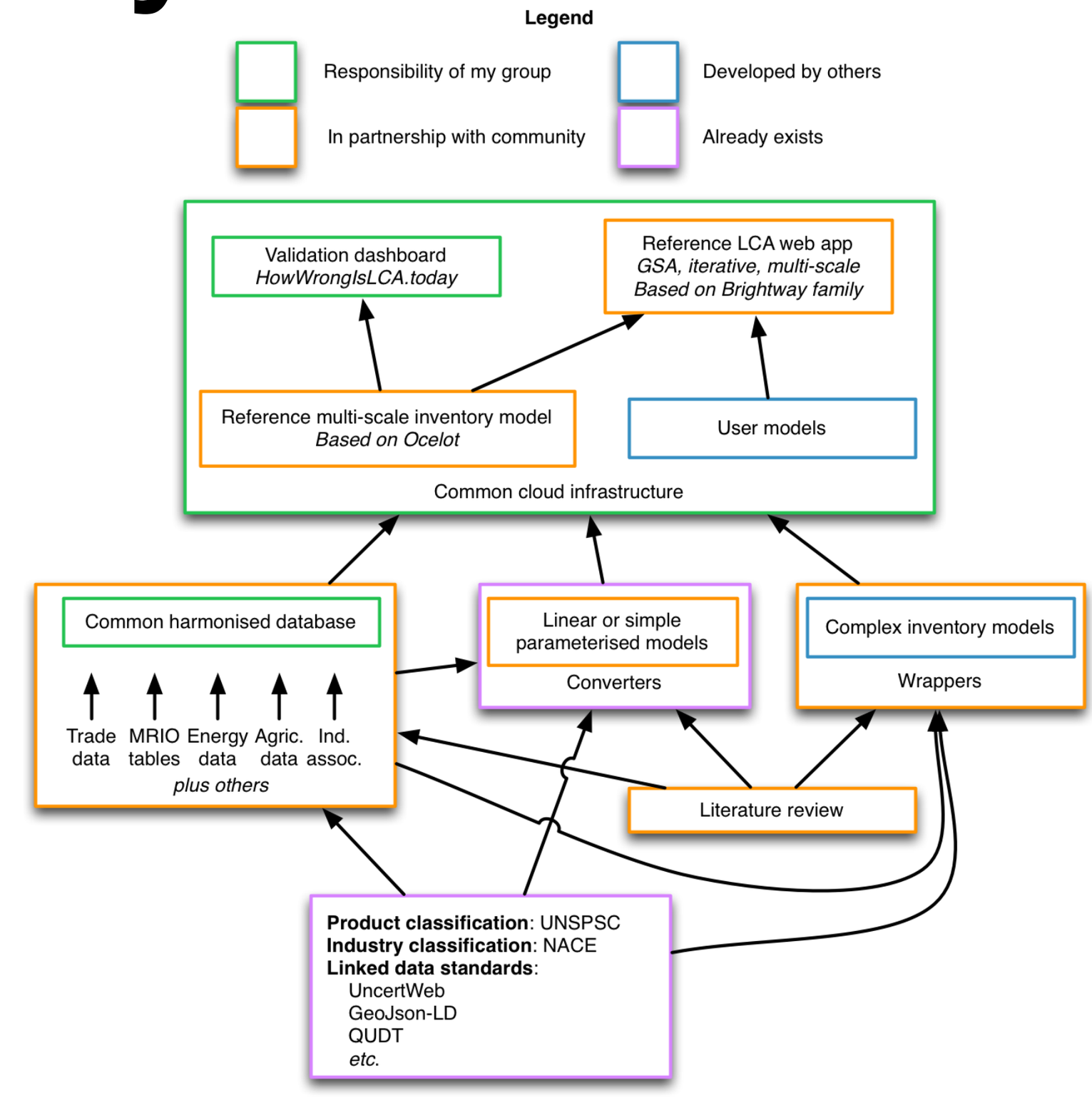
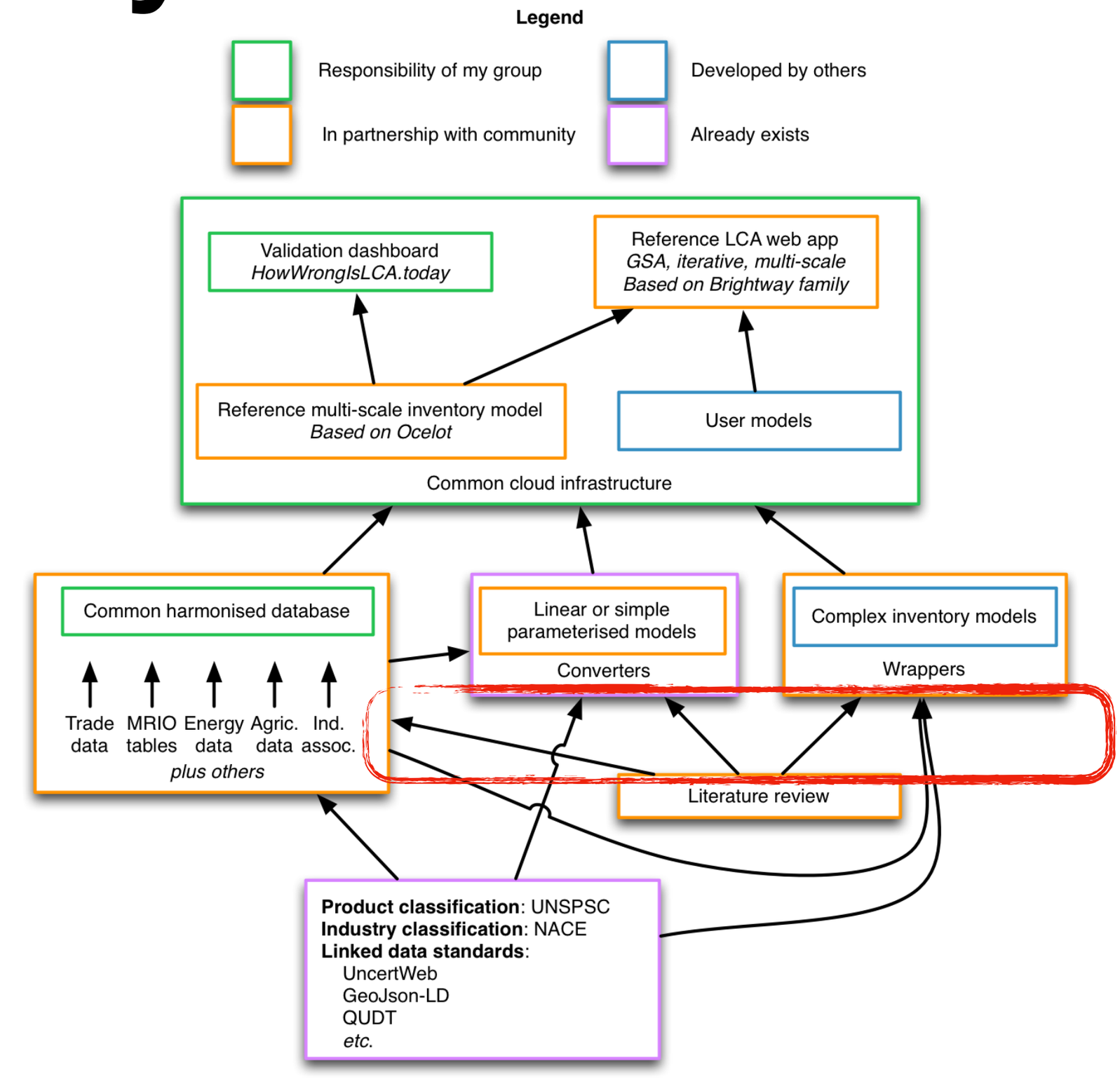
