



]init[

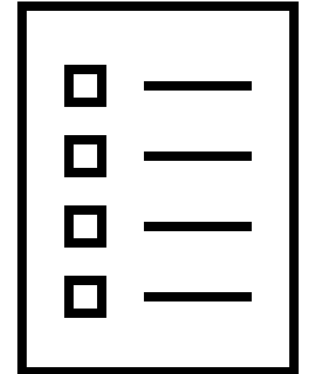
RegCheck – Semantic Web for modernisation of  
public administration register information

12.06.2025



# today

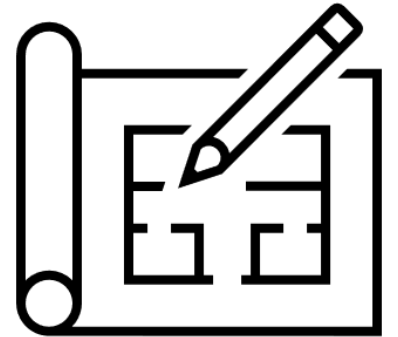
- the project in a nutshell
- maturity level?
- project insights
- learnings





# today

- **the project in a nutshell**
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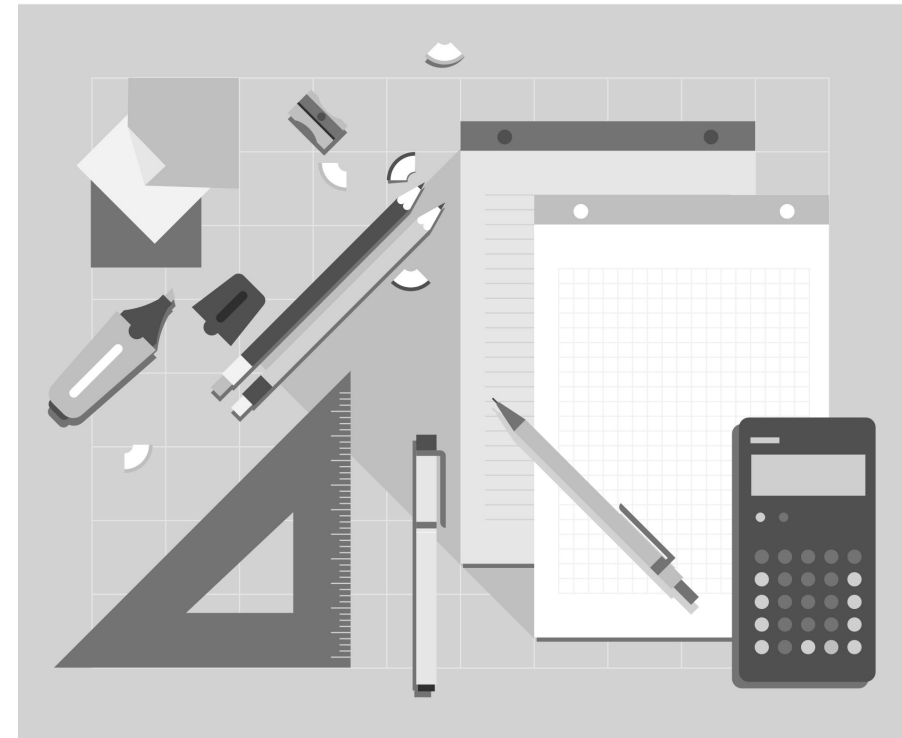
# in a nutshell

<b>question</b>	Can Evidence Requests in („data field level“) for the modernisation of public administration register information („Registermodernisierung“) be modelled as a knowledge graph?
<b>approach</b>	Normalisation on data field level for registration and reporting as starting point (DSMeld). Data from law enforcement and registration (via involvement of clerical processing) was used.
<b>goal</b>	Devising best practices with similar goals.



# the project

- 03/2024 – 12/2024
- IT-PLR-FITKO-project
- ]init[ for Bechtle Weimar GmbH for the Thuringia Ministry of Finance
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# project approach

- methodical research approach
- knowledge graph as basis
- study of results







# in a nutshell

developments

RegCheck  
without  
NOOTS  
integration

interviews  
instead of  
participation  
system

How can a knowledge  
graph work in  
administration?

Where does new data  
for the knowledge  
graph come from?

perspective:  
semantically  
„lead“  
autonomous  
entry

perspective:  
prior to other  
national  
normalisation

relevance?

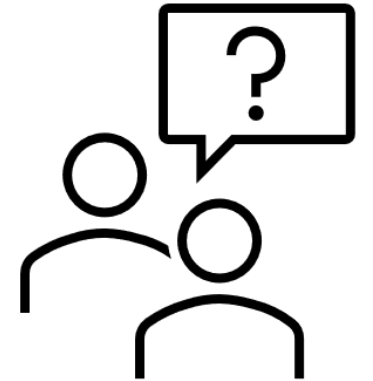
what software is  
required?

