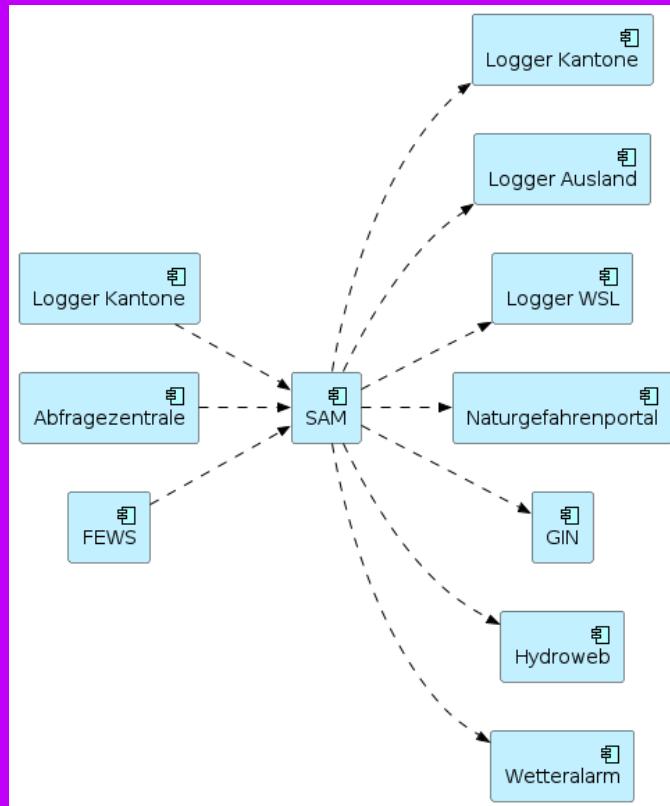
1. Create a minimal vocabulary for a visualization

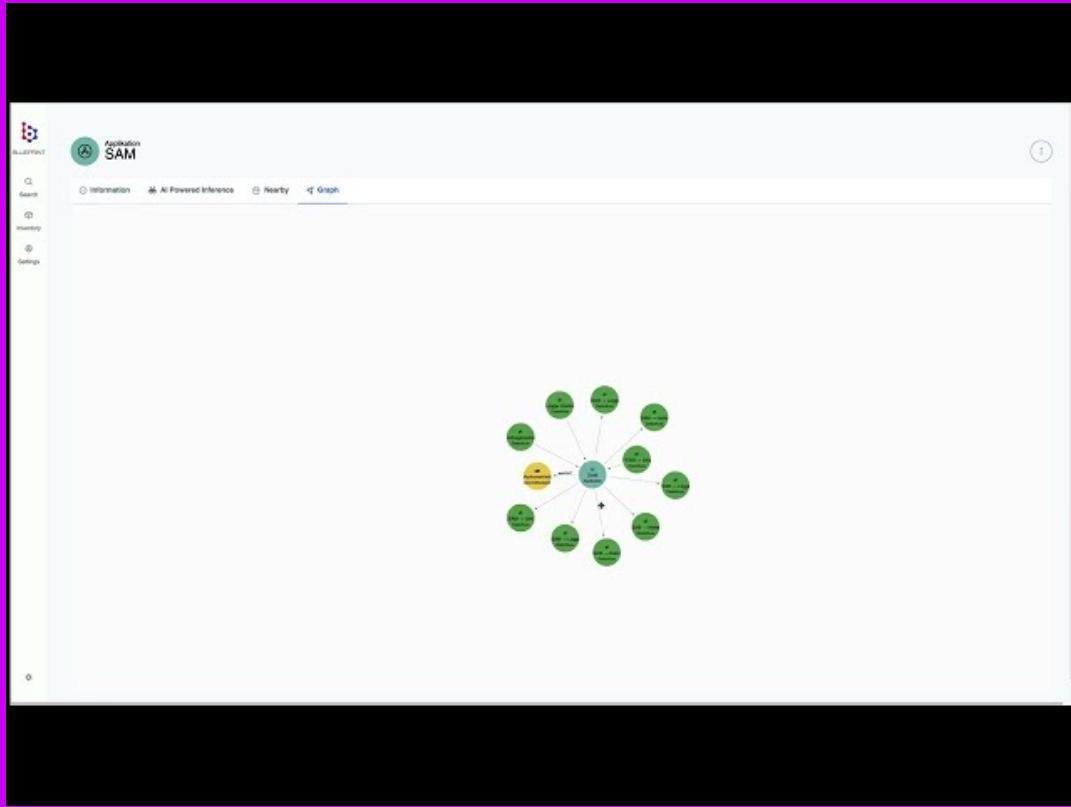
2. Transform the input
graph to this
vocabulary

And RDF is *really* good
for data transformation

SPARQL CONSTRUCT, Notation-3, etc.

