QB4OLAP
Publishing and querying OLAP cubes in the Semantic Web

QB4OLAP is a RDF vocabulary that allows to represent OLAP cubes in RDF, and to implement OLAP operators (such as Roll-up, Slice, and Dice) as SPARQL queries directly on this RDF representation.

VOCABULARY DEFINITION

The RDF Data Cube vocabulary (QB) is a W3C standard to publish statistical data on the web using a RDF. The QB4OLAP vocabulary extends QB to support the following concepts, defined in classic multidimensional models for OLAP and not modeled in QB:

- **Dimension structure**: the structure of a dimension is defined in terms of levels, which are hierarchically organized through rollup relations.
- **Dimension instances**: level instances are called level members, and there is a relation between level members from different levels.
- **Aggregate functions**: aggregate functions are used to compute aggregate values when performing OLAP operations (e.g: Roll-Up)

HOW CAN QB4OLAP CUBES BE PRODUCED?

FROM RELATIONAL DWs
- We have developed tools that automatically translate ROLAP DWs into QB4OLAP [2].
- NorthwindDW in QB4OLAP

EXTENDING QB CUBES
- We are working on the semi-automatic extension of QB cubes.
- We have manually extended cubes from Eurostat data and World Bank Linked Data

FROM SCRATCH

QUERY PROCESSING PIPELINE

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<th>QL query</th>
<th>QL simplified query</th>
<th>SPARQL query</th>
<th>Improved SPARQL query</th>
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PUBLICATIONS

1. Etcheverry, L., Vaisman, A., Zimanyi, E.: Modeling and Querying Data Warehouses on the Semantic Web using QB4OLAP. DaWak 2014, Munich, Germany (September 2014)