concrete  
requirements  
instead of  
preemptive  
decisions



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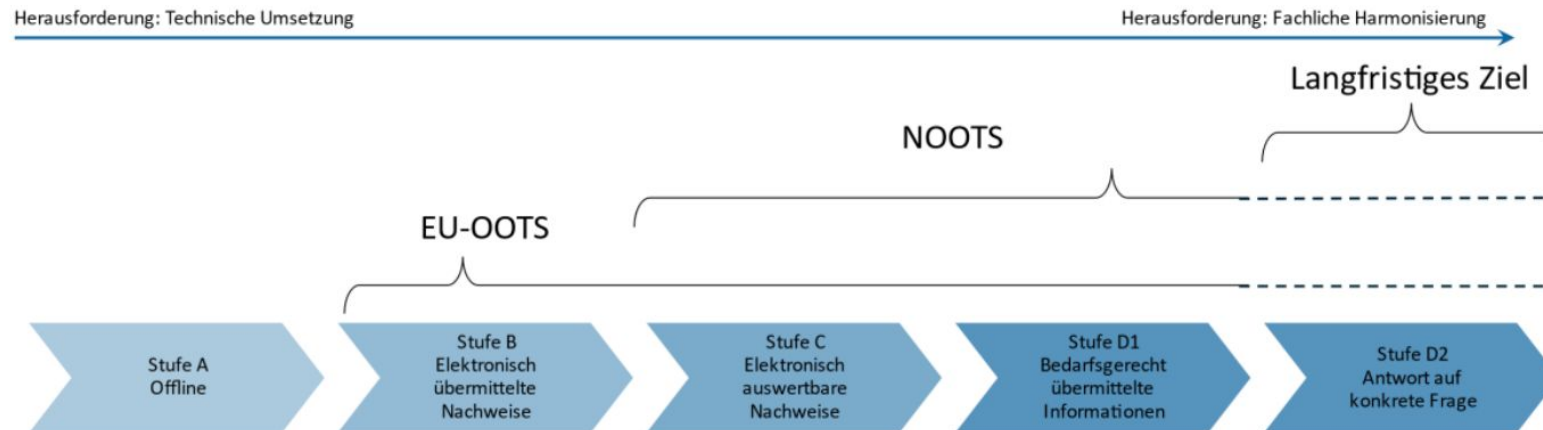






# maturity level D1 in evidence requests

## Reifegradmodell des „nationalen und multinationalen Nachweisabrufs“

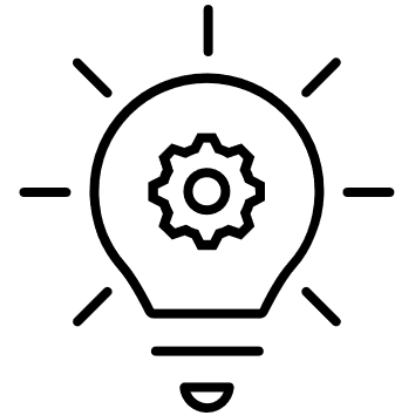


[https://www.it-planungsrat.de/fileadmin/beschluesse/2024/Beschluss2024-15\\_RegMo\\_Reifegradmodell\\_Beschluss\\_LK.pdf](https://www.it-planungsrat.de/fileadmin/beschluesse/2024/Beschluss2024-15_RegMo_Reifegradmodell_Beschluss_LK.pdf)