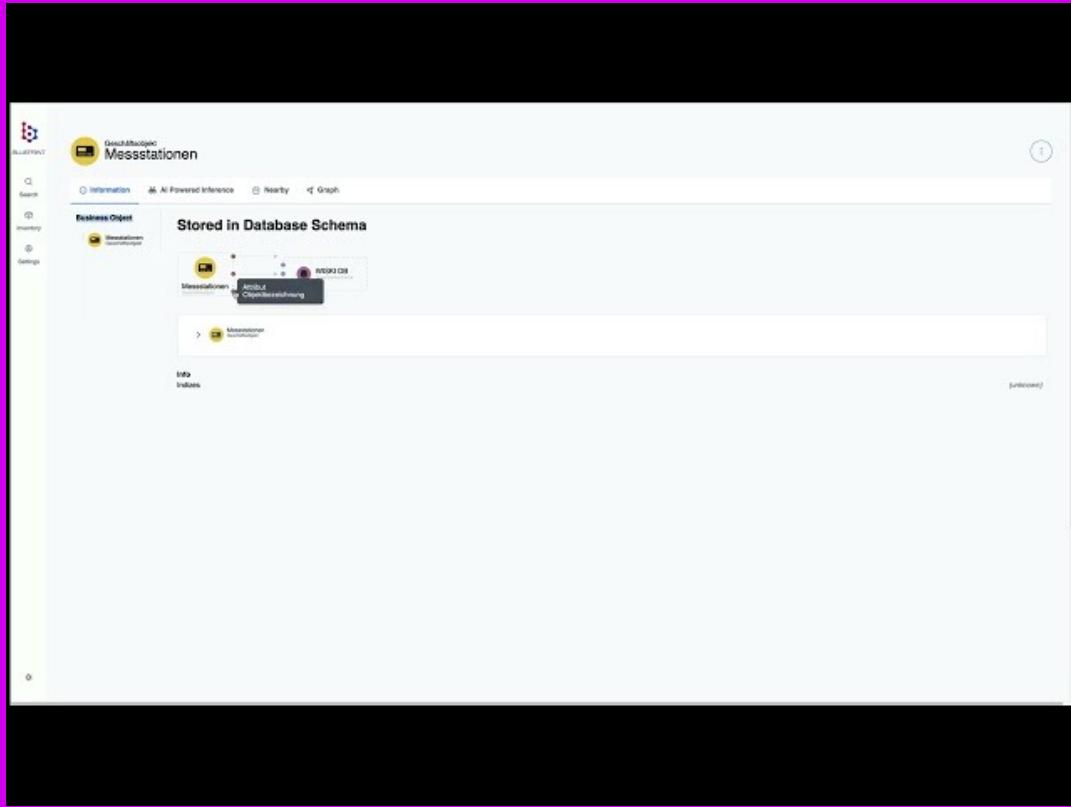






<https://youtu.be/y0gGM20B30I>





<https://youtu.be/mmOPIDfN92I>

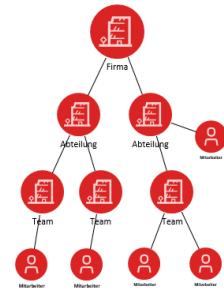


Think more generic

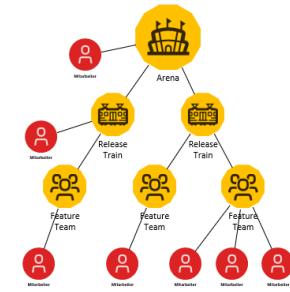
What common patterns do we expect?

There are lot's of trees @ Mobiliar ...

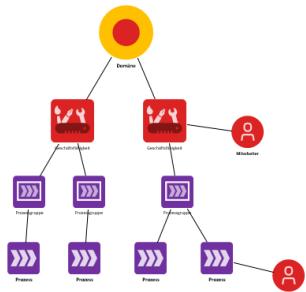
Linie (HR)



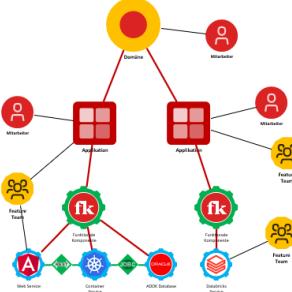
Netzorganisation (Agile)



