DIRECTions: Design and Specification of an IR Evaluation Infrastructure

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CLEF 2012 - Information Access Evaluation meets Multilinguality, Multimodality, and Visual Analytics
Rome, Italy, September 17-20, 2012

Outline

- Motivations
- The Conceptual Modeling
- The Architecture of DIRECT
- How to Access the Data: The Data Cube
- Conclusions and On-Going Work

Motivations

- IR Evaluation is challenged by variety and fragmentation
  - diverse tasks and metrics
  - heterogeneous collections
  - different systems and approaches

- We need to **facilitate IR evaluation** by allowing for **(fair) comparisons** and by **preserving and providing access** to the data (collections, settings, outputs) over time

- Provide **visual interaction with experimental data** (visual analytics)

The Main Goal

Deliver a **unified infrastructure** and environment for data, knowledge, tools, methodologies and the user community

in order to

advance the experimental evaluation of information systems

Conceptual Modeling

We have to model an heterogeneous and highly diversified reality of interest

The first step is to identify the main functional areas of experimental evaluation

The Core

The core of the infrastructure

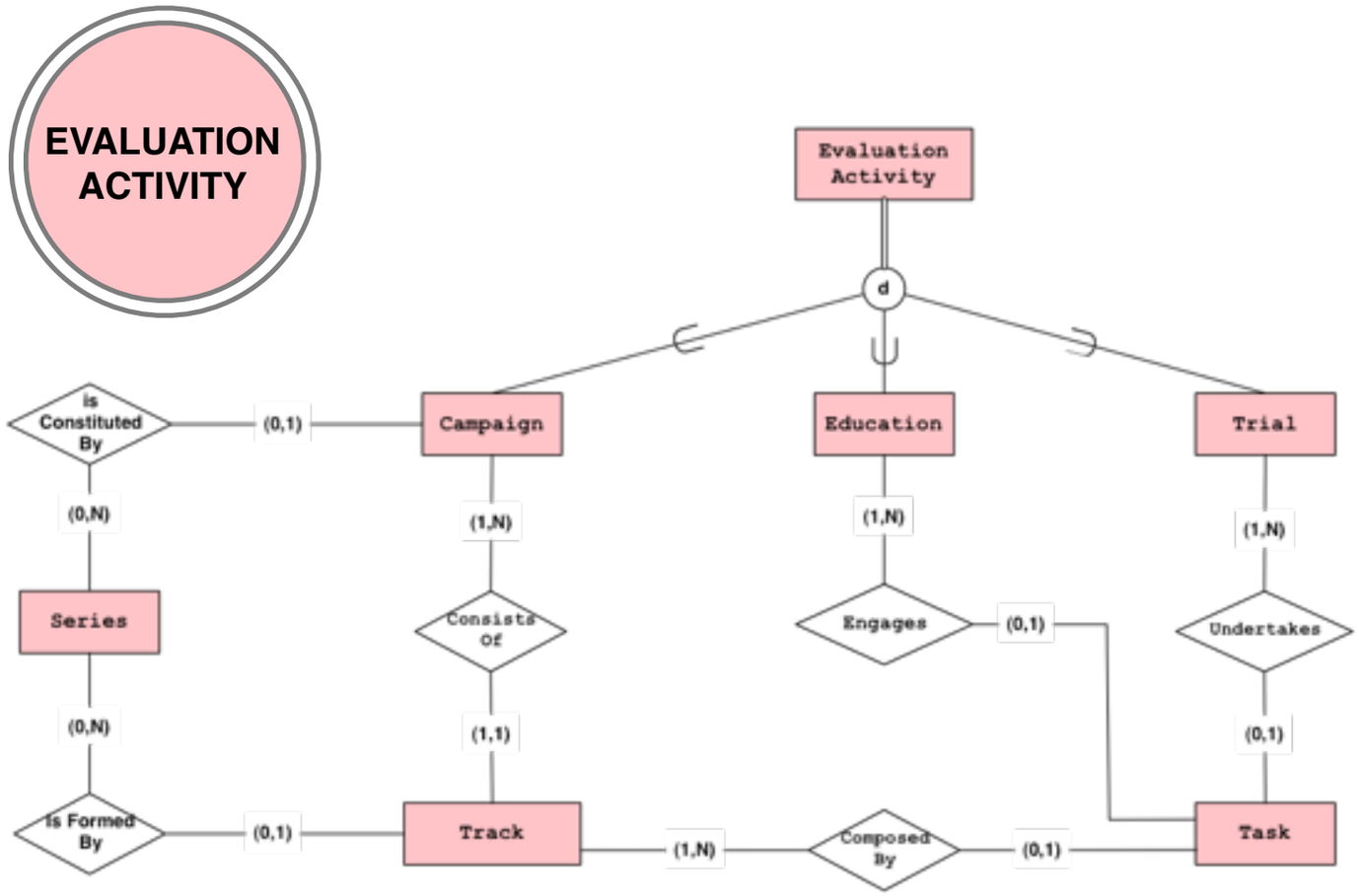
Activities aimed at evaluating applications, systems and methodologies