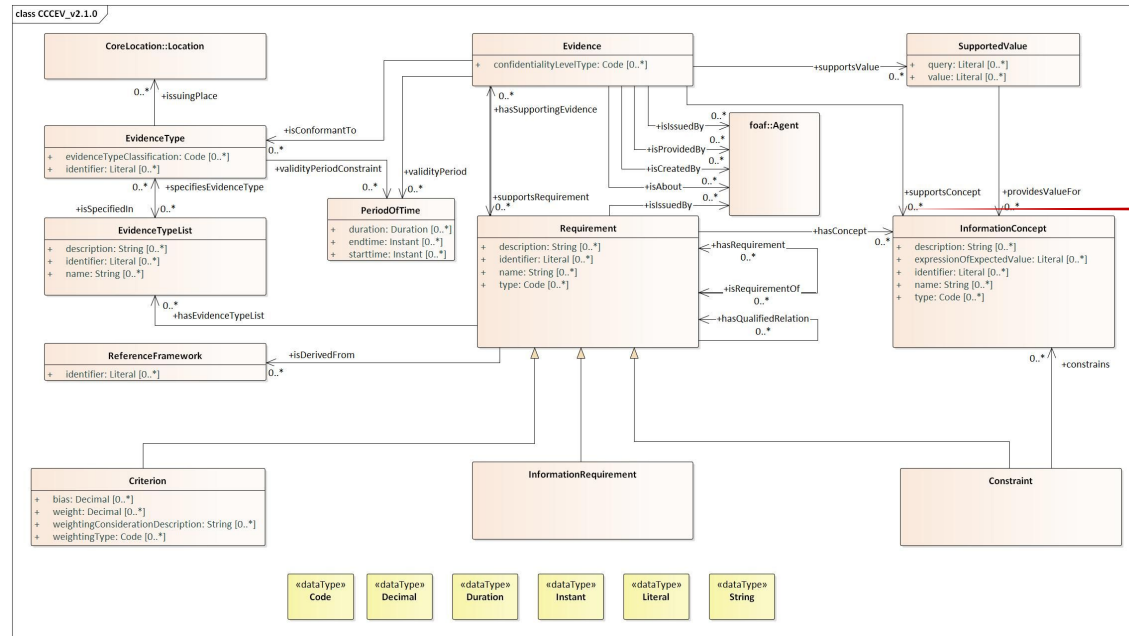
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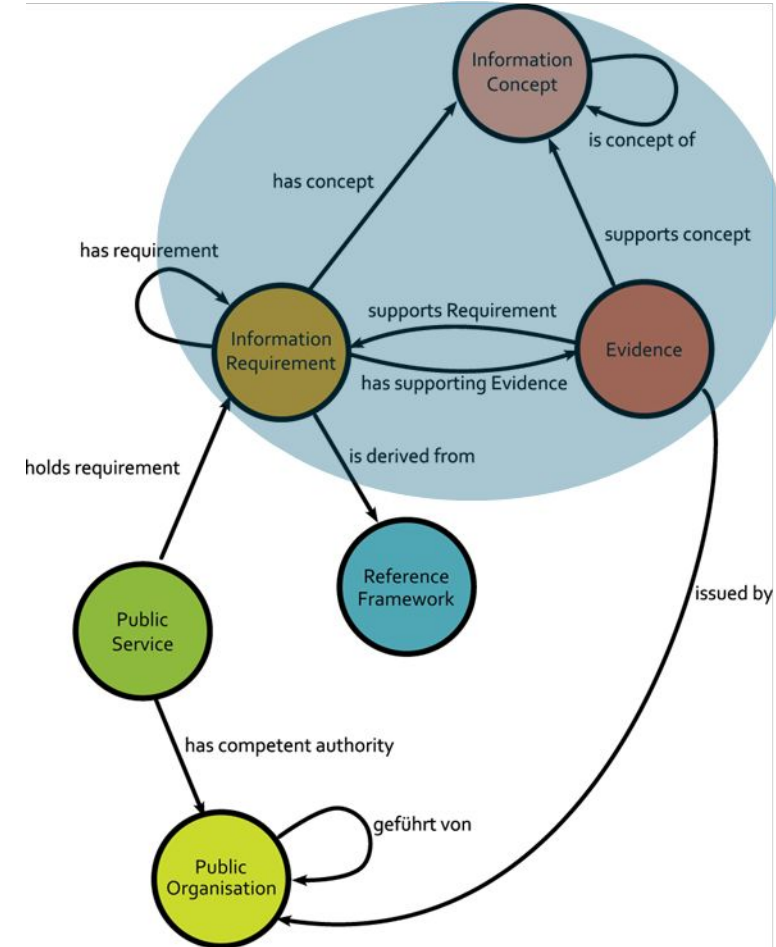


# adapting EU core vocabularies

## Core Criterion and Core Evidence Vocabulary (CCCEV)



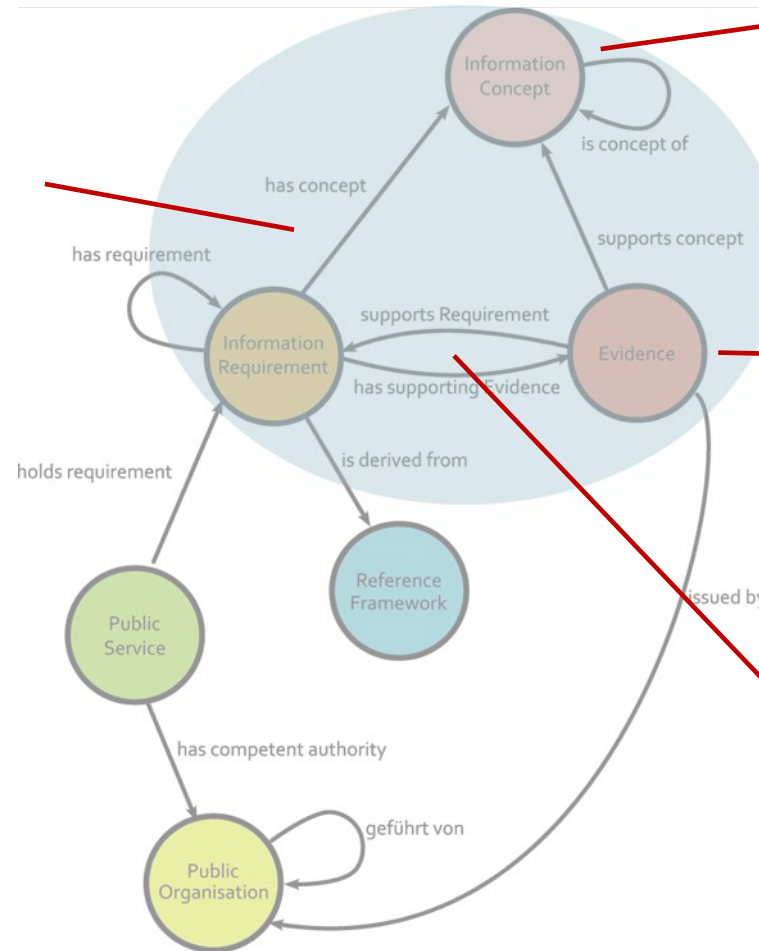
## Core Public Service Vocabulary (CPSV)





# levels

usage: Why does a public service require a data field?



