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Creation of visualizations based on Linked Data

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Agenda

- Challenges in Linked Data usage
- How to create an LOD visualization?
- User study
- Conclusions

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Challenges in Linked Data usage

Good and bad news about Linked Data

- Good:
  - Billions of triples available on the Web
  - Lots of information about people, events, places, etc.
- Not so good:
  - Not a lot people outside the Semantic Web community find it usable

Who are the users?

- People with domain expertise, not technical
  - Journalists
  - Scientists (Bio-, Chemo-, X-Informaticians)
- Novice Semantic Web students
- People who want an easy/rapid way to understand certain aspects of LOD datasets

Challenges

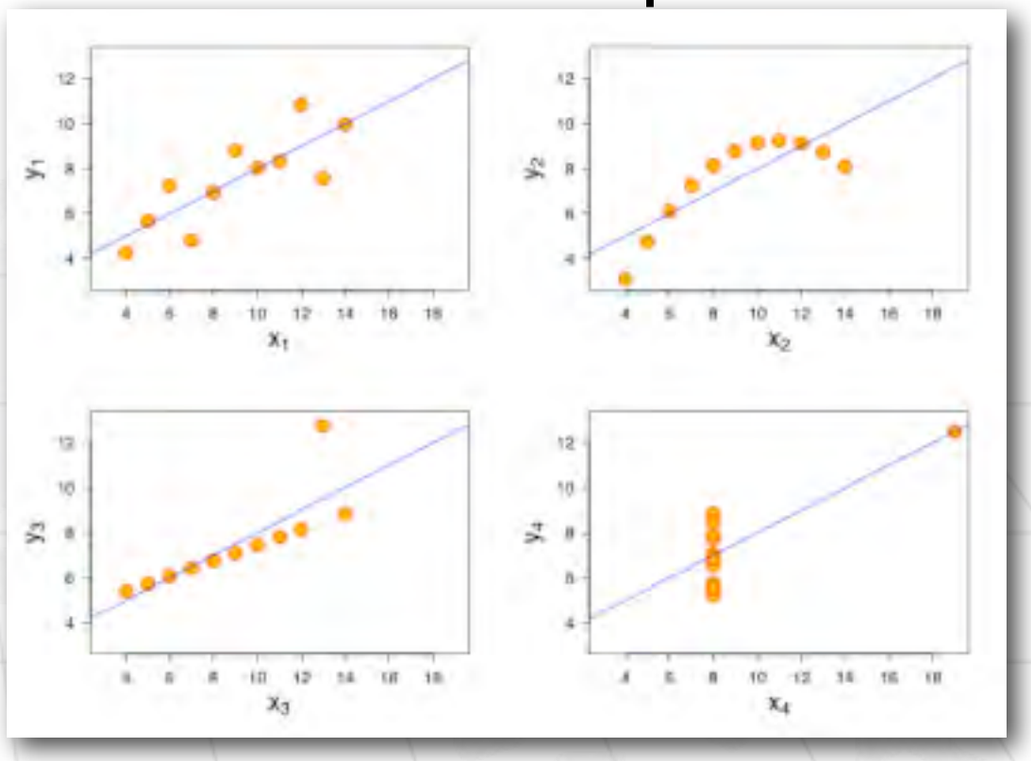
- What is needed for non-technical users to consume and explore Linked Data?
- How can we empower domain experts that lack experience with Linked Data?

Idea: Use of visualizations can simplify consumption of Linked Data

Why Visualizations?

