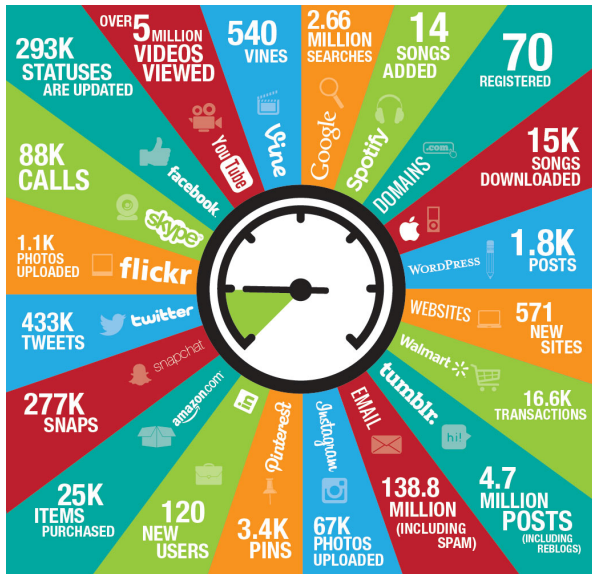
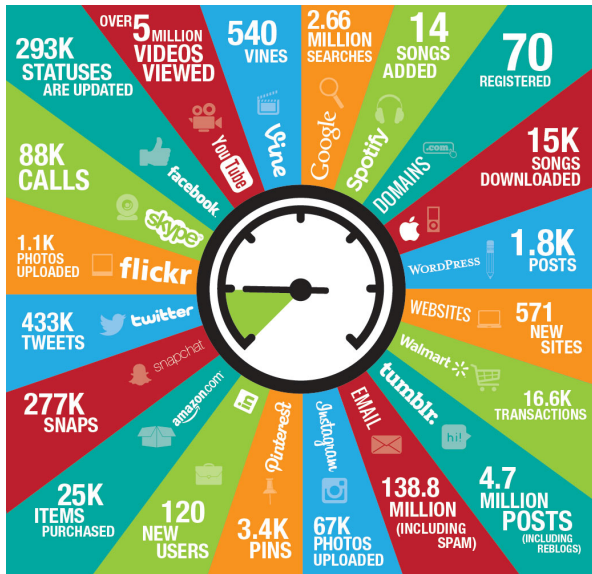


First Face-to-Face Meeting of the W3C  
Community Group: Natural Language Interfaces  
for the Web of Data

September 13, 2016





VS



# Goals for Today

- ▶ Get to know each other
- ▶ Engage with the W3C Community Group
- ▶ What happens in the community at the moment?



- ▶ Introduction round
- ▶ Interactive construction of the meeting outline using the contributions of the community w.r.t. benchmarking, best practices, interfaces
- ▶ Presentation of Charter
- ▶ Presentations
- ▶ Coffee break!
- ▶ Group work
- ▶ Presentation of results

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`http://goo.gl/oKFaf5`





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# Anti-Goals or Out-of-Scope



The CG will not develop new NLIWoD systems.

- ▶ It seeks **consensus for best practices** pertaining to the publication of natural language interfaces in the Web of Data.
- ▶ The CG will **collaborate to enhance testing and benchmarking environments** for natural language interfaces for the Web of Data.
- ▶ The core goal is to **improve the reusability as well as quality and efficiency** of NLIWoD systems by introducing best practices.

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## Criteria towards Recommendation Proposals

- ▶ In order to advance to Proposed Recommendation, each specification is expected to have **at least two independent implementations of each of feature** defined in the specification.
- ▶ Each specification should contain a section **detailing any known security or privacy implications** for implementers, Web authors, and end users.