Prozesse

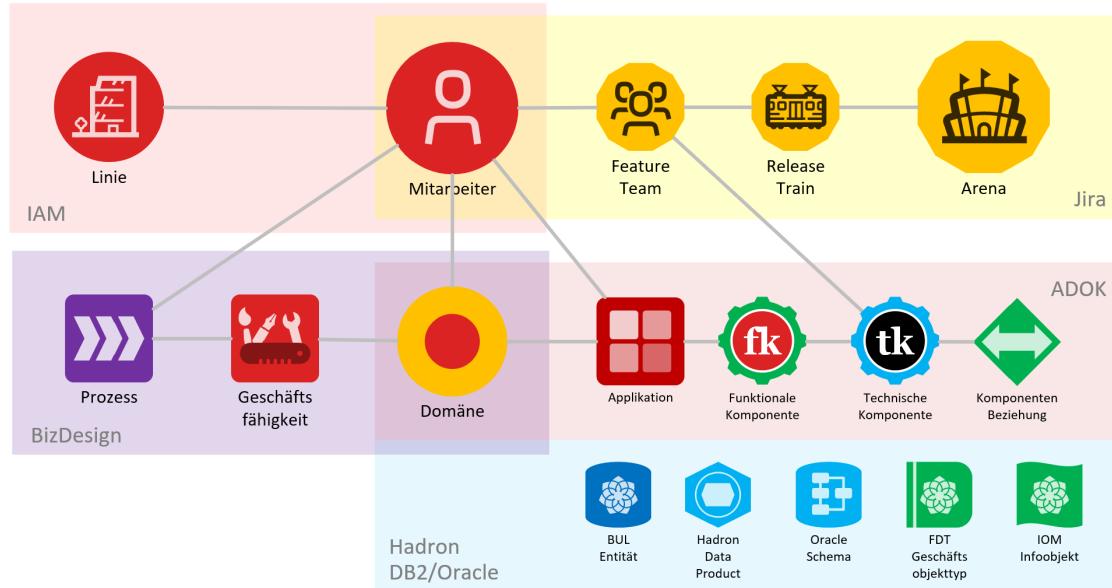


Technologie

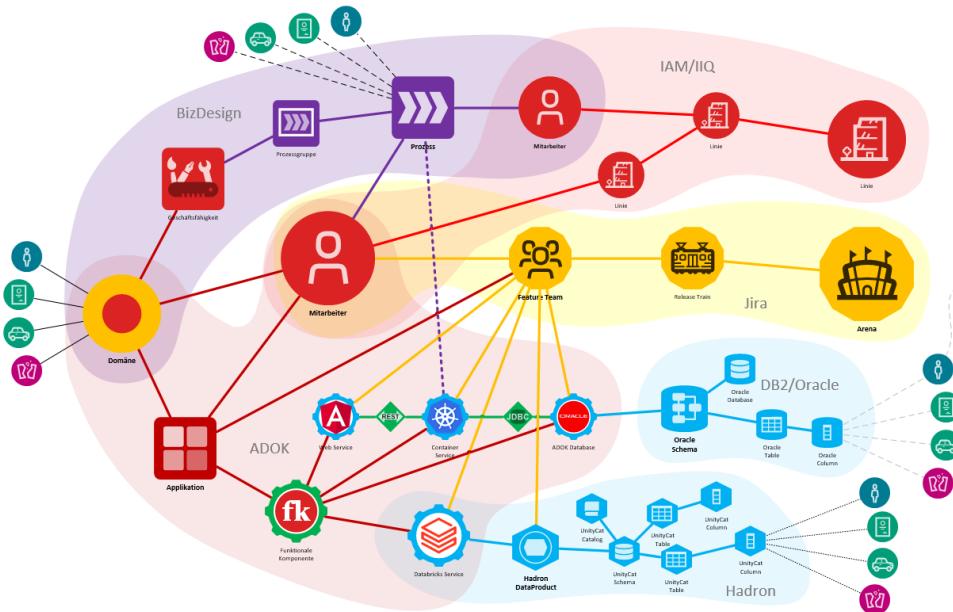


die Mobiliar

... the trees overlap and we join them ...



... in a large hairball (graph) for exploration ...



Context, Experience, Expectations

Or: Interconnection

 BLUEPRINT

Settings > Details

Details for Classes

Detail configuration is the configurations show when exploring a Resource.

Search Filter

Inventory

Settings

	Baxio Project		Circle		Cluster		Deployment		Git Repository		Host		Image		Ingress		K8S Namespace		OCI Registry
	OCI Repository		Organization		Person		Project		Role		StatefulSet								

 BLUEPRINT

Settings > Details

Details for Classes

Detail configuration is the configurations show when exploring a Resource.

Search

Inventory 

Settings 

Application	Attribut	Datenbankschema	Datenfluss	Geschäftsobjekt	Kanton	Organisationseinheit	Person	Spalte	Tabelle
 Application	 Attribut	 Datenbankschema	 Datenfluss	 Geschäftsobjekt	 Kanton	 Organisationseinheit	 Person	 Spalte	 Tabelle
 Wertebereich									

Settings > Topology

Topology

View the Topologies

Trees

Tree Data Structures

-  OCI Registries This structure holds key inf...
-  K8S Namespaces Information about Kuber...
-  K8S Clusters Information about inform...
-  Organizations Information about People a...
-  Projects Information about projects ...