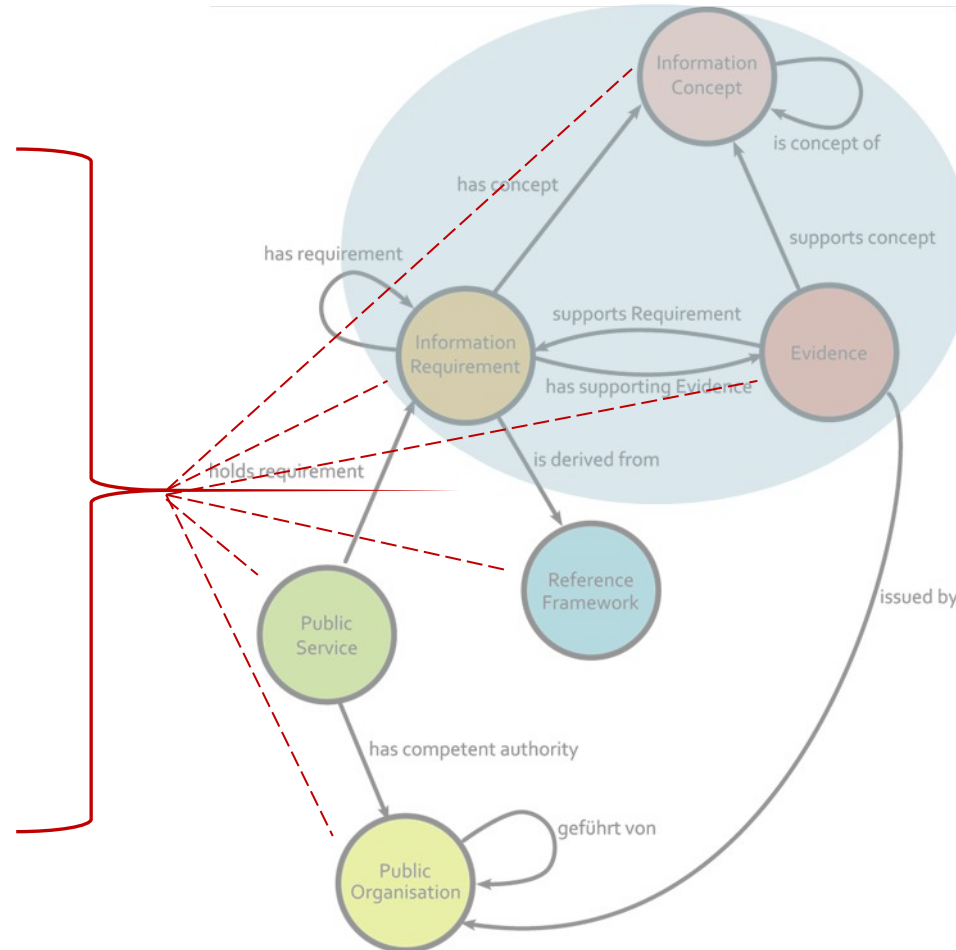
semantics: similarity of data fields

Reifegrad: information on evidence

no 1:1 relation between evidence requirement and evidence

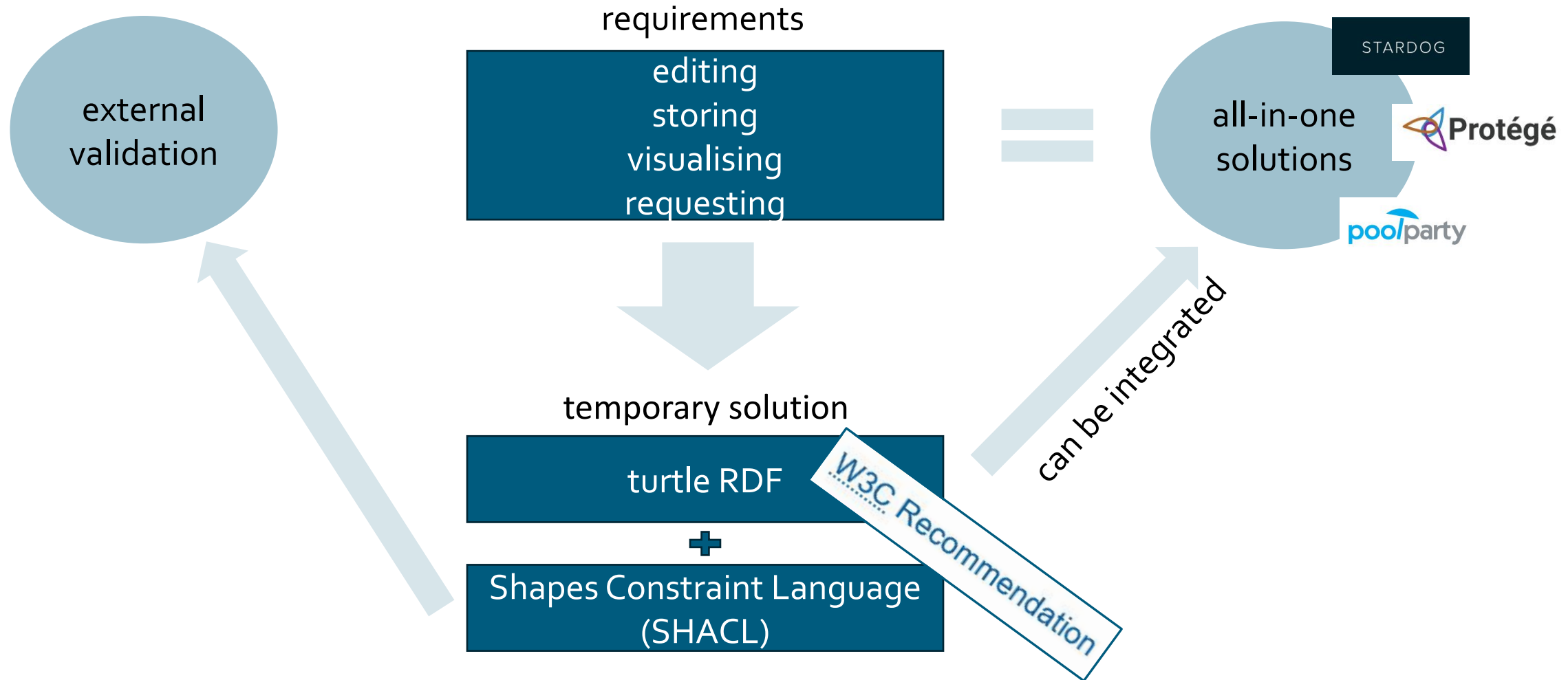
# metadata

- a) date of last change of entry
- b) author of entry
- c) validity of entry
- d) version information
- e) URI of entry
- f) status (deprecated a.o.)





# software stack





# EU core vocabularies and change requests



19 Open	26 Closed	Author	Label	Projects	Milestones	Assignee	Sort
Missing property 'adms:sample' or 'exampleURI'	#66 opened 1 hour ago by SebastianSK						
Missing property for 'structuredness' of an evidence exchange	#65 opened 2 hours ago by SebastianSK						
Additional metadata fields required	#63 opened 3 weeks ago by DavidEdwards-initAG						
Modelling of information requirements for persons other than the main individual of a process	#62 opened 3 weeks ago by DavidEdwards-initAG						
Missing field "purpose of a specific data field"	#61 opened 3 weeks ago by DavidEdwards-initAG						
Missing entities to model application forms	#59 opened 3 weeks ago by DavidEdwards-initAG						1
Missing property "skos:prefLabel" in several entities	#57 opened on Oct 18 by LukasCladders-initAG						
Missing Property "description" in EvidenceType and Evidence	#56 opened on Sep 23 by SebastianSK						