## Ideas for Deliverables 1.0

- ▶ Join the group! [w3.org/community/nli/](http://w3.org/community/nli/)
- ▶ Draft for a **test suite** including various datasets as well as benchmark queries
- ▶ Draft for a first **specification of benchmarking methods**
- ▶ **Collection of existing interfaces** for NLI systems on the Web
- ▶ Draft for **best practices for publishing natural language interfaces** (and modules) on the web which unifies different approaches

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⇒ Break-out session after coffee break

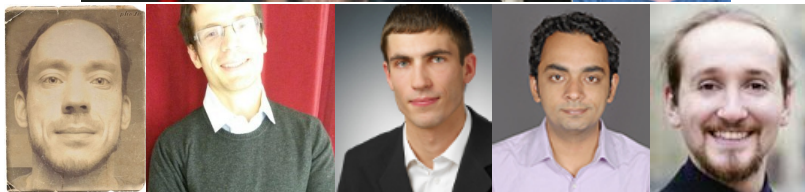
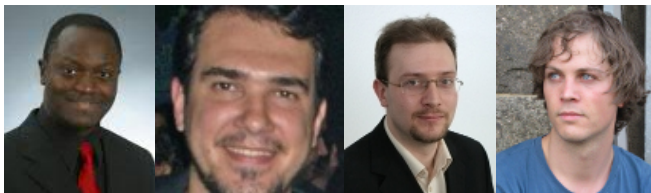
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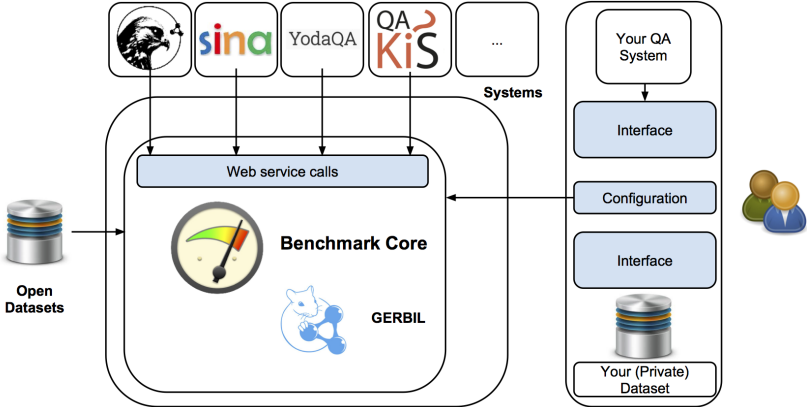




# The AKSW Question Answering team

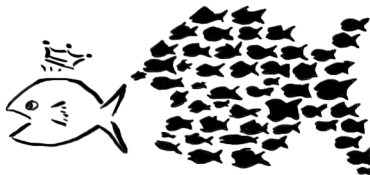


# Benchmarking with GERBIL





DON'T PANIC!



**ORGANIZE.**

**Figure:** Idea: Collect existing modules, capture input-output-behaviour, generate all possible pipelines, benchmark, choose best

Answer type	Percentage	Example
Date	8.9%	19 October 1512
Other Numeric	10.9%	12
Person	12.9%	Thomas Coke
Location	4.4%	Germany
Other Entity	15.3%	ABC Sports
Common Noun Phrase	31.8%	property damage
Adjective Phrase	3.9%	second-largest
Verb Phrase	5.5%	returned to Earth
Clause	3.7%	to avoid trivialization
Other	2.7%	quietly

**Figure:** Transform answers into Linked Data using disambiguation and generalization

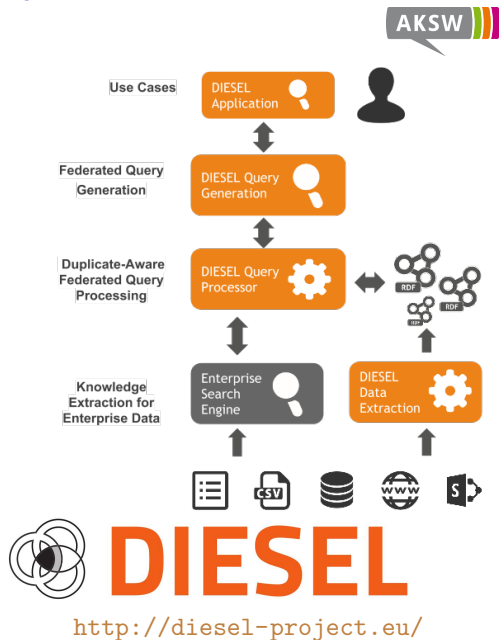
Rajpurkar, Pranav, et al. "SQuAD: 100,000+ Questions for Machine Comprehension of Text." arXiv preprint arXiv:1606.05250 (2016).