It includes:

Campaign

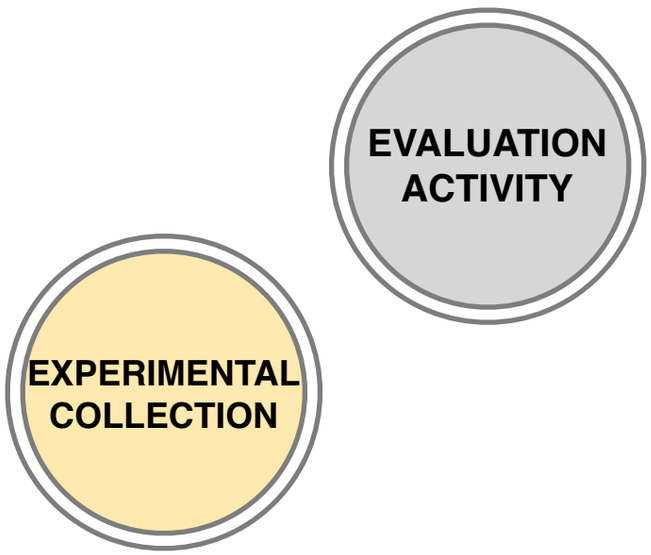
Trial

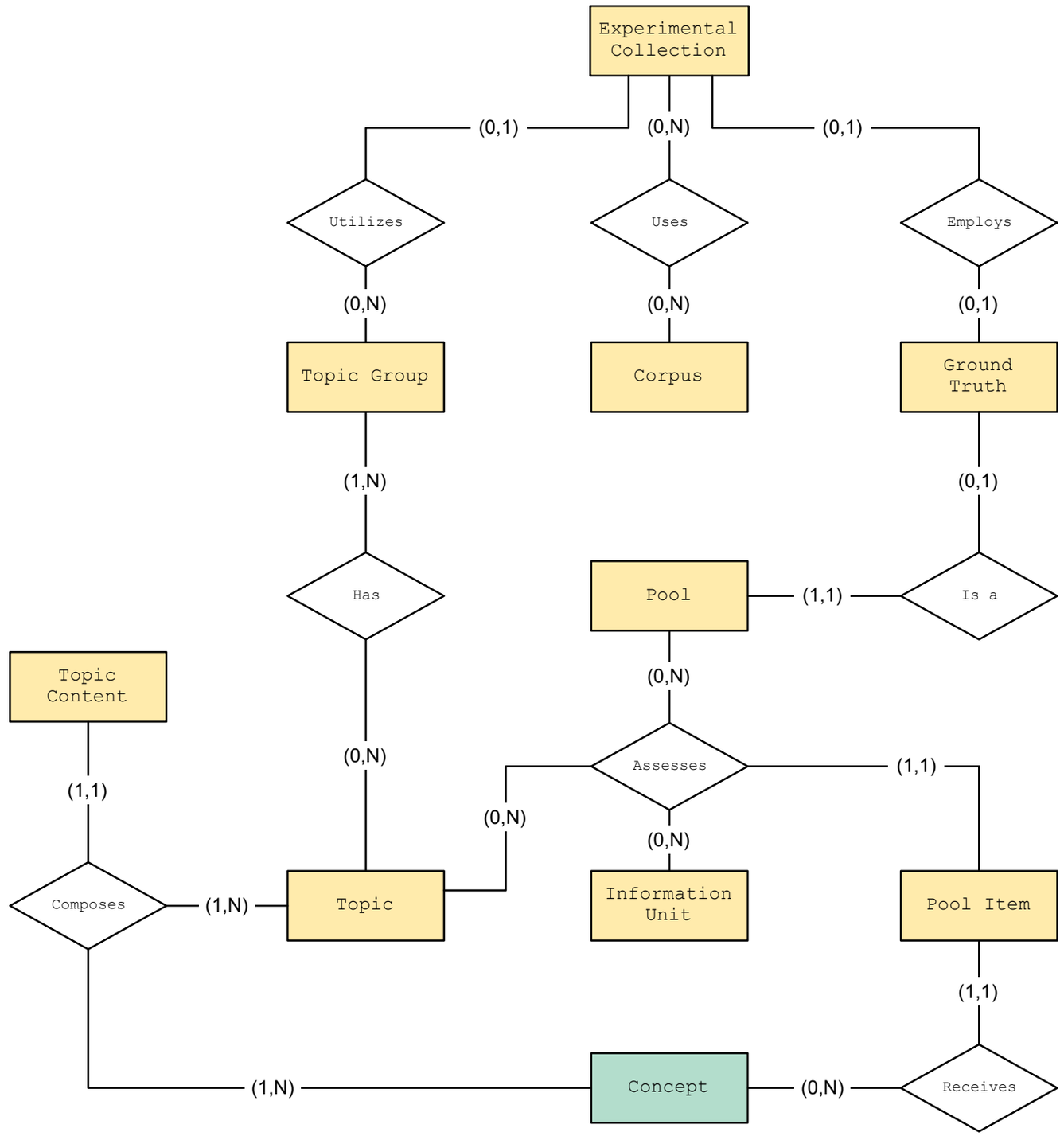
Education