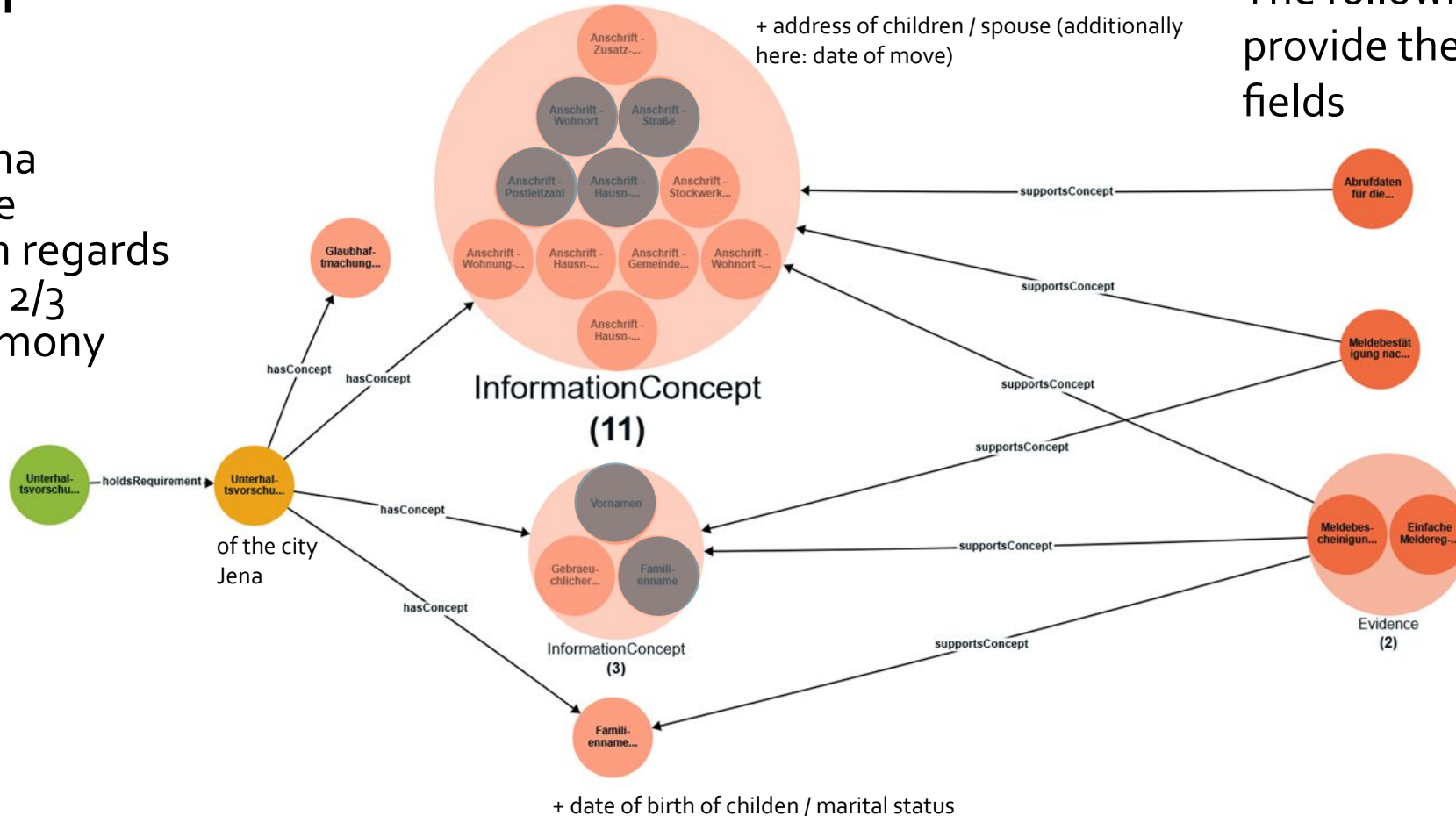




# interview results as graph

## status after interviews

The city Jena requires the following in regards to the type 2/3 service „alimony advance“:



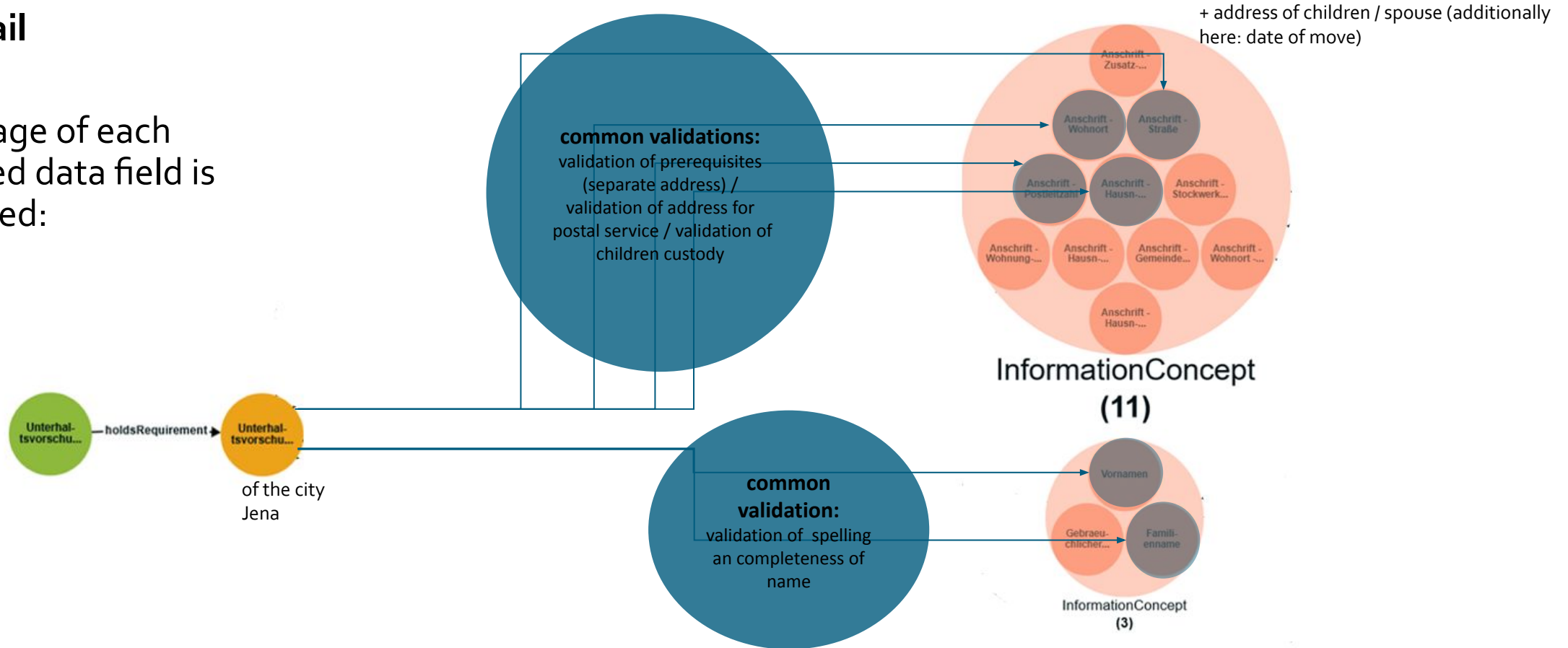
The following evidences provide the required data fields



# interview results as graph

## in detail

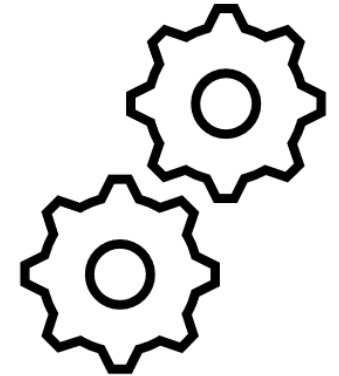
the usage of each required data field is validated:





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# AI and modernisation of public administration register information



## The Good

- finding inconsistencies
- data validation
- semantic interoperability
- automated processing of requests
- partially automated decision-making

## The Bad

- LLM hallucination
- data privacy and data security
- bias and discrimination
- legal questions