<https://github.com/AKSW/NLIWOD>

- ▶ 5 QA systems
- ▶ 15+ QA datasets
- ▶ 3 dataset loaders for most common formats
- ▶ 20+ question-features
- ▶ steadily increasing value to the community

# DIESEL – Distributed Search in Large Enterprise Data

- ▶ Leipzig University (DE)
- ▶ metaphacts GmbH (DE): Peter Haase
- ▶ Eurostars Project - Start Date 01/09/2015



Open-Source Semantic Search Engine

State-of-the-Art SPARQL Federation Engine

Large-Scale Knowledge Extraction from  
unstructured, semi-structured and structured data  
sources



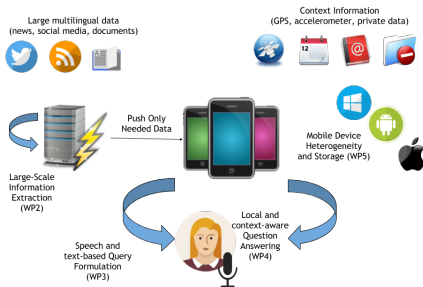
<http://diesel-project.eu/>

- ▶ Leipzig University (DE): Ricardo Usbeck, Axel-Cyrille Ngonga Ngomo
- ▶ bitstars GmbH (DE): Mostafa Akbari
- ▶ KAIST (KO): Key-Sun Choi
- ▶ Saltlux Inc. (Korea): Ivan Berlocher

Eurostars Project - Start  
Date 01/11/2015

# QAMEL

<http://qamel.eu/>





What do we offer?



Open-Source Mobile Question Answering System

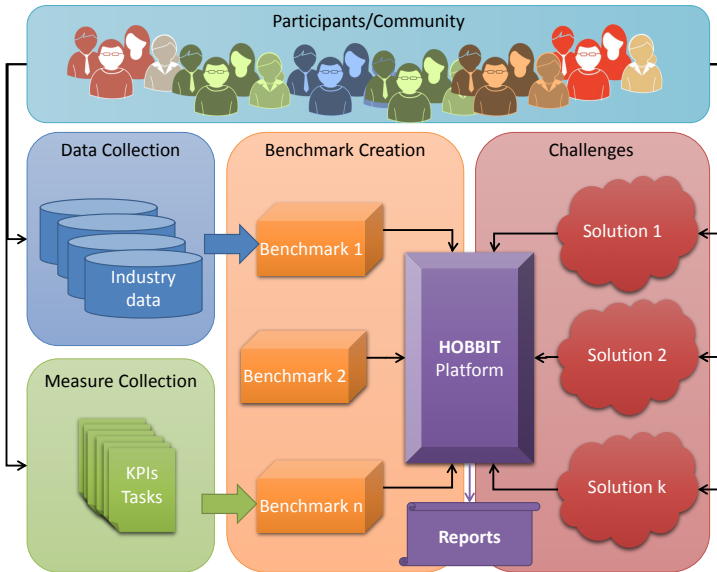
Large-Scale Knowledge Extraction from  
unstructured, semi-structured and structured data  
sources

Interesting Use-Cases: Olympic Winter Games  
2018, Virtual Reality

**QAMEL**

<http://qamel.eu/>

# Holistic Benchmarking of Big Linked Data



- ▶ Streaming and static deterministic benchmarks
- ▶ Realistic benchmarks
- ▶ Controlled volume and velocity
- ▶ Platform (including hardware) to deploy and benchmark

## Generation and Acquisition

- ▶ Conversion XML to RDF
- ▶ **Entity recognition and linking**
- ▶ Relation extraction

