

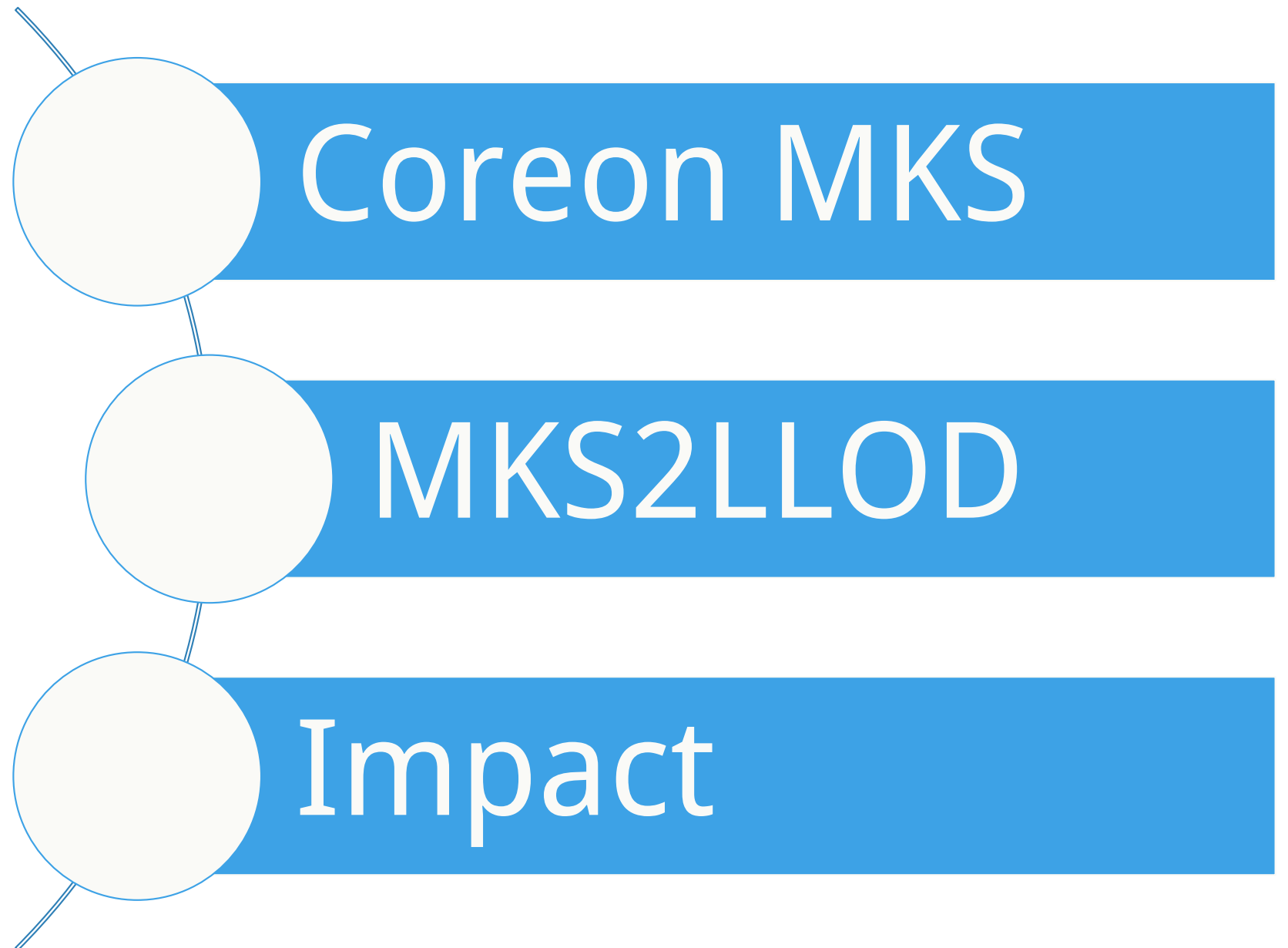


Multilingual Knowledge Systems as Linguistic Linked Open Data for European Language Grid