The Core' Satellites: Experimental Collection

A **traditional** IR evaluation environment





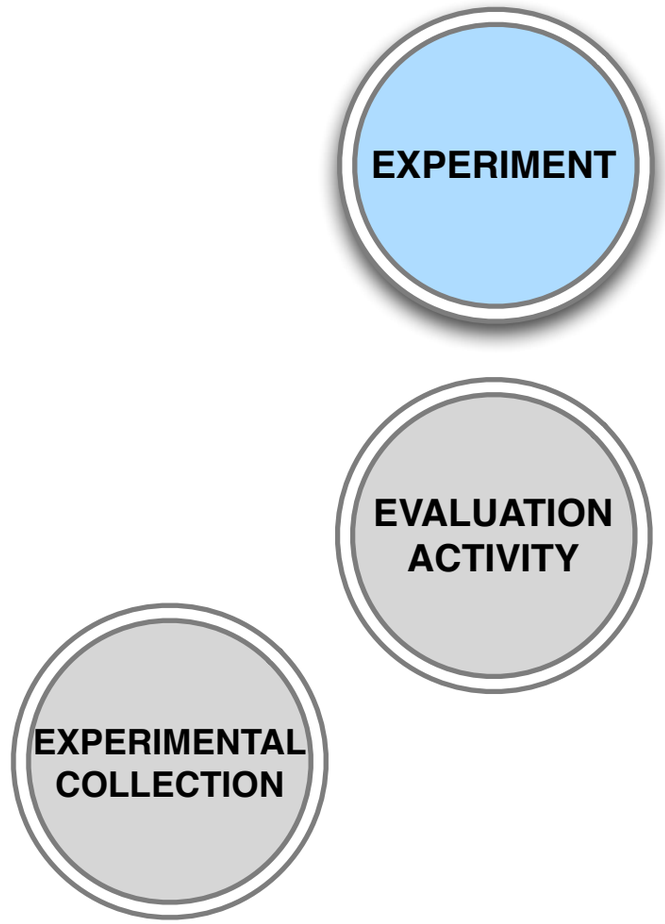