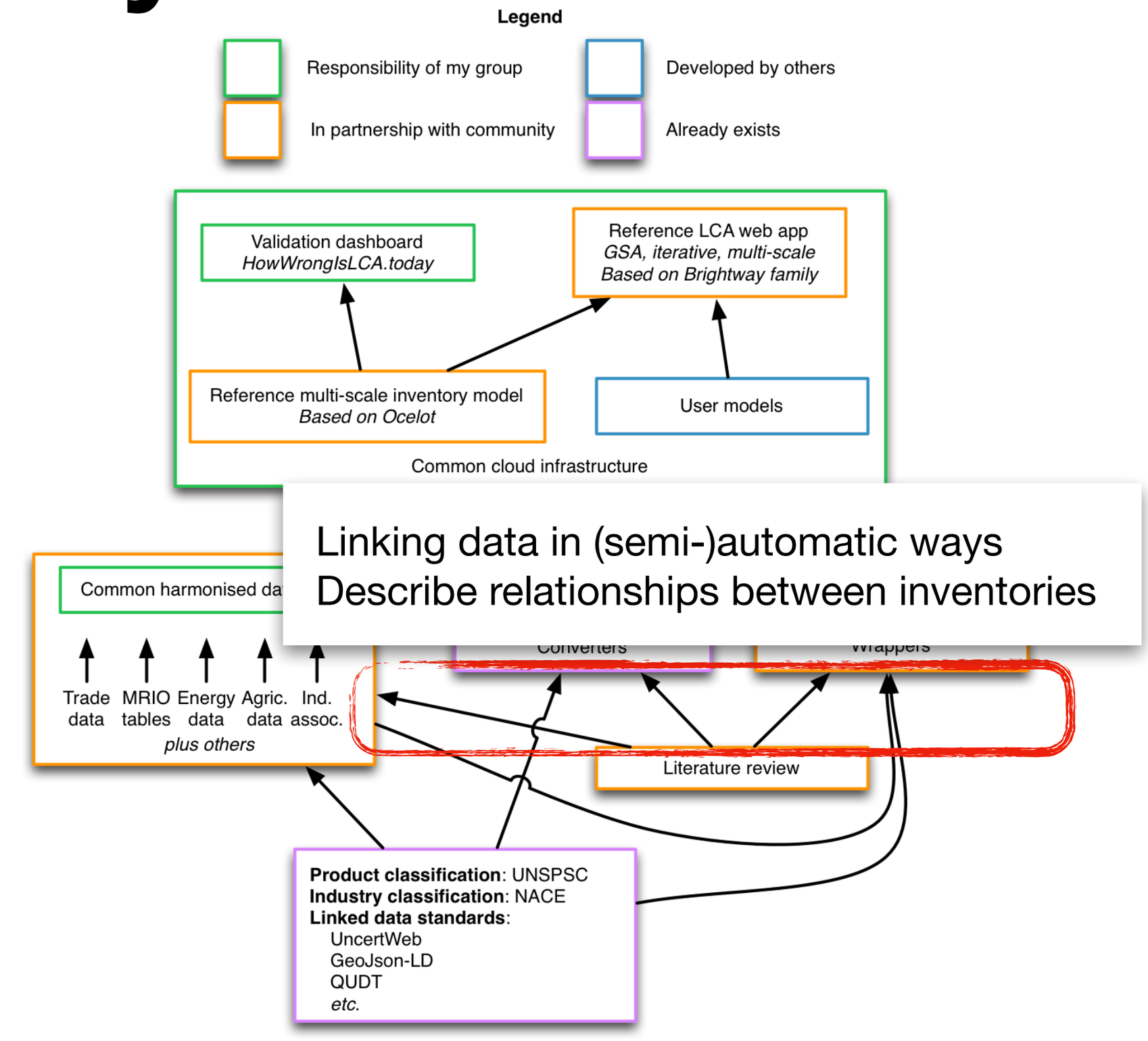
My vision of LCA