BLUEPRINT

Search

Inventory

Settings

Settings > Topology

Topology

View the Topologies

Trees

Tree Data Structures

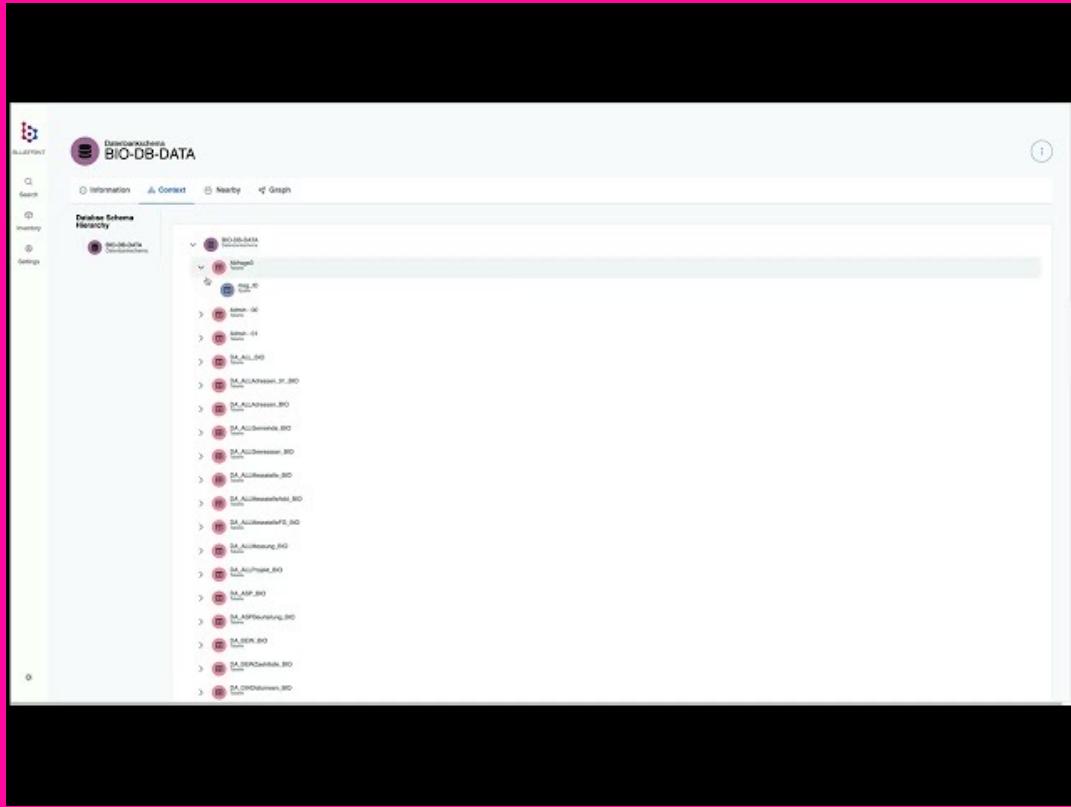
-  Database Schema Tree
-  Business Object Com...

BLUEPRINT

Search

Inventory

Settings



<https://youtu.be/C1lgeim5zKM>



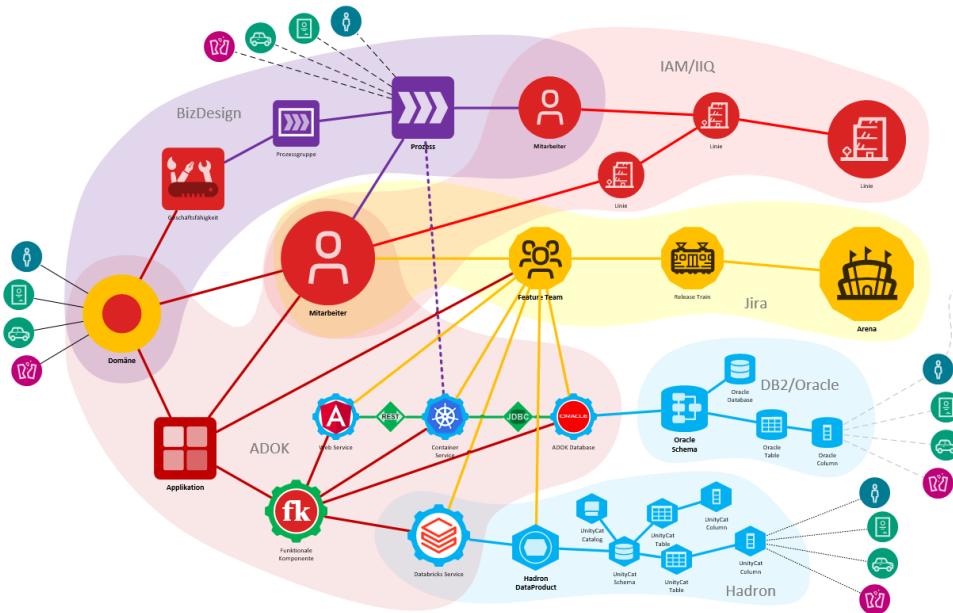
The screenshot shows the BlueYonder platform interface for managing Kubernetes namespaces. The title bar reads "Inventory > Detail" and "K8s Namespaces". The left sidebar includes "Search", "Inventory", and "Settings". The main area displays a list of namespaces under the heading "Information about Kubernetes namespaces, including details about the ingress, deployment and statefulset." A search bar at the top right contains the letter "V". Below the search bar are two buttons: "New" and "Delete". The namespace list is organized into sections:

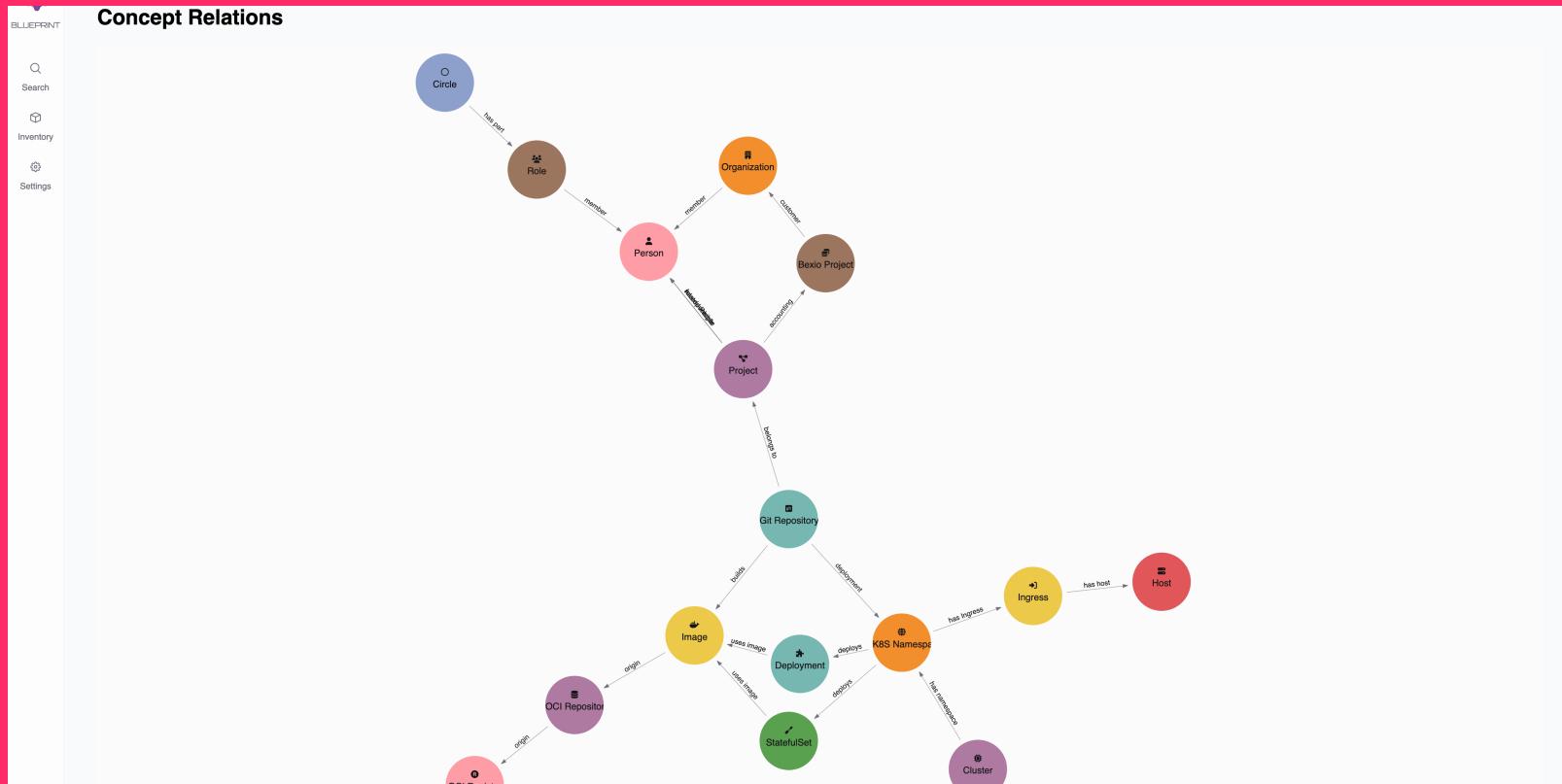
- body**: Contains "body" and "pilot" namespaces.
- traefik**: Contains "traefik-ingress" and "letsd-ingress" entries.
- default**: Contains "kubernetes-service-playground", "calico", "calico-kube-controllers", "calico-node", "calico-validator", "calico-cached-oscillo-com", "default", and "etcd" namespaces.