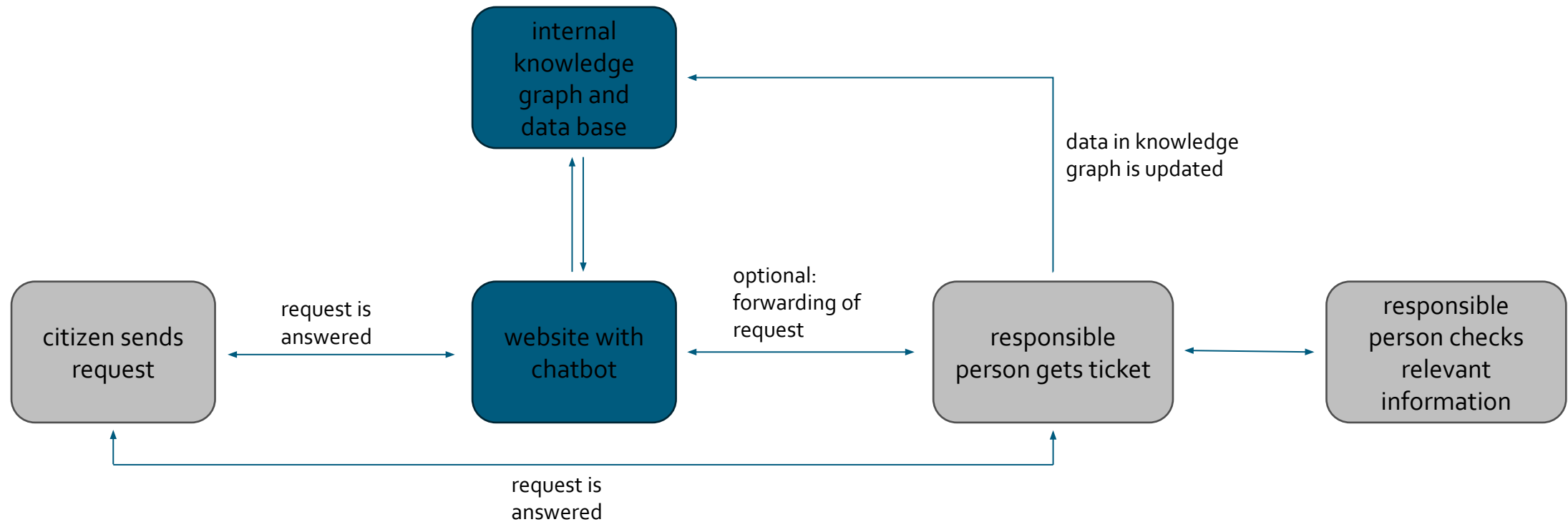


# one idea for further use

- information within the knowledge graph can be made public
- provides as-is status of public services – current solutions often are too general
- a LLM-powered chatbot might use the graph as training data to provide relevant answers to citizens