The Core' Satellites: Experiment

The **scientific data produced**

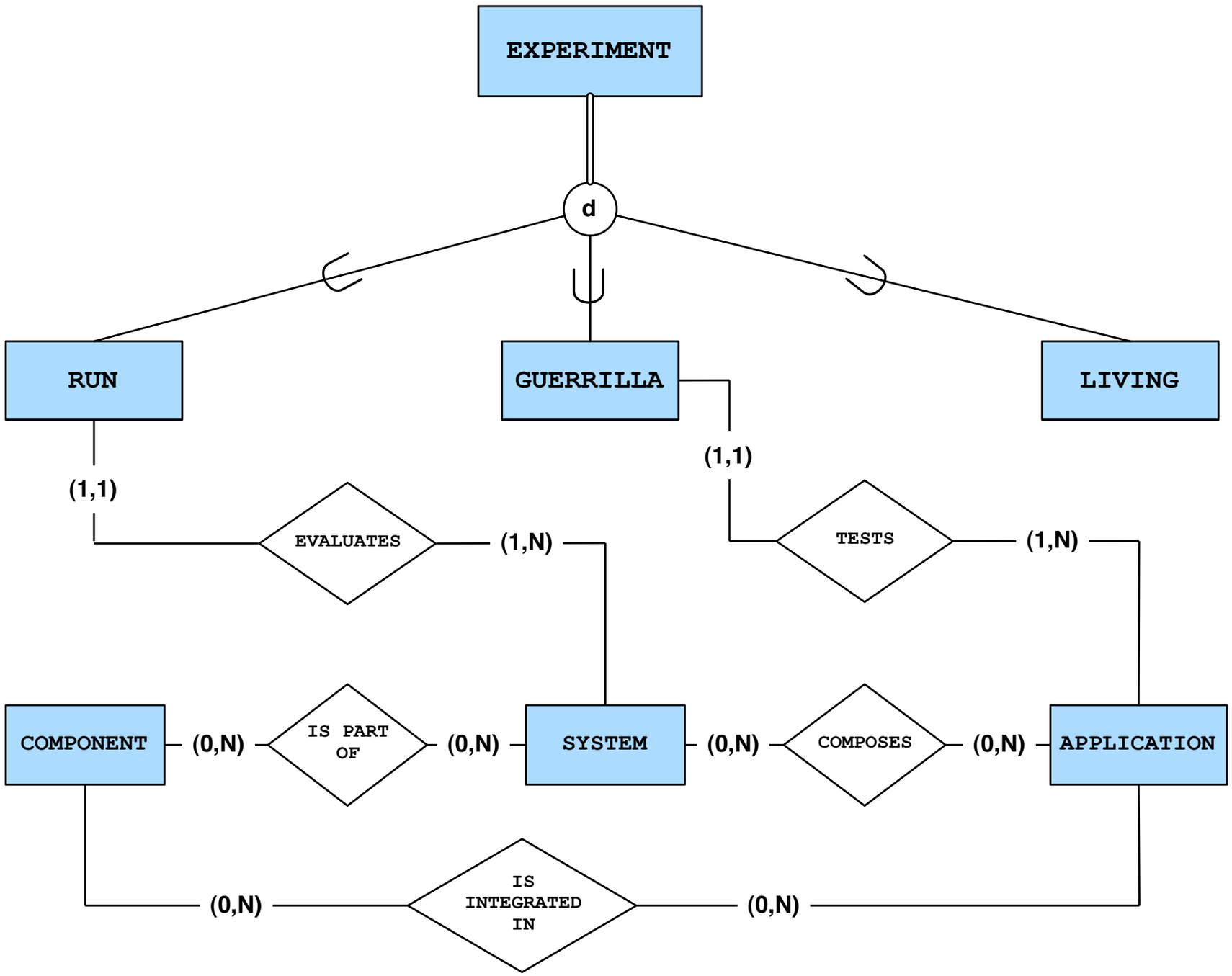
Run

Guerrilla

Living



