Knowledge Graphs have unfinished business...

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http://polleres.net/presentations
Panel Questions - Short answers:

• What are the problems of current KG approaches?
  Knowledge Graphs have unfinished business...
  i.e., we can't just go along, without solving some core problems
  (that don't go away by rebranding Semantic Web and Linked Data)!

• What are your visions or thoughts about KG applications in academia and industry
  Decentralised Data Eco-Systems beyond centralised KGs!

• What are the future directions for KG
  Natural Data Understanding, i.e. "NoNLP"!
  Contextualisation ... still ;-) 
  Scalable Linked Data Processing... now for real!
Knowledge Graphs have unfinished business...

... with **Linked Open Data**

more specifically, with **BOTH**

**Linked Data**

AND

**Open Data**
Beyond Dbpedia and Wikidata... we had the vision of a **Web of Open KGs** that would be *interlinked* and *queryable*

*Did it produce more than this lovely picture?*

Yet: we are left with tons of issues [1]!

... e.g.
linkage between KGs still sparse [2],
but also others, e.g. availability & sustainability (beyond a PhD lifetime) of Open KGs!


Open Data had a boost some years ago and is still trending, esp. for Government Data & Transparency!

Yet: hardly any of this data is linked/linkable or even findable!

A good start, but not much better either!
Open Data had a boost some years ago and is still trending, esp. for Government Data & Transparency!

Yet: hardy any of this data is linked/linkable or even findable!

- (Open) Knowledge Graphs can be used to **link Open Data**!
  - challenges: Coverage, numeric data, OD Quality/KG Quality

Keynote "How do Linked Data, Open Data, and Knowledge Graphs interplay?" at DEXA 2019, August 2019, Linz, Austria.
polleres.net/presentations/20190827DEXA_keynote.pdf
What are your vision or thoughts about KG applications in academia and industry

We need to build on our strength!
• Rather than (more) centralised KGs ....
  • Make a **Decentralised** Data Eco-Systems work!

→ enable trusted data sharing
→ enable FAIR principles

Applications galore!

e.g.: bring together personal data spaces and industrial data spaces!
Towards "Natural Data Understanding"

”Natural Data” = “Structured Data as it occurs in the wild”

- Heterogenous data assets
- From different sources and origins
- Different Formats
- Different Semantics
- Sparse descriptive metadata
- Raw/not necessarily for human consumption

→ (Still) Hard to search and integrate!

What are the future directions for KG 2/3

- Scalable Linked Data Processing... now for real!
  - (SPARQL EP, TPF, SMART-KG --> there's something moving here!)

- Contextualisation ... still ;-) 
  - next step: Represent and query at scale contextualised KGs
    - Provenance, Policy-constrained Graphs/Triples, Property Graphs, SPARQL*
What are the future directions for KG 3/3

- Managing context makes things even harder! → but is also doable!

However, Wikidata has more complex info: (temporal context, provenance,...)

Which cities in the UK have reached 1M in which year?

... Can I query that with SPARQL? Yes!

BTW, seemingly not yet doable in...
if I could predict the future, I wouldn't be here...

... rather an invitation (especially to young researchers):

There's still a lot of unfinished business and unfulfilled promises from Semantic Web, Linked Data, etc. that (despite "rebranding" into KGs)

- haven't been solved
- should and could be solved/tackled with more research!

Let's do this together!

https://www.cost.eu/cost-action/distributed-knowledge-graphs/ COST Action
https://knowgraphs.eu/ ITN