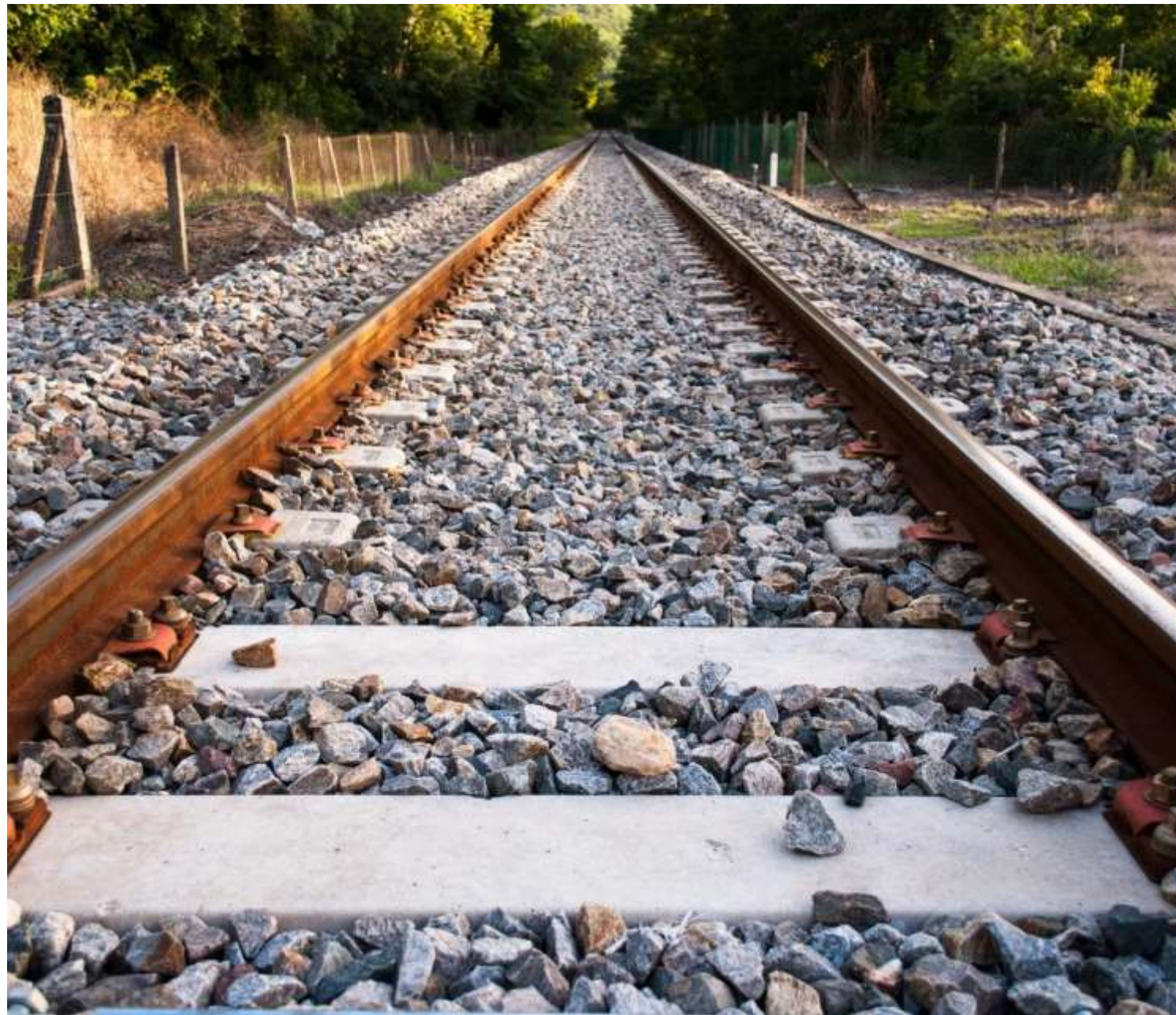
SALLD-1 (Workshop on Sentiment Analysis & Linguistic Linked Data) – 01 September 2021

Michael Wetzel
(michael@coreon.com)

Agenda



Agenda

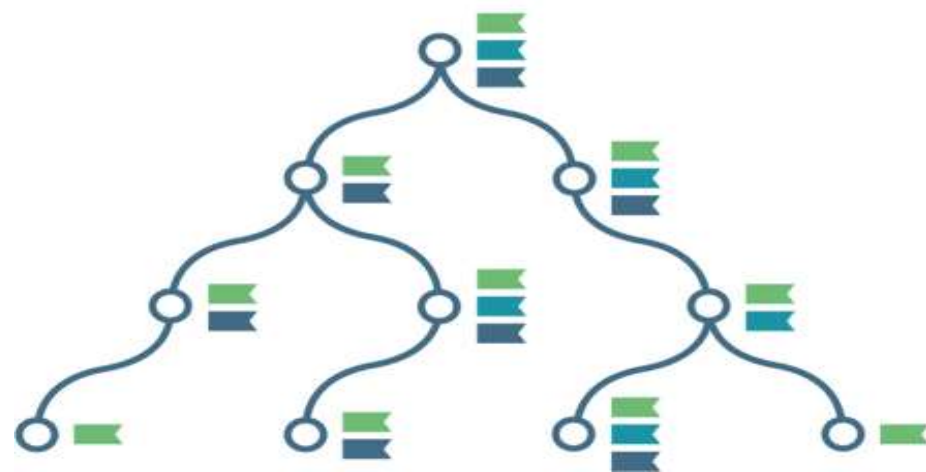
A diagram consisting of three white circles arranged vertically, connected by a thin blue line. Each circle is positioned to the left of a horizontal colored bar. The top bar is green and contains the text 'Coreon MKS'. The middle bar is blue and contains the text 'MKS2LLOD'. The bottom bar is blue and contains the text 'Impact'.

Coreon MKS

MKS2LLOD

Impact

Coreon: Multilingual Knowledge System



- ▶ Combines knowledge graphs (aka *concept systems*) with multilingual terminology
- ▶ MKS = semantic bridge between different systems, organizations, cultures
- ▶ MKS = systematic terminology management = multilingual knowledge graph
- ▶ Software-as-a-service solution, deployed for large scale corporates and institutions

Multilingual Knowledge System (MKS): Terminology and Knowledge Graph in One

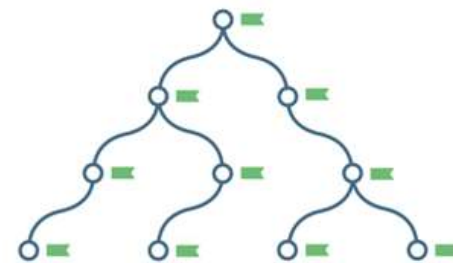
*... thus Coreon combines
terminology with the advantages of
a knowledge structure ...*

Florian Deubzer, SDI Munich

Multilingual Terminology List



Knowledge Map



*Structure
semantically*



*Cover Languages,
Variants, Registers*



Multilingual Knowledge System

MKS: Delivers what a feature-rich
stand-alone terminology
management tool delivers

MKS: Models what taxonomy /
thesaurus / ontology editors model

Ampelsystem

BROADER & NARROWER

Bekämpfung { Ampelsystem

PROPERTIES

DE

Ampelsystem

Corona-Warnampel

EN

COVID-19 traffic light system

traffic light system

ES

sistema de semáforo

sistema de semáforo COVID-19

FR

système de feu de signalisation

KONTEXT, INFORMATION indique la situation épidémiologique de chacun des arrondissements allemands

NL

stoplichtensysteem

RU

коронавирусный светофор

Great for Maintainers: Terminologists, Ontologists ...