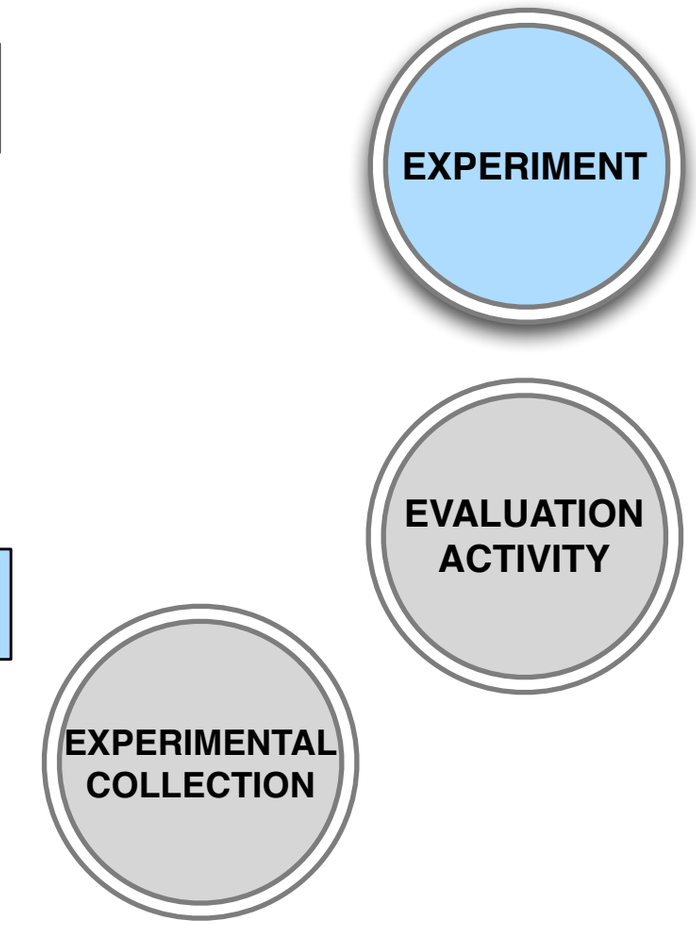
The Core' Satellites: Experiment



Run

Guerrilla

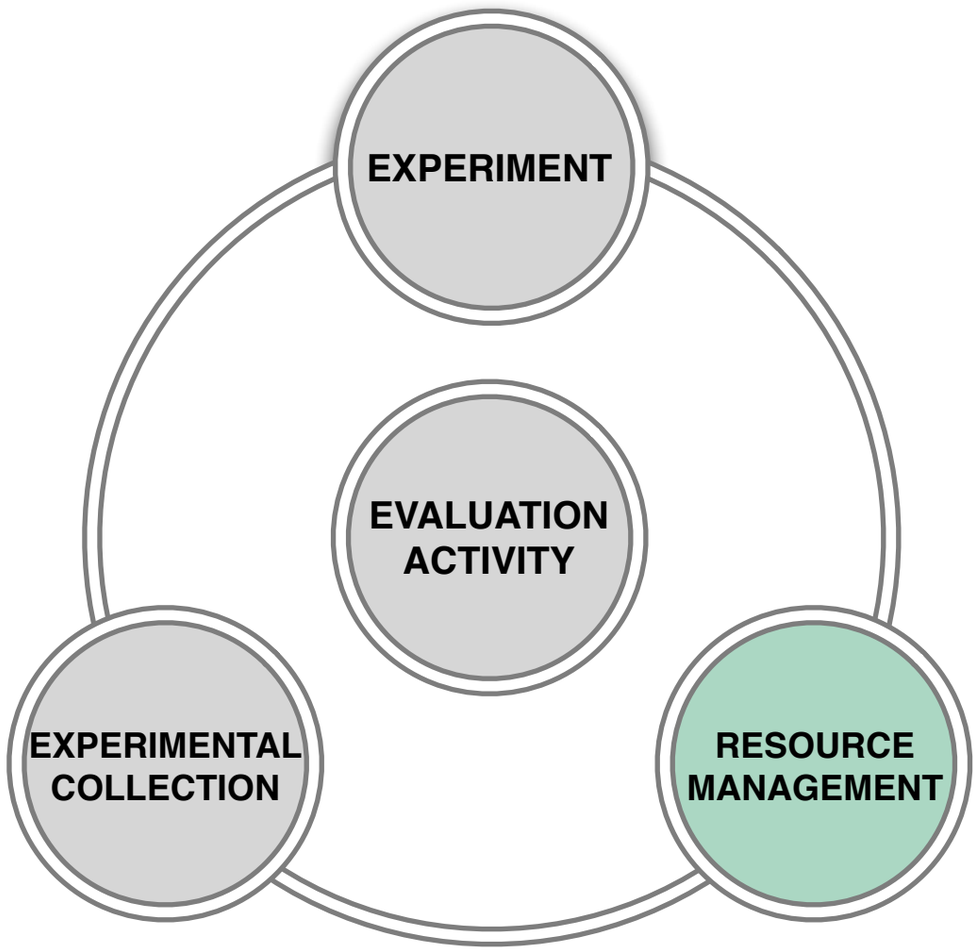
Living