<https://youtu.be/RFejpesJq1A>



... in a large hairball (graph) for exploration ...





Concept Relations



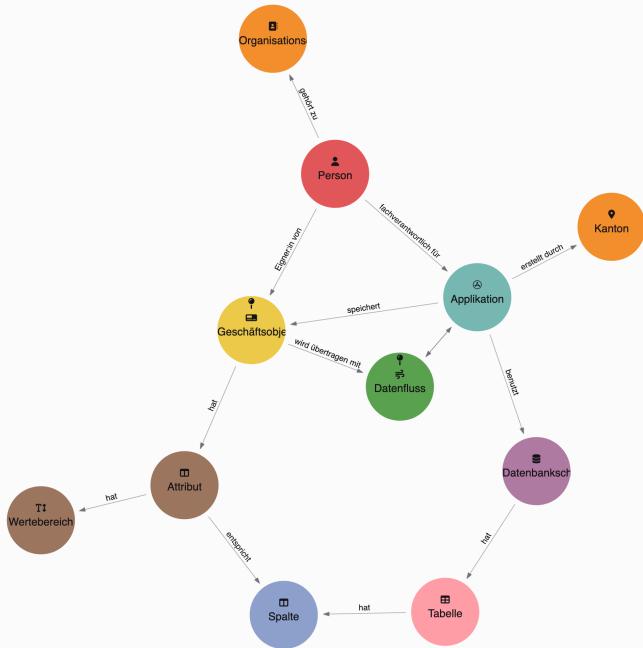
Search



Inventory

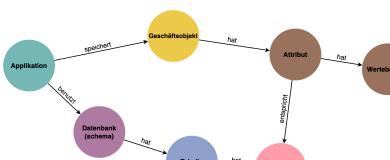


Settings



zazuko

Modellierte Relationen – Use Case «Datensicht»

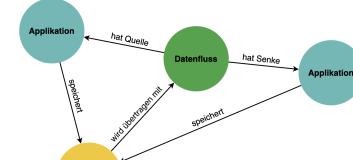


07.06.2023

BAFU - PoC Datenkatalog

1

Modellierte Relationen – Use Case «Datenflüsse»

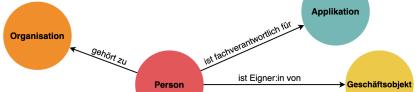


07.06.2023

BAFU - PoC Datenkatalog

2

Modellierte Relationen – Use Case «Zuständigkeit»