- Work in **context**, see the gaps
- Work **systematically**, avoid doublettes, keep control
- Capture both, the **lexical** and the **encyclopedic** aspect

inzidenz

Languages

Infektionsschutz

Beschaffungswesen

Dienstbetrieb

Sanitätsdienst

Sanitätsmaterial

Bekämpfung

157

20

216

33

Ampelsystem

Absonderungsmaßnahmen

Absonderungsphase

aktive Infektion

angeordnete Absonderung

Annäherungszeit

antiepidemische Maßnahme

antiseptische Flüssigseife

Anzeigepflicht

Arbeitsstandard COVID

Great for the Audience in Organisations and Businesses

- Share your **concept system** in all languages
- Simply with a browser, in a great UI

Alte

Alter

Alters

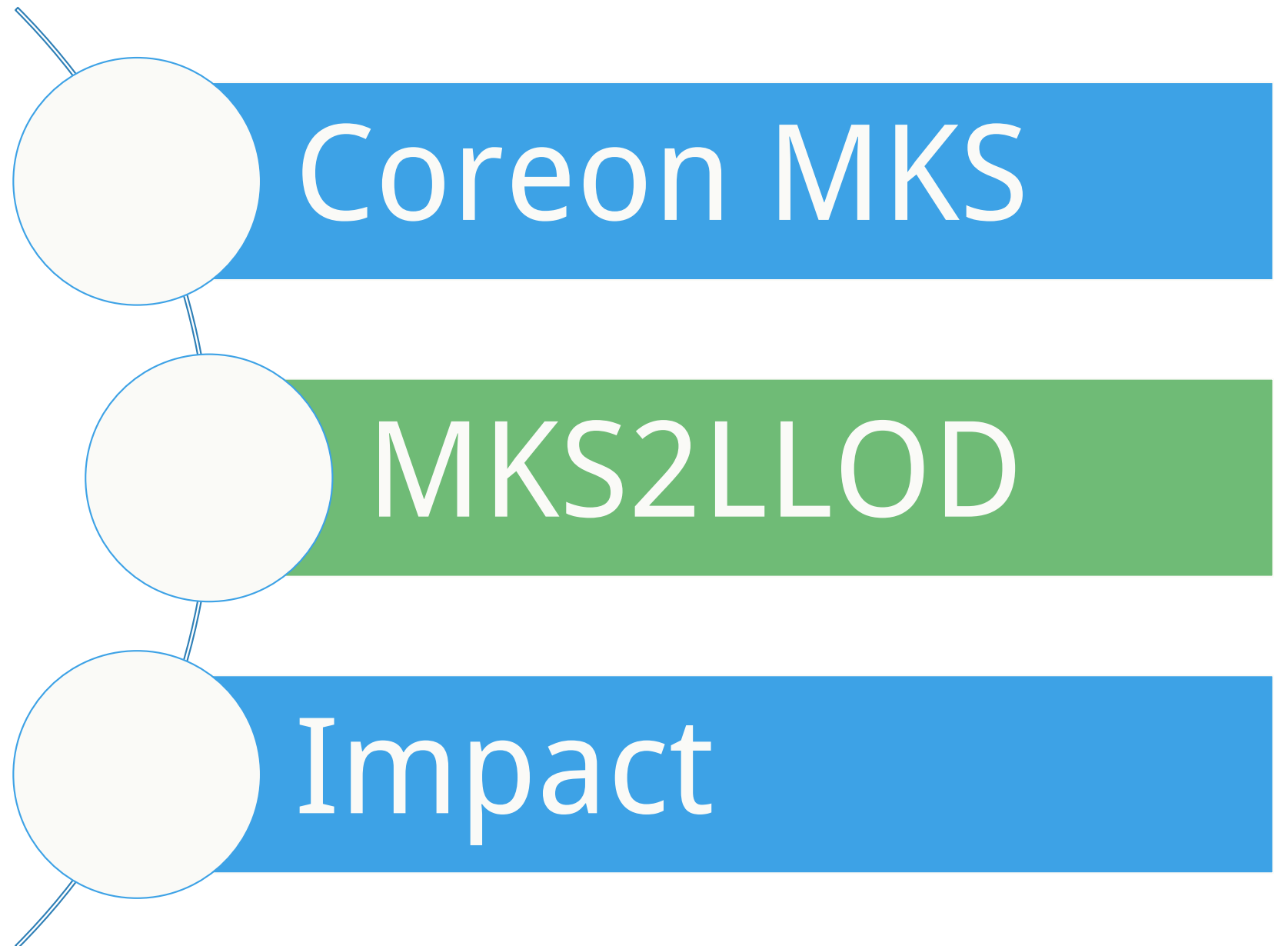
altersspezifische Inzidenz

Altersverteilung