## Storage and Curation

- ▶ Triple stores
- ▶ Versioning
- ▶ Incl. updates

## Analysis and Processing

- ▶ Link Discovery
- ▶ Machine Learning
- ▶ Supervised and unsupervised

## Visualization and Services


- ▶ **Question Answering**
- ▶ Faceted Browsing
- ▶ Usage-based benchmarks

## QALD6

Followers  
**0**


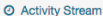
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**Organization**



**InfAI**  
Institut für Angewandte Informatik


**InfAI**  
InfAI is a research institute located in Leipzig, Germany. We are Semantic Web and Big Data specialists and lead amongst other the HOBBIT project. [read more](#)

Dataset  Groups  Activity Stream [Manage](#)

## QALD6

Question Answering on Linked Data version 6. The dataset contains approximately 500 questions in natural language that query DBpedia and DBpedia abstracts.

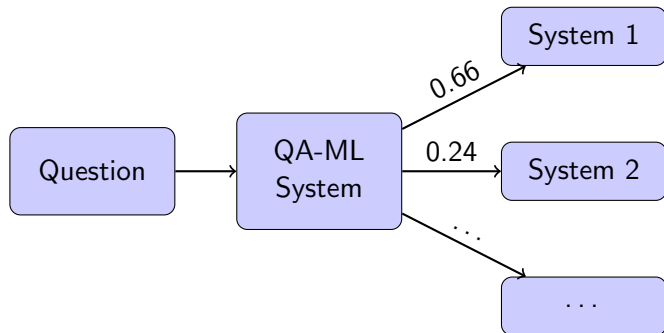
### Data and Resources

 **QALD 6 Train**  
Training data for QALD 6 Task 1 [Explore](#)

[Question-Answering](#)

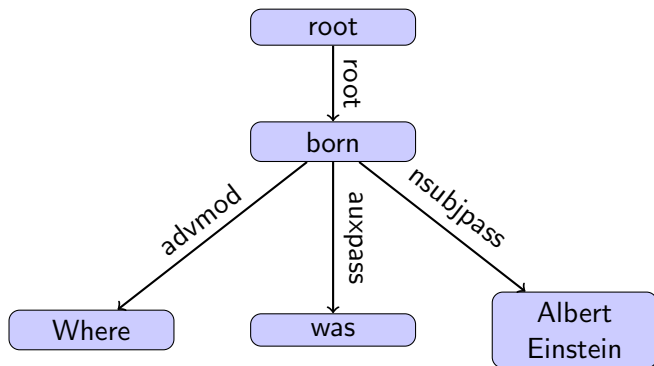
### Additional Info

Field	Value
External Description	<a href="http://www.sc.cit-ec.uni-bielefeld.de/qald">http://www.sc.cit-ec.uni-bielefeld.de/qald</a>
Source	<a href="http://www.sc.cit-ec.uni-bielefeld.de/qald">http://www.sc.cit-ec.uni-bielefeld.de/qald</a>
Version	1.0

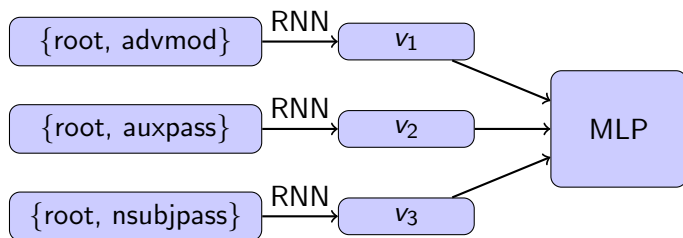


- ▶ QA Systems exist in abundance on the web
- ▶ All with different strengths and weaknesses
- ▶ Use machine learning to decide which system to query

- ▶ One needs a suitable representation of questions
- ▶ Idea: Consider the dependency tree.



- ▶ Paths from the root to the leaves as input for an RNN
- ▶ Use this representation to classify with an MLP



- ▶ Output can be a probability distribution over the systems or possible SPARQL interpretations

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