- Visual inspection of data is helpful
- Can help to detect trends and outliers
- It is easy to share and consume for non data experts

Anscombe's quartet



"Attractions in Berlin"

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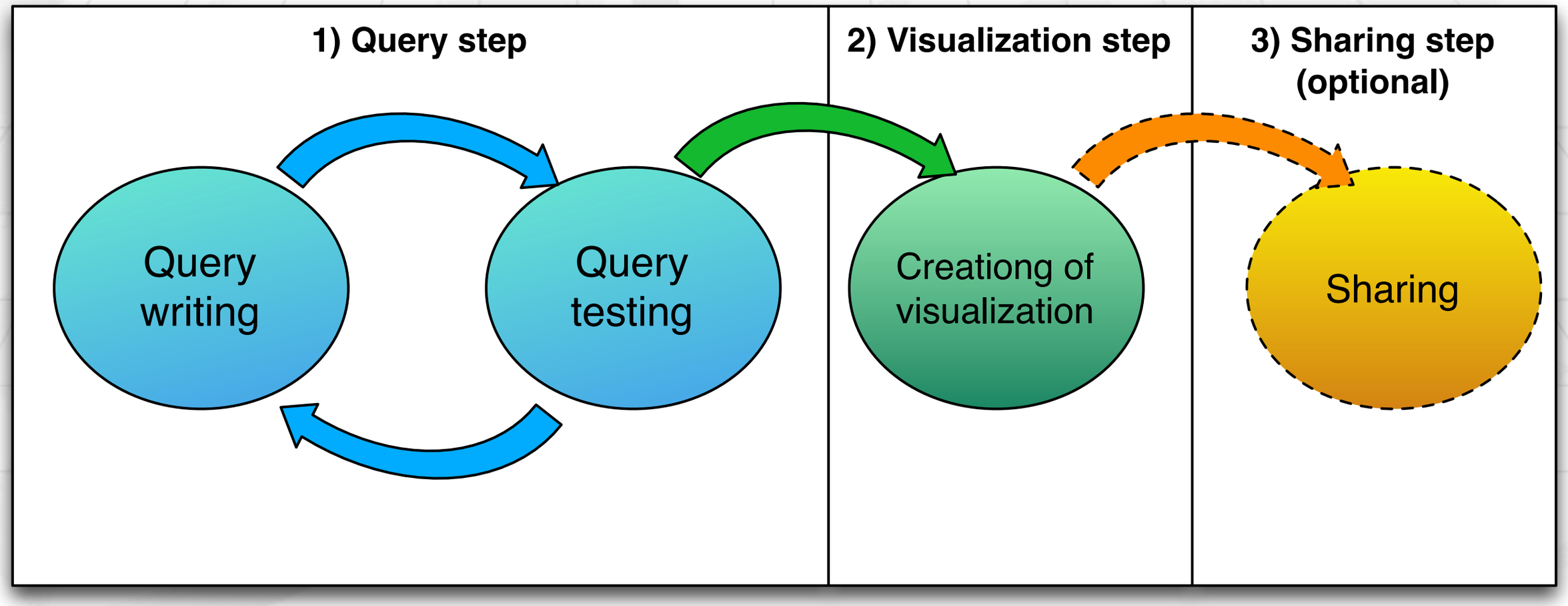
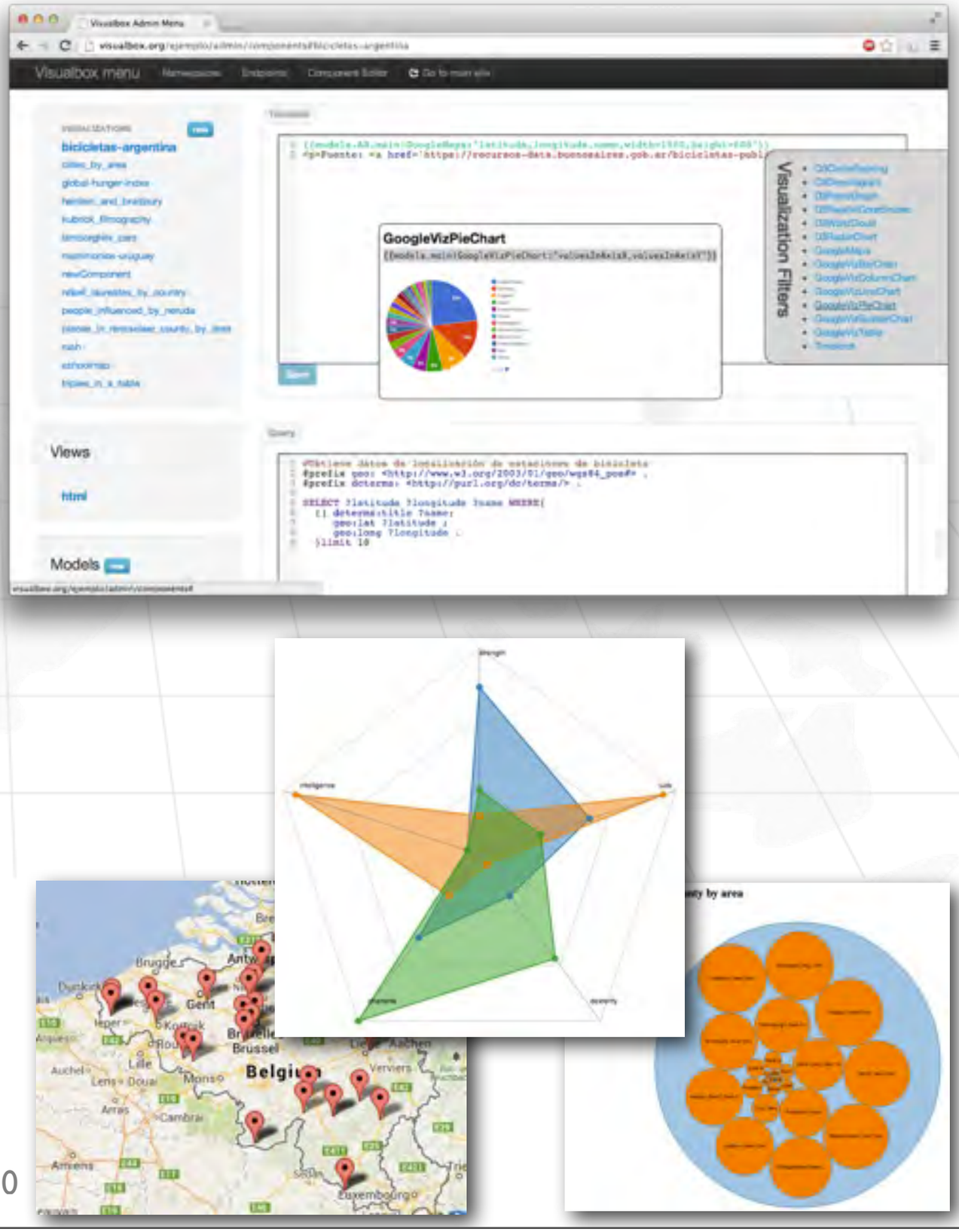
How to create an LOD visualization?