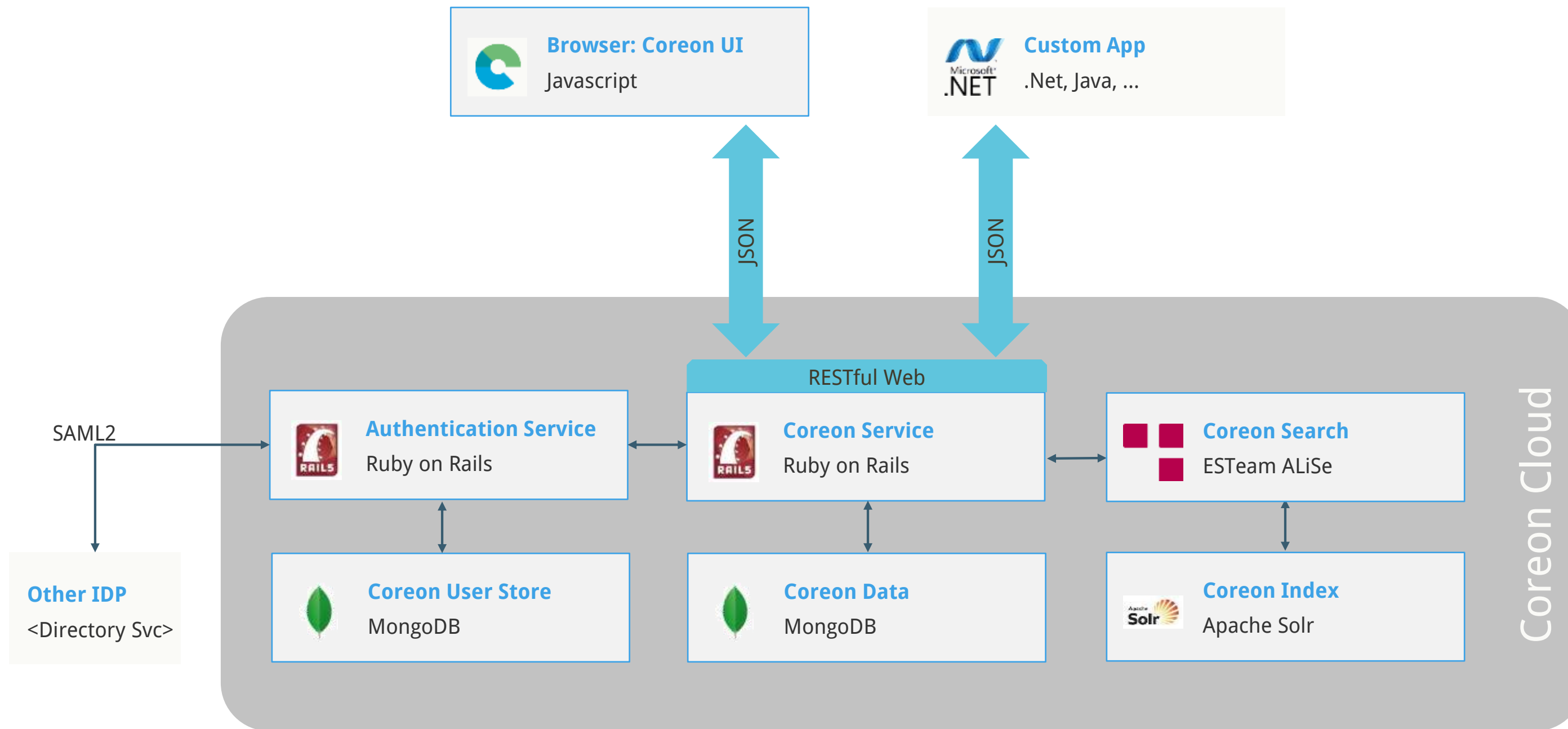
AMG

Ampelsystem

Agenda

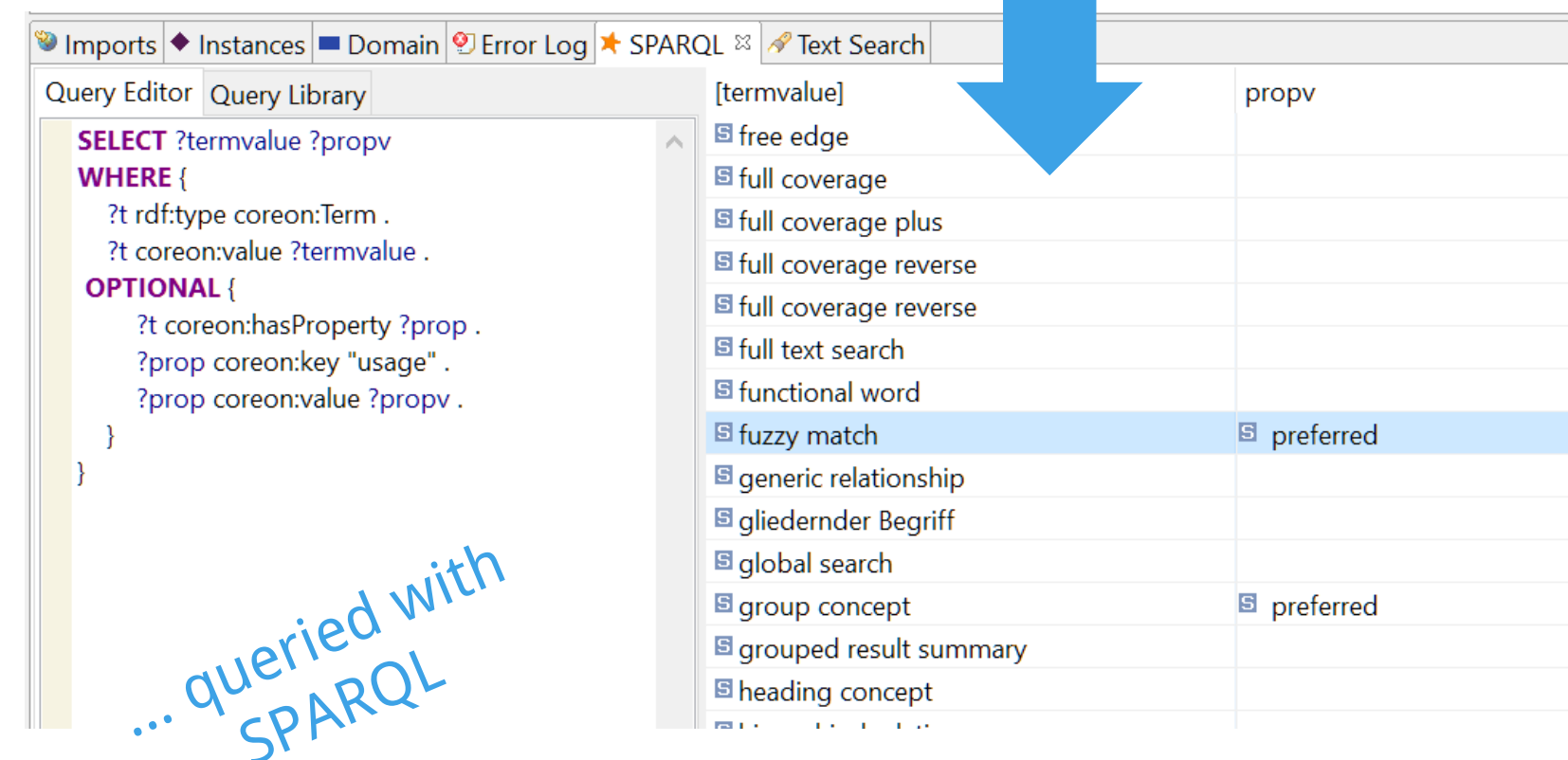
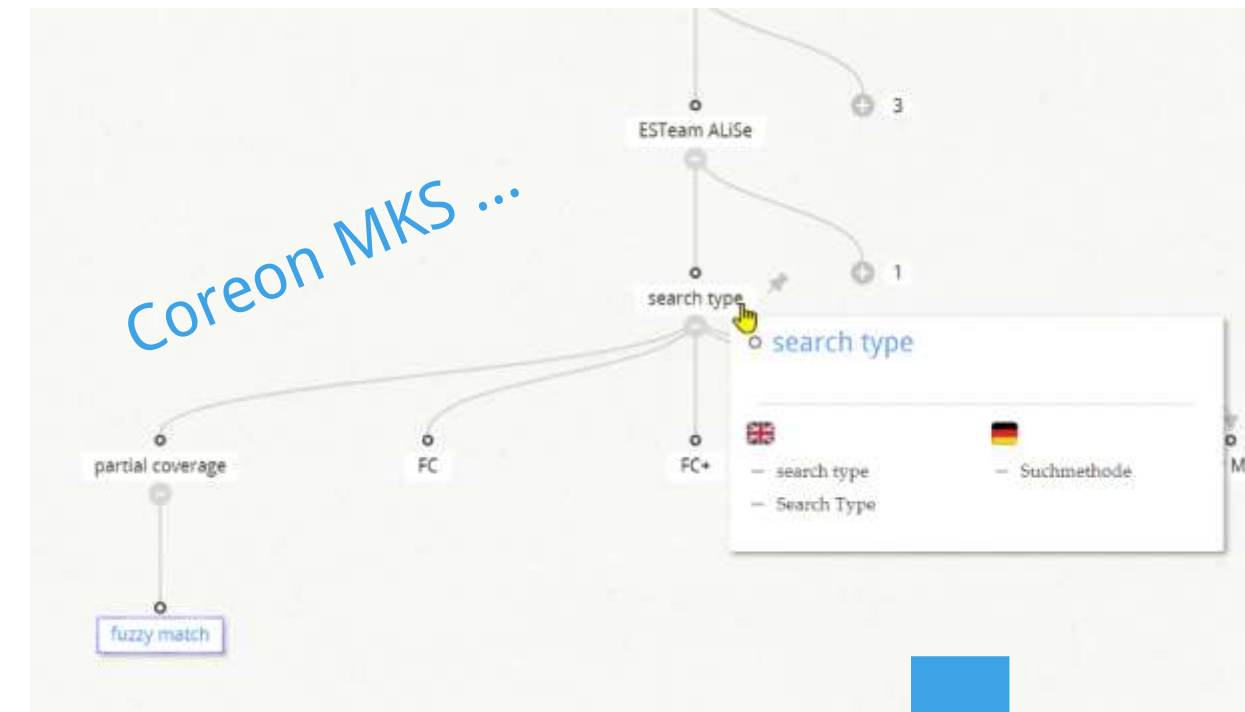


Building Blocks (before MKS2LLOD)



MKS2LLOD Project

- ▶ Instead of using proprietary APIs, achieve **high efficiency** by complementing MKS with standards known from LLOD (Linguistic Linked Open Data)
- ▶ Enable companies and institutions make their MKS (= semantic interoperability assets) discoverable and **available through ELG**
- ▶ Develop and **complement Coreon with a SPARQL** interface, API key based authentication and granular access rights management
- ▶ **ELG to be a gateway** to the SPARQL endpoint = become a platform for the multilingual semantic web



The screenshot shows a SPARQL query editor with the following query:

```
SELECT ?termvalue ?propv
WHERE {
  ?t rdf:type coreon:Term .
  ?t coreon:value ?termvalue .
  OPTIONAL {
    ?t coreon:hasProperty ?prop .
    ?prop coreon:key "usage" .
    ?prop coreon:value ?propv .
  }
}
```

The results table displays various search types and their corresponding properties. A blue arrow points from the 'search type' node in the diagram above to the 'fuzzy match' row in the table.

[termvalue]	propv
free edge	
full coverage	
full coverage plus	
full coverage reverse	
full coverage reverse	
full text search	
functional word	
fuzzy match	preferred
generic relationship	
gliedernder Begriff	
global search	
group concept	preferred
grouped result summary	
heading concept	

