

# Materials' Tribological Characterisation: an OntoCommons Use Case

Iker Esnaola-Gonzalez | DORIC-MM | 2021/06/07



## WHO WE ARE

**R&D Centre**  
(not-for-profit Private Foundation)

**40+ years of experience on  
Applied research**

**Mission: Enhance the positioning  
and competitiveness of our clients  
through technology transfer**

**Specialised in Manufacturing**



# What is the Tribology?



- Friction, wear and lubrication of **interacting surfaces**
- Key for developing **new products**
- Key for driving **new materials** into sustainable solutions

# Challenges of Tribological Experiments



- Experiments are necessary for **understanding material behaviour**
- **Not well-documented**
- **Not publicly-available**

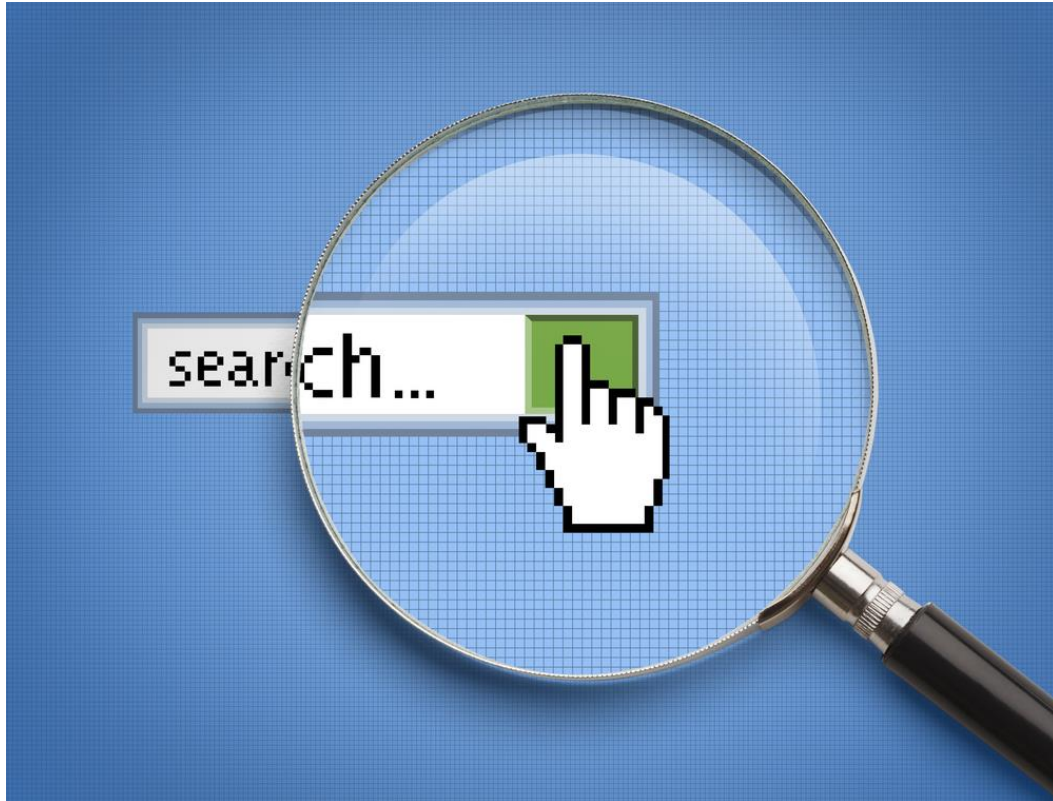
# OntoCommons use case



Use Case 04: Materials'  
Tribological Characterization

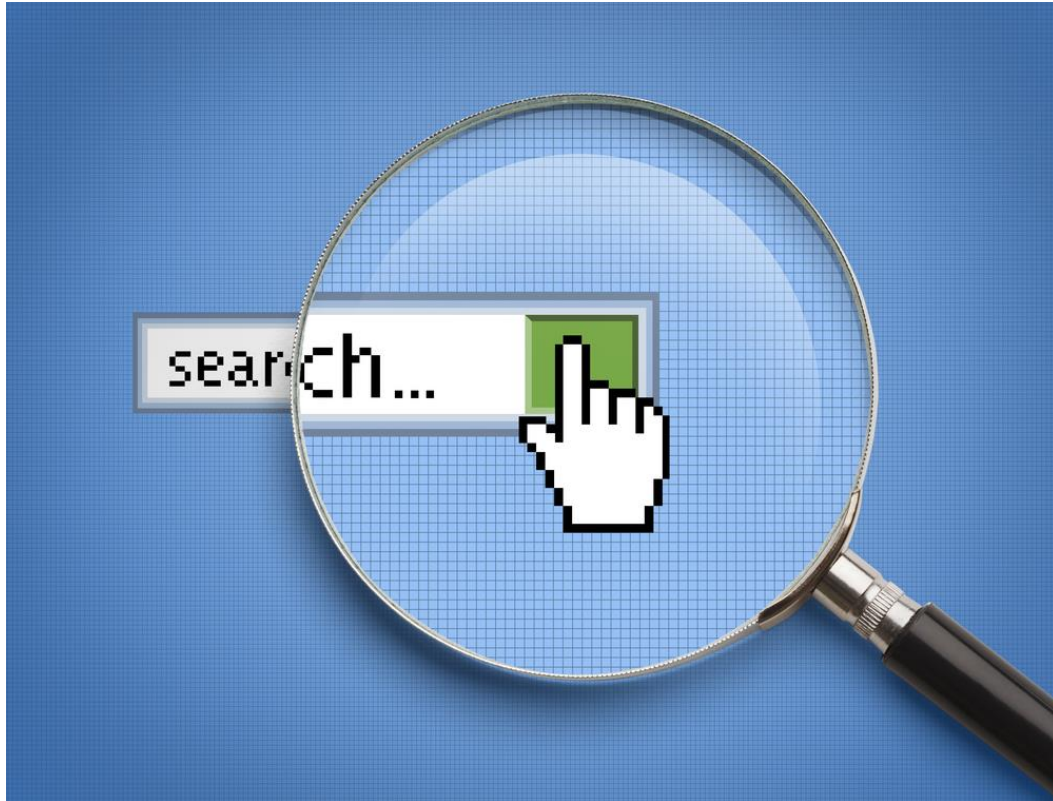
- **Help tribologists**
- **Shorten** the time, number and size of **experiments**
- **Semantic Technologies** as one of the drivers

# The proposed approach



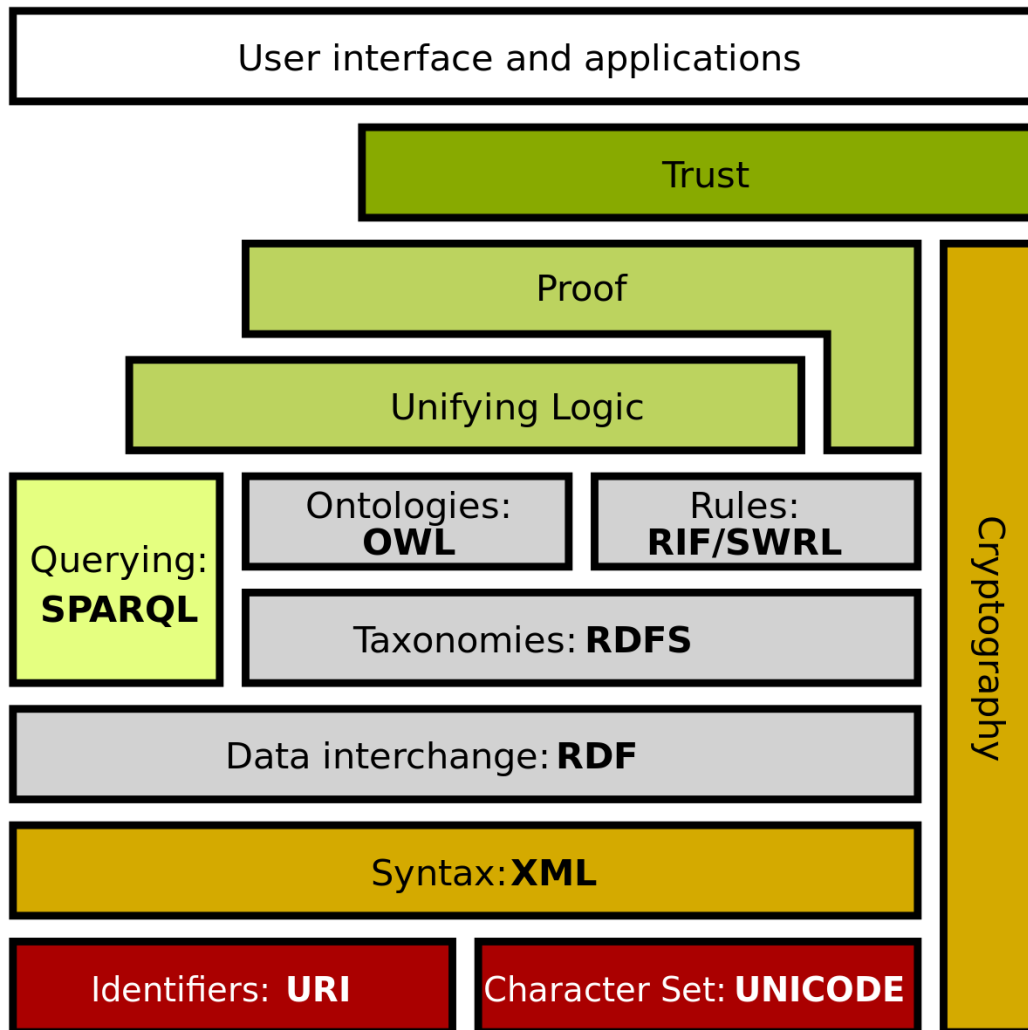
- **Federated Search service**
- **Access different repositories:**
  - Non-tribological information
  - Scientific articles