My vision of LCA



My vision of LCA



Linking data in (semi-)automatic ways
Describe relationships between inventories

BONSAI hypothesis

- Common harmonisation based on international classifications (e.g. HS, NACE)
- Avoid $O(N^2)$ matching problem, going through classifications is O(2N)
- Classic case for machine learning
  - E.g. classification text, case law, product catalogues
  - But actual data cleaning & retrieval quite difficult

9 MAY 2019

AI-based HTS Code Classification: 5 Technical Ideas for Building Solutions that Work

Imports, exports and tariffs are quite the theme in the news these days, be it in the context of Brexit, the US-China trade war or the Iran nuclear deal. Executive decisions on what duties should be levied on goods crossing borders are the norm of the day. Have you ever wondered how these decisions are practically implemented at the ground-level though? The answer - Harmonized Tariff Schedules (HTS), a taxonomy built by the World Customs Organization (WCO) to classify and define internationally traded goods. Semantics3 offers automated HTS code classification solutions to help logistics providers modernize their customs workflows.

Harmonized Tariff Schedule (HTS) code classification is a surprisingly challenging machine learning problem - while at face value it is a simple multi-label classification, the real-world specifics are often deceptively intractable:

https://www.semantics3.com/blog/ai-based-hts-code-classification-5-technical-ideas-for-building-solutions-that-work/

Takeaway messages

- Existing broad-based classification not suitable as (only) intermediate layer
  - e.g. Types of electricity, details on most industrial products
  - Same issues as IO tables - aggregate exactly the differences we are interested in comparing
  - Use industry standards for *specific* industries (?)

Takeaway messages

- New model for matching
    - Store relationship data (as semantic web), but still do manual matching
        - At least for now
- Semantic web people have a lot to offer
    - Either use JSON-*Linked Data*, or just admit it is only JSON
        - Places, units, time, uncertainty, metadata in general (Dublin Core)
        - Provide URIs for e.g. USEEIO and USLCI