... queried with SPARQL

The Dilemma Up to Today

Knowledge
Graphs:
SPARQL & RDF

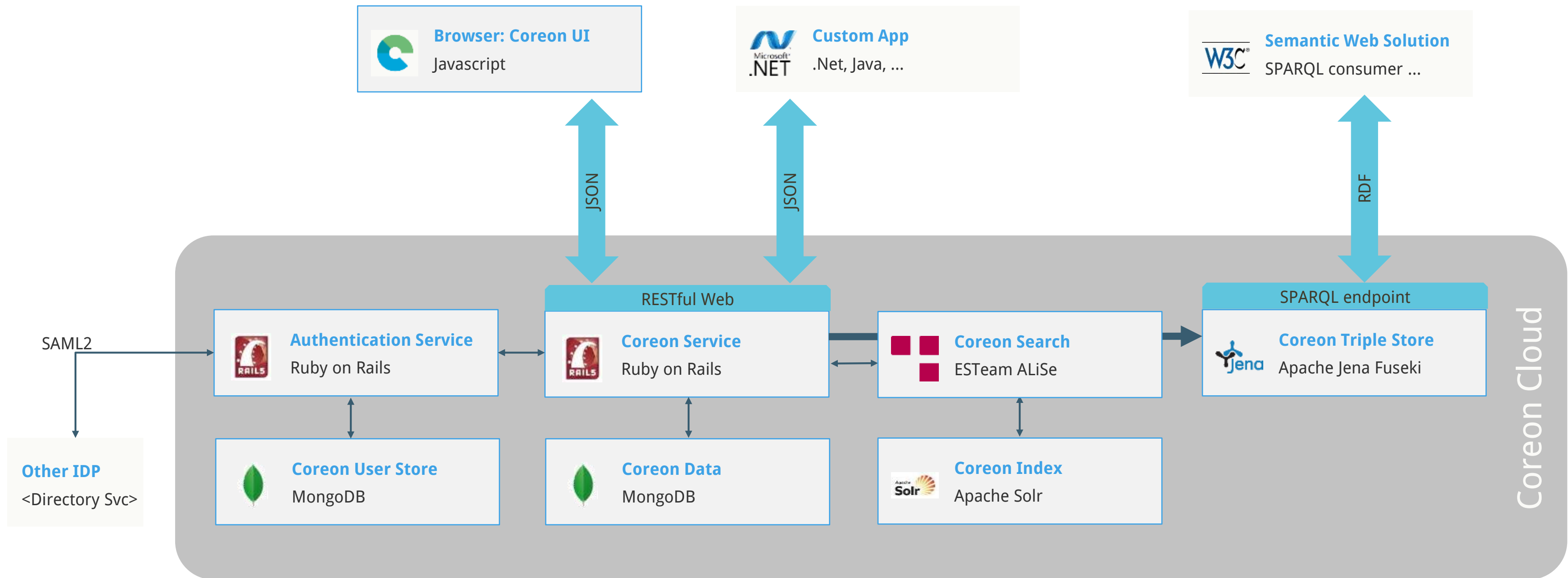
- Not appropriate neither designed for terminology

Termbases:
Proprietary
APIs or TBX

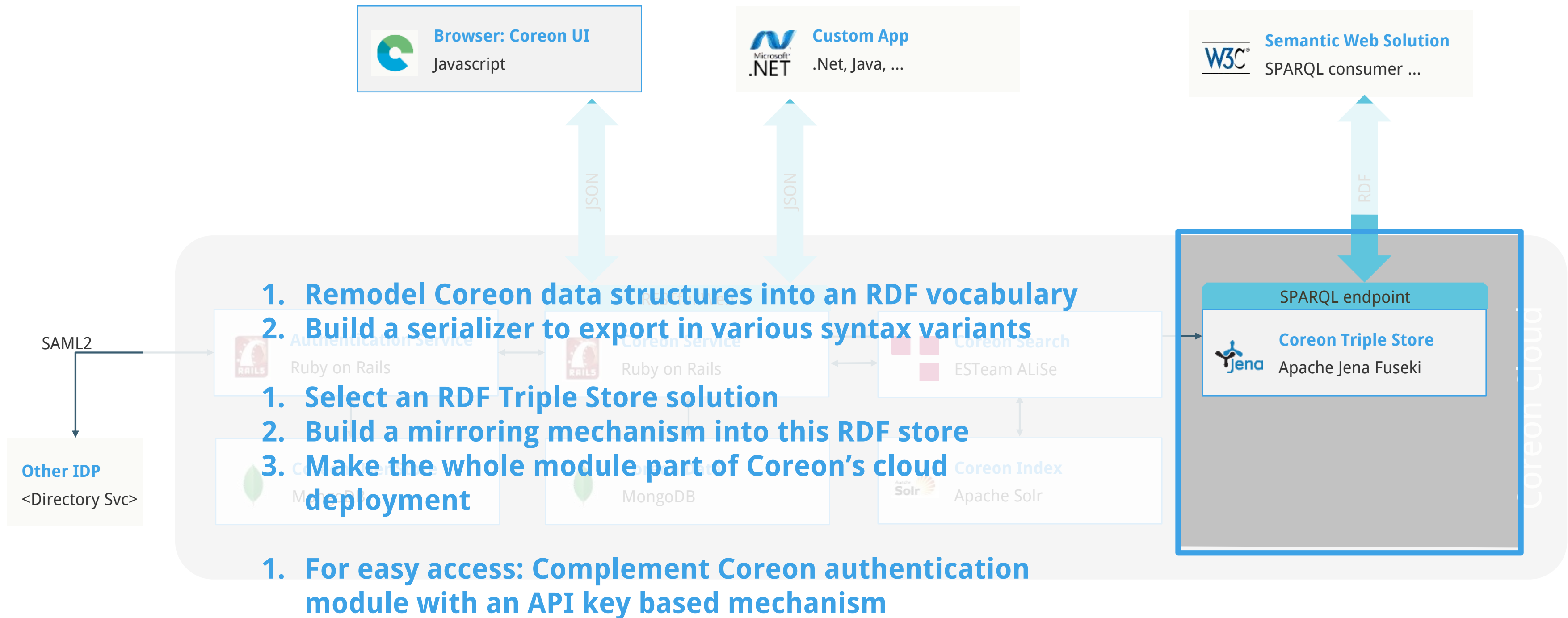
- Not for the Semantic Web
- Tedious exporting / re-modeling, deploy and import RDF triple store