# The proposed approach



- **Avoid manual searches** that can be arduous and inefficient
- Provide an **abstraction layer** to enable homogeneous access
- **RESTful APIs** for enhancing security and underlying configurations

# The proposed approach

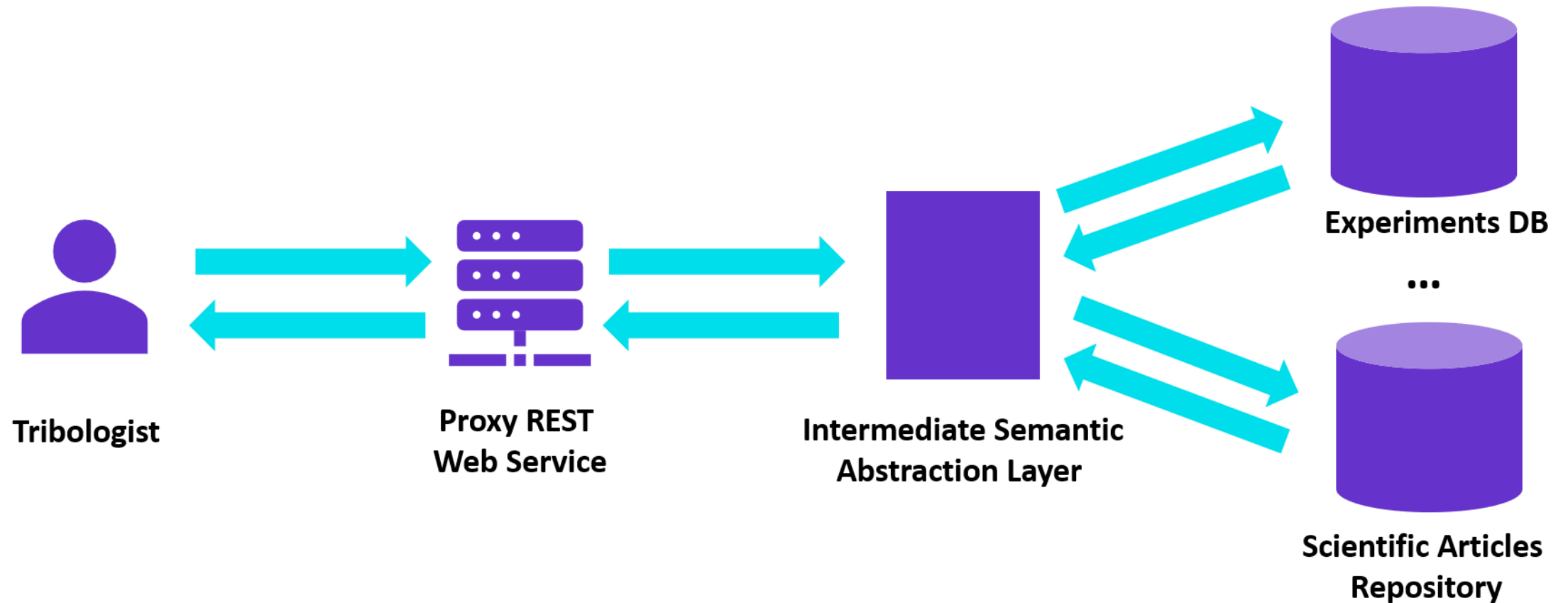


- **Semantic Technologies and Ontologies** as the main drivers
- Provide **formal and unambiguous data representation and homogeneous data access**
- **Common data model** for tribological experiments under construction. **Reusing** EMMO, TribAIn and BIBO





# The proposed approach



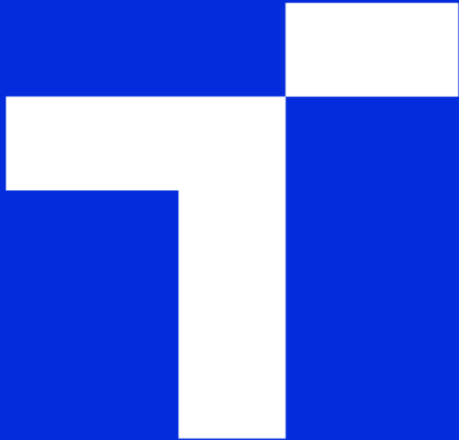
# Challenges and next steps



Use Case 04: Materials'  
Tribological Characterization

- Deal with **low-quality ontologies** when considering **reuse**
- Identify the **coverage of existing ontologies** and **extend them**
- Semantic Technologies for enabling a **Semantic Federated Search** service

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**Thank you for your attention !**

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