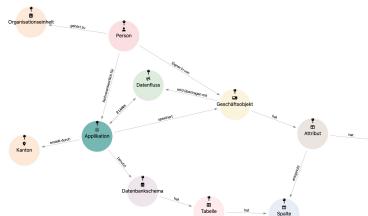


07.06.2023

BAFU - PoC Datenkatalog

3

Modellierte Entitäten und Relationen – Gesamtsicht



07.06.2023

BAFU - PoC Datenkatalog

4

Conclusions

From Information to Knowledge

Context, Experience, Expectations

We imply a lot of
these things

But they have to
become part of the
knowledge graph

Push level of abstraction

Make things declarative

Visualizations and User Experience

is about spatial orientation

Further Reading

Bret Victor: Magic Ink

<https://worrydream.com/MagicInk/>



no admin ch - Linked Data

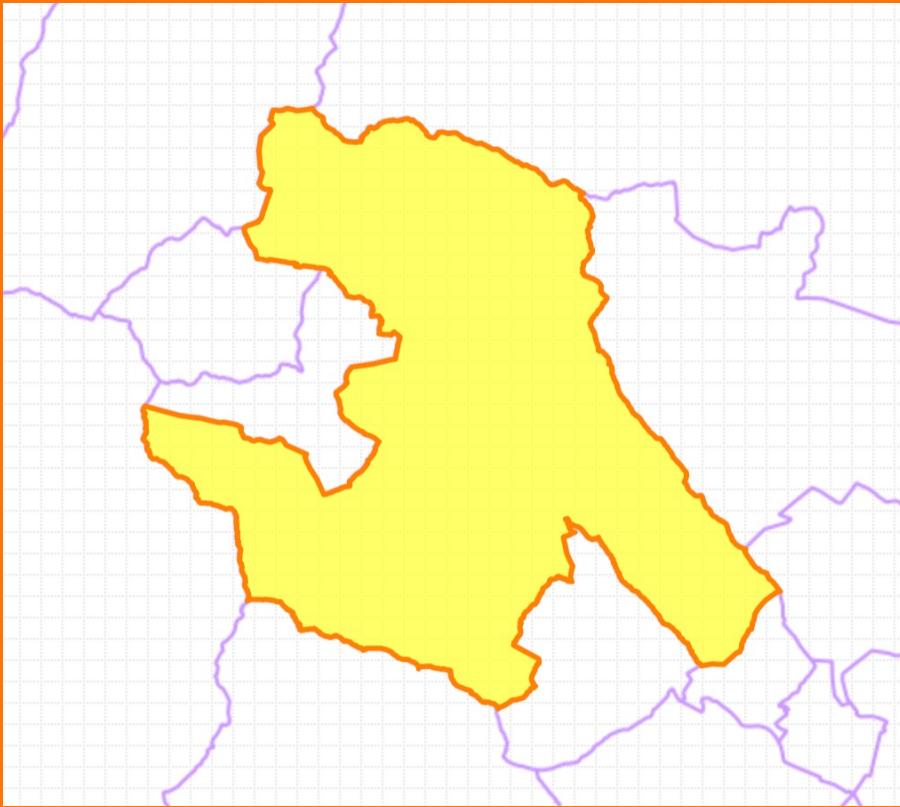
<https://geo.id.admin.ch/boundaries/municipality/geometry/5072:2023>

<http://www.opengis.net/ont/geosparql#Geometry>

vde

Geometry





Faido

<https://geod.id.admin.ch/boundaries/municipality/5072>

a <http://schema.org/AdministrativeArea>, <http://www.opengis.net/ont/geosparql#Feature>



type	AdministrativeArea
type	Feature
hasVersion	5072-2015
hasVersion	5072-2013
hasVersion	5072-2023
hasVersion	5072-2018
hasVersion	5072-2021
hasVersion	5072-2011
hasVersion	5072-2016
hasVersion	5072-2014
hasVersion	5072-2012
hasVersion	5072-2024
hasVersion	5072-2019
hasVersion	5072-2017
hasVersion	5072-2022
hasVersion	5072-2010
hasVersion	5072-2020
about	5072



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In collaboration with the cantons

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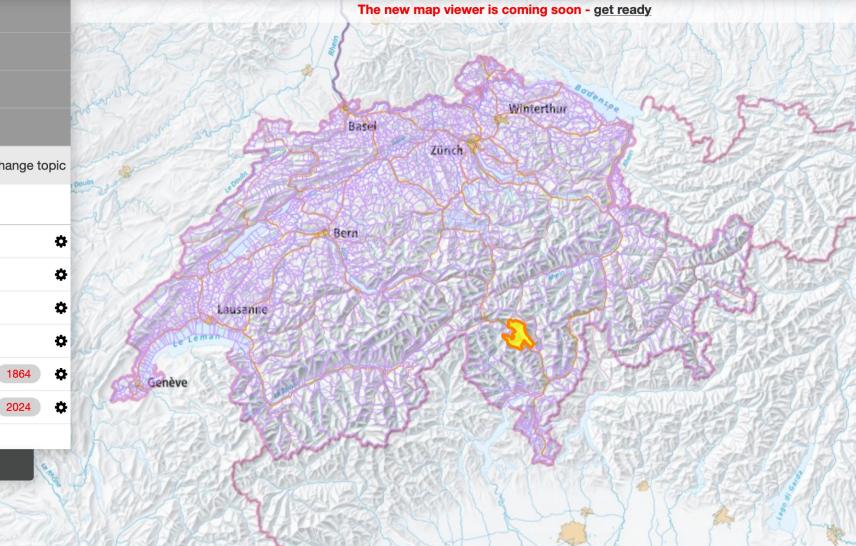
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- ▶ Geocatalog Change topic

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- Hiking trails
- Public transport stops
- RBD: building status
- Journey through time - Maps 1864
- Municipal boundaries 2024