Lost opportunity to leverage terminology data for Semantic Web solutions

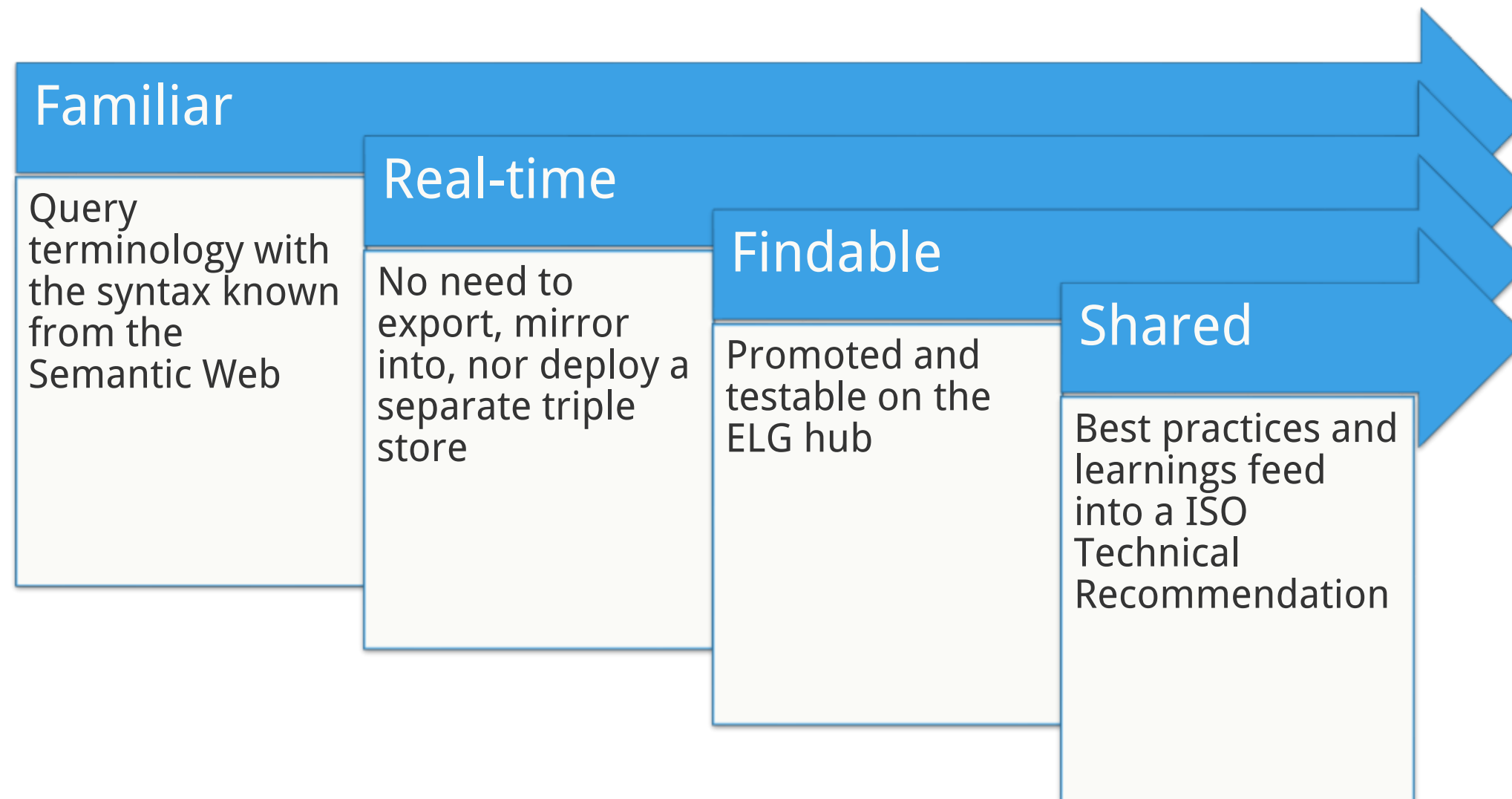
Building Blocks (enriched with MKS2LLOD)