The Core' Satellites: Resource Management

It handles

Resources



interactions between

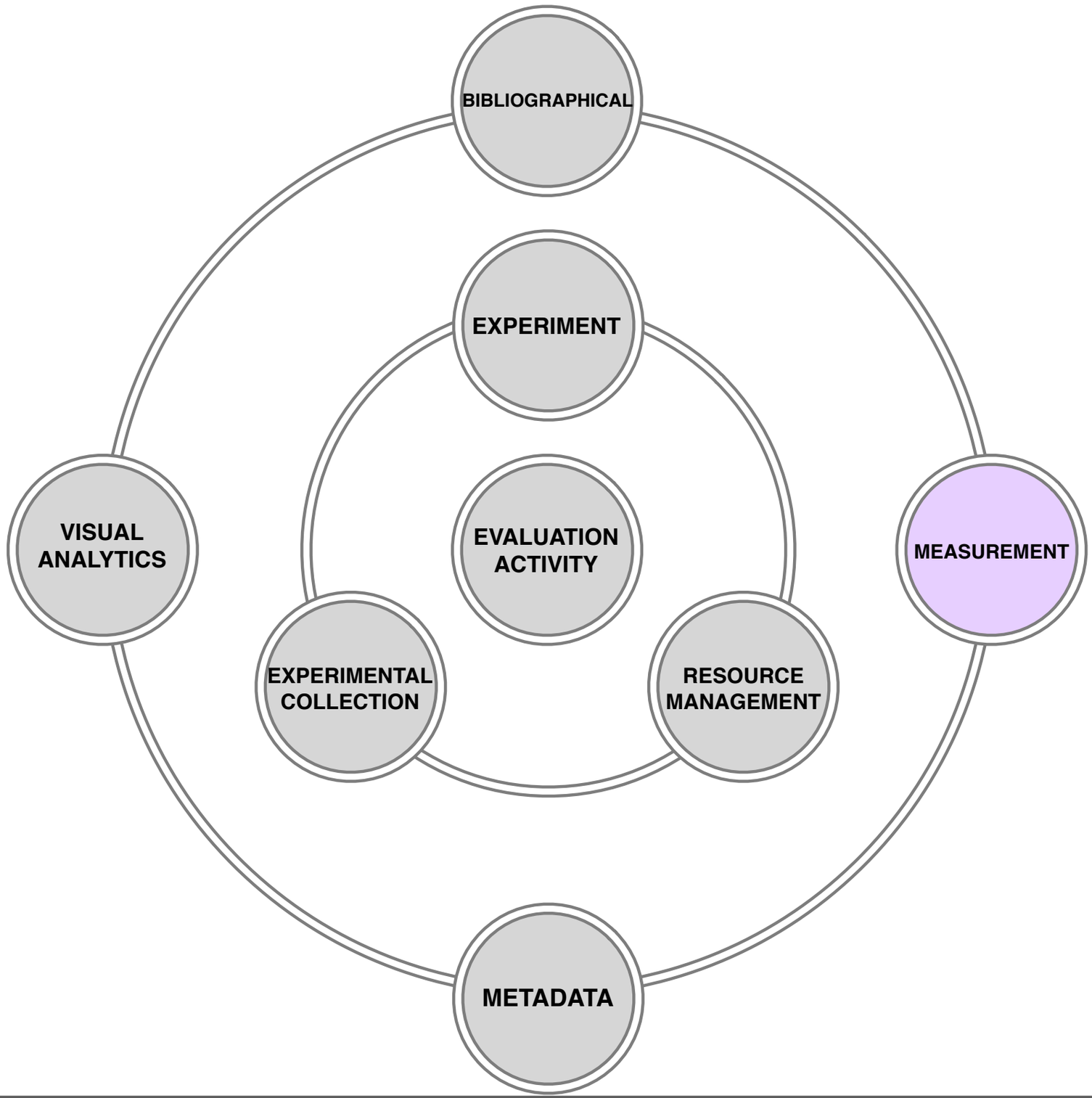
Users

Groups