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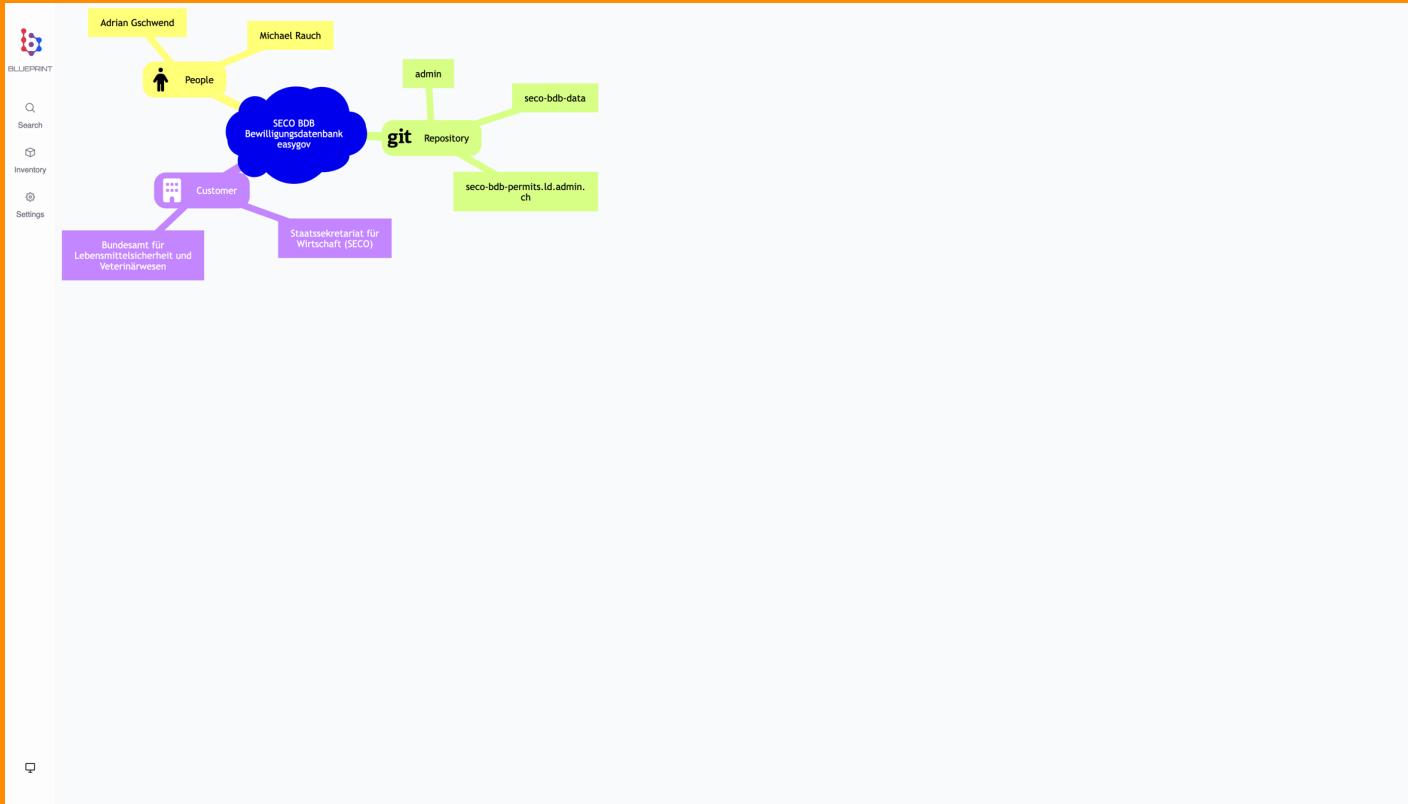


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50 km

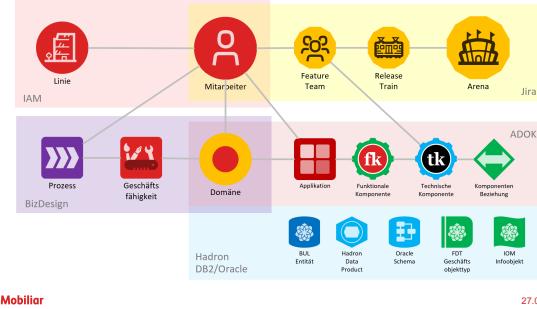
CH1903+ / LV95





The screenshot shows the BLUEPRINT application interface with a search bar at the top containing the text "2880 Results". On the left, there is a sidebar with navigation links: Search, Inventory, Settings, and a star icon. The main area displays a grid of 2880 results, each represented by a card. The cards are organized into four columns and seven rows. The first column contains cards for "Geschäftsobjekt Kieselalgen", "Attribut Gattung", "Wertebereich Familie", and "Geschäftsobjekt Makrozoobenthos BS". The second column contains cards for "Wertebereich Gattung", "Wertebereich Familie", "Attribut Ordnung", and "Attribut Anschaffungswert". The third column contains cards for "Wertebereich der Gattung d...", "Wertebereich der Familie d...", "Wertebereich Ordnung", and "Attribut Temperatur". The fourth column contains cards for "Gattung der Makroinvertebr...", "Gattung der Familie d...", "Ordnung der Makroinverteb...", and "Attribut Abfluss". Each card has a small circular icon representing its type.

... the trees overlap and we join the them ...



Demos by

Zazuko Blueprint

<https://github.com/zazuko/blueprint>



I'm Adrian
Gschwend

Find me on LinkedIn