Required Activities to Get there

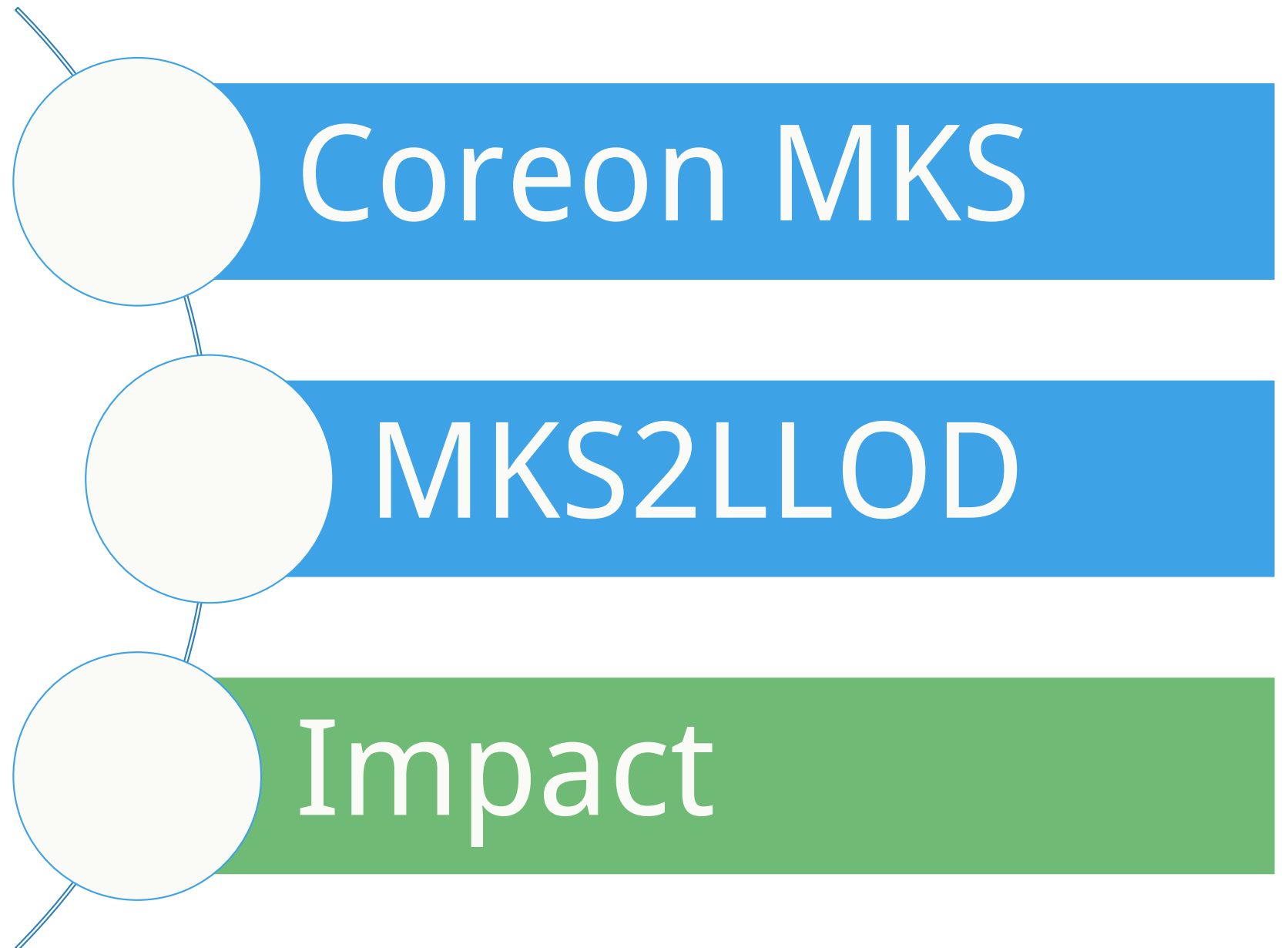


Dilemma Resolved



**Make Terminology
Resources a
Component of the
Semantic Web**

Agenda



Impact 1 / 2: Technology Showcase and Best Practices

SPARQL endpoint to real time
Coreon MKS

Integrated in ELG

Standards best practice:
modelling terminology in RDF



Impact 2 / 2: Building Bridges in Businesses and Organisations



Public Institutions

- enable cross-border semantic interoperability

Corporates

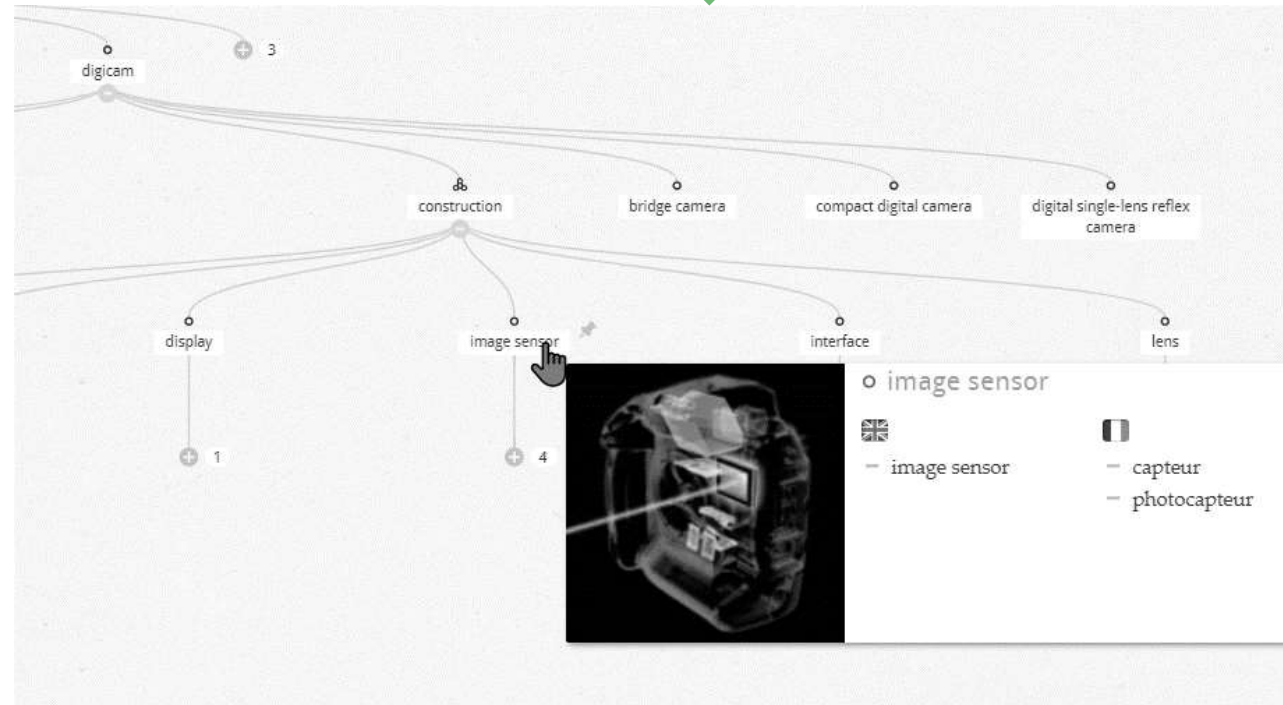
- push concepts and terms into business ecosystems

Achieve “FAIR”ness

- Findable, Accessible, Interoperable, Reusable



Contact Us



- ▶ www.coreon.com
- ▶ www.multilingualknowledge.com
- ▶ info@coreon.com
- ▶ twitter.com/coreonapp
- ▶ www.european-language-grid.eu



**EUROPEAN
LANGUAGE
GRID**

The MKS2LLOD project was supported by the European Language Grid project through its open call for pilot projects. The European Language Grid project has received funding from the European Union's Horizon 2020 Research and Innovation programme under Grant Agreement no. 825627 (ELG).