Visualization workflow

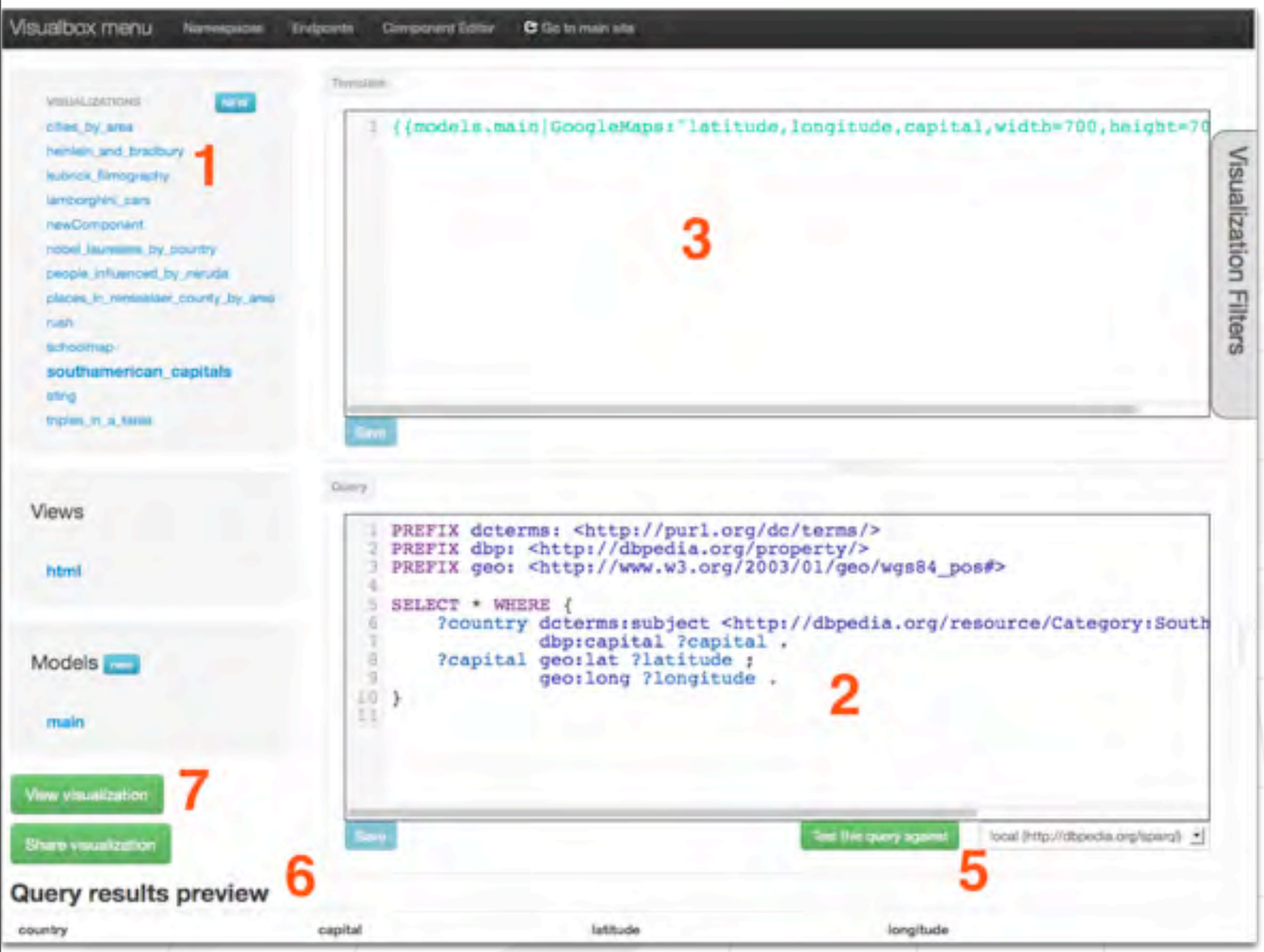


Visualbox

- "Easy Linked Data visualizations"
- Integrated environment to create visualizations based on LOD
- Makes use of available SPARQL endpoints
- Provides 14 types of visualizations out-of-the-box



Visualbox



1 - Existing visualizations
2 - Query editor
3 - Visualization Editor
4 - Visualization helper
5 - Buttons for query testing
6 - Query testing results
7 - Sharing buttons

Mozilla Festival

- Tested Visualbox against real users
- Most of them never heard about Linked Data

Feedback from Mozilla Festival

- Positive: Most people evaluated it as a great experience for learning about Linked Data and visualizations
- Negative: Most people found hard to even start working with SPARQL
  - Unsure about the syntax
  - Unsure "what's in there" in an endpoint