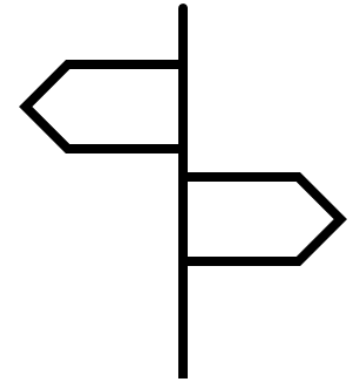
# one idea for further use





# today

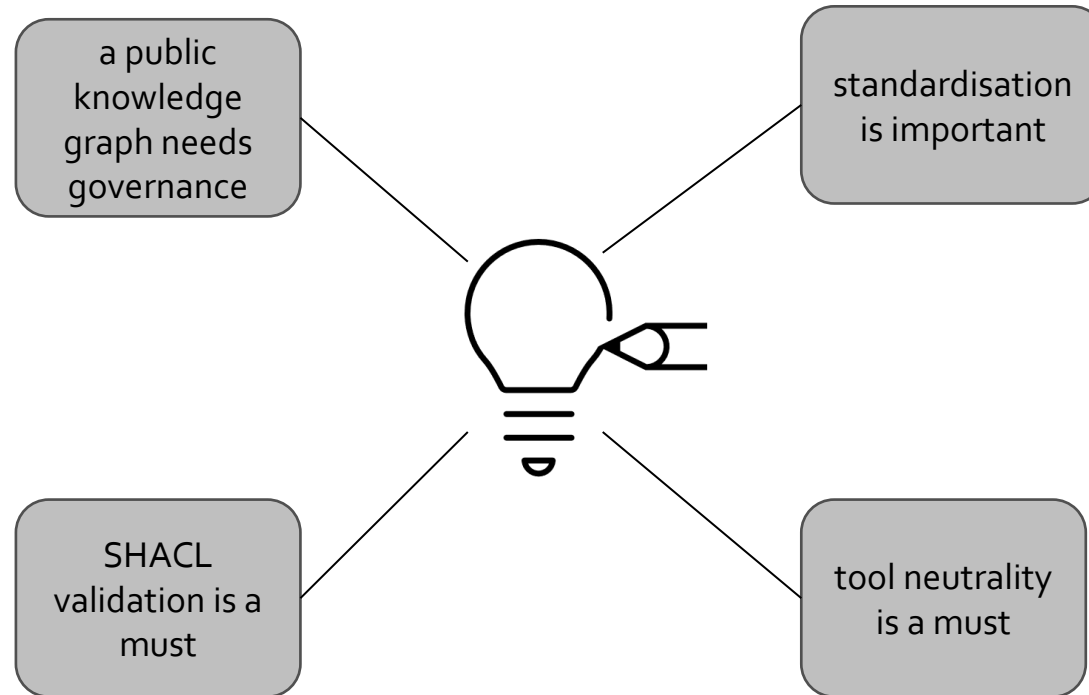
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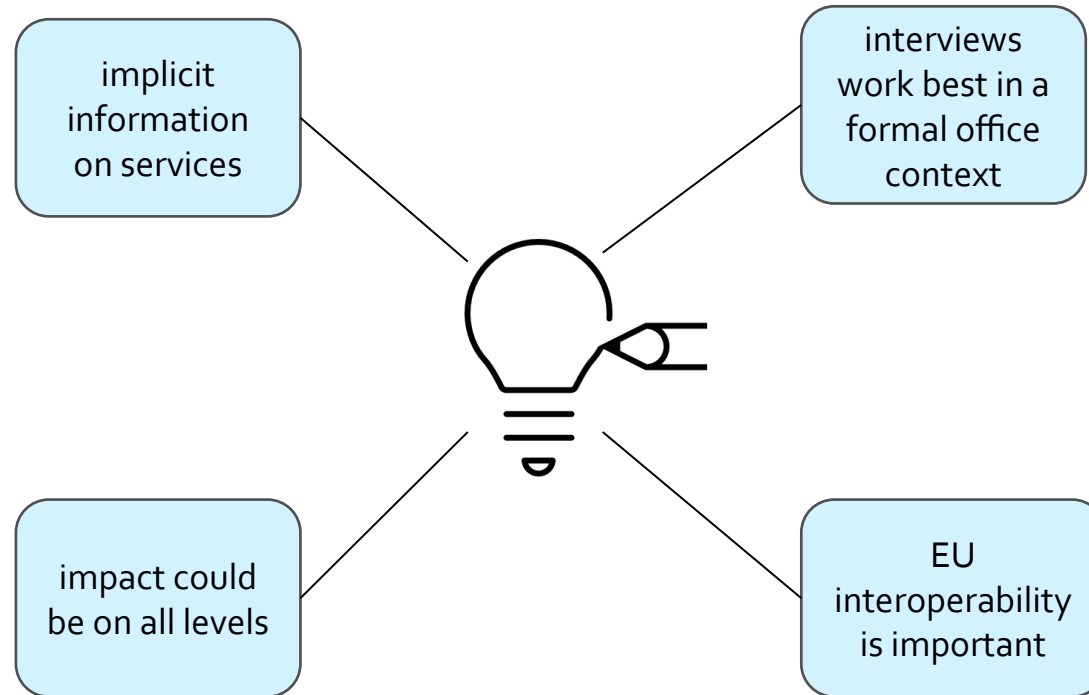


# learnings from the project



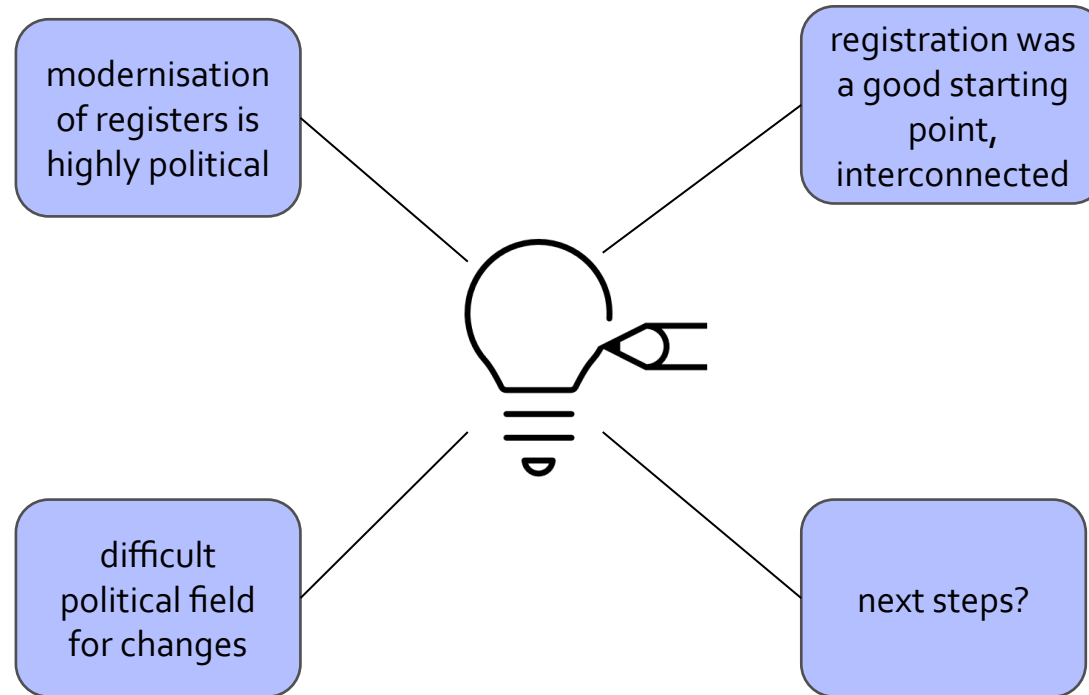


# learnings from the project





# learnings from the project



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# Thank you.

Would you like to know more?

<https://github.com/RegCheck2024/RegCheck>