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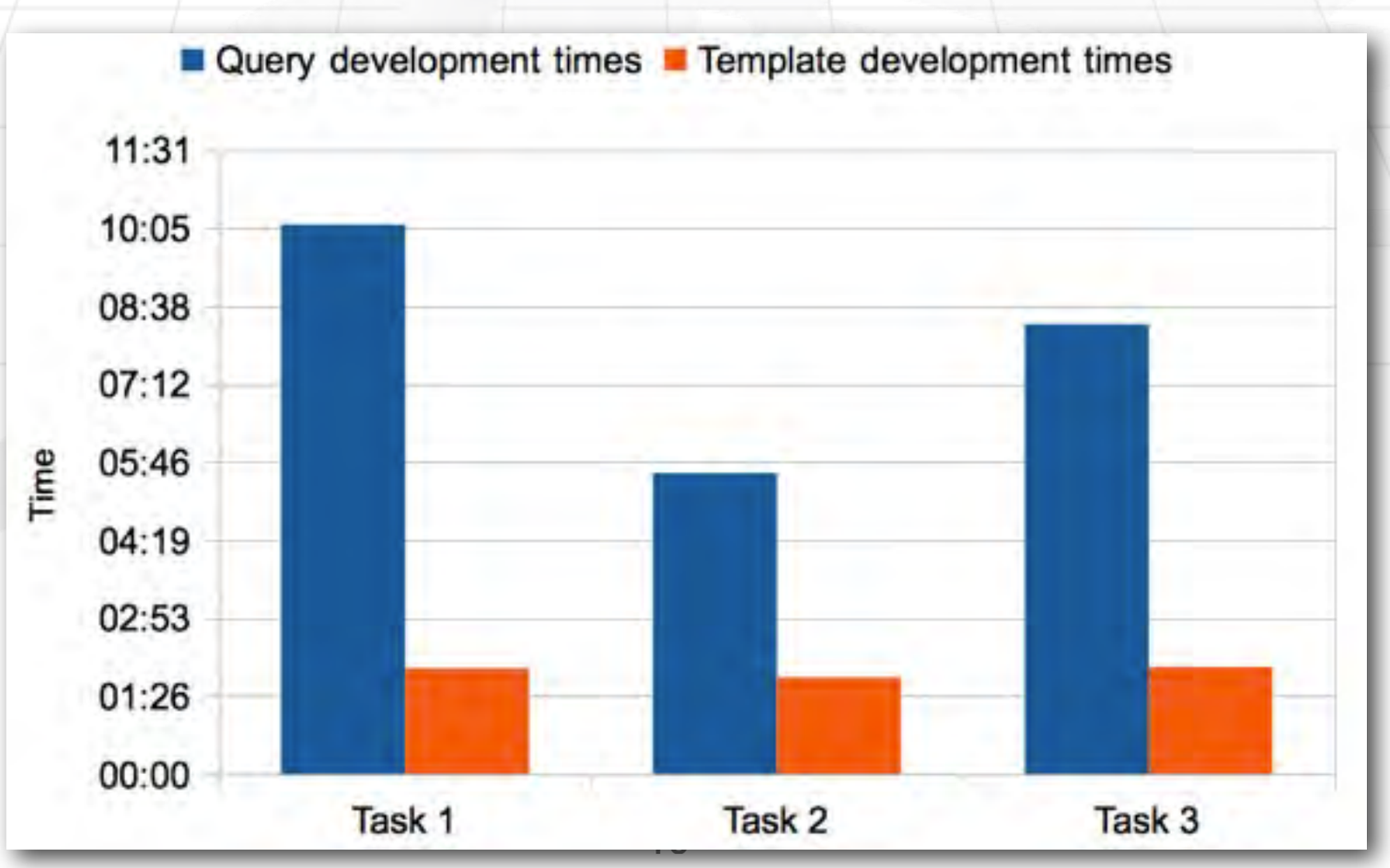
User study

User study

- People with basic to medium knowledge of SPARQL and Linked Data
- Participants watched an introductory video
- Used *think aloud* approach
- Three tasks, visualizations based on DBpedia
- Ex-post subjective evaluation

Results

- Most of the time (5-10 min.) was focused on creating and debugging SPARQL query
- Once the query was ready, the rest of the process was very short (1-2 min.)



Participant's feedback

- Positive: Visualbox makes it easy to create visualizations
  - *Much easier than doing it from scratch*
  - Add features to power users
- Negative: Creation of SPARQL query
  - One size does not fit all

Possible solutions

- Syntax assistance
  - Namespaces and prefixes
  - Improved syntax highlighting
- Recommendations/suggestions based on:
  - Endpoint's content
  - What others have queried
  - Other existing visualizations

Conclusions

- Creating LOD visualizations is a two-step process:
  - Query creation
  - Visualization development
- Visualbox provides an integrated environment for the first step
- It reduces the effort for the second step
- There are open challenges in helping users to create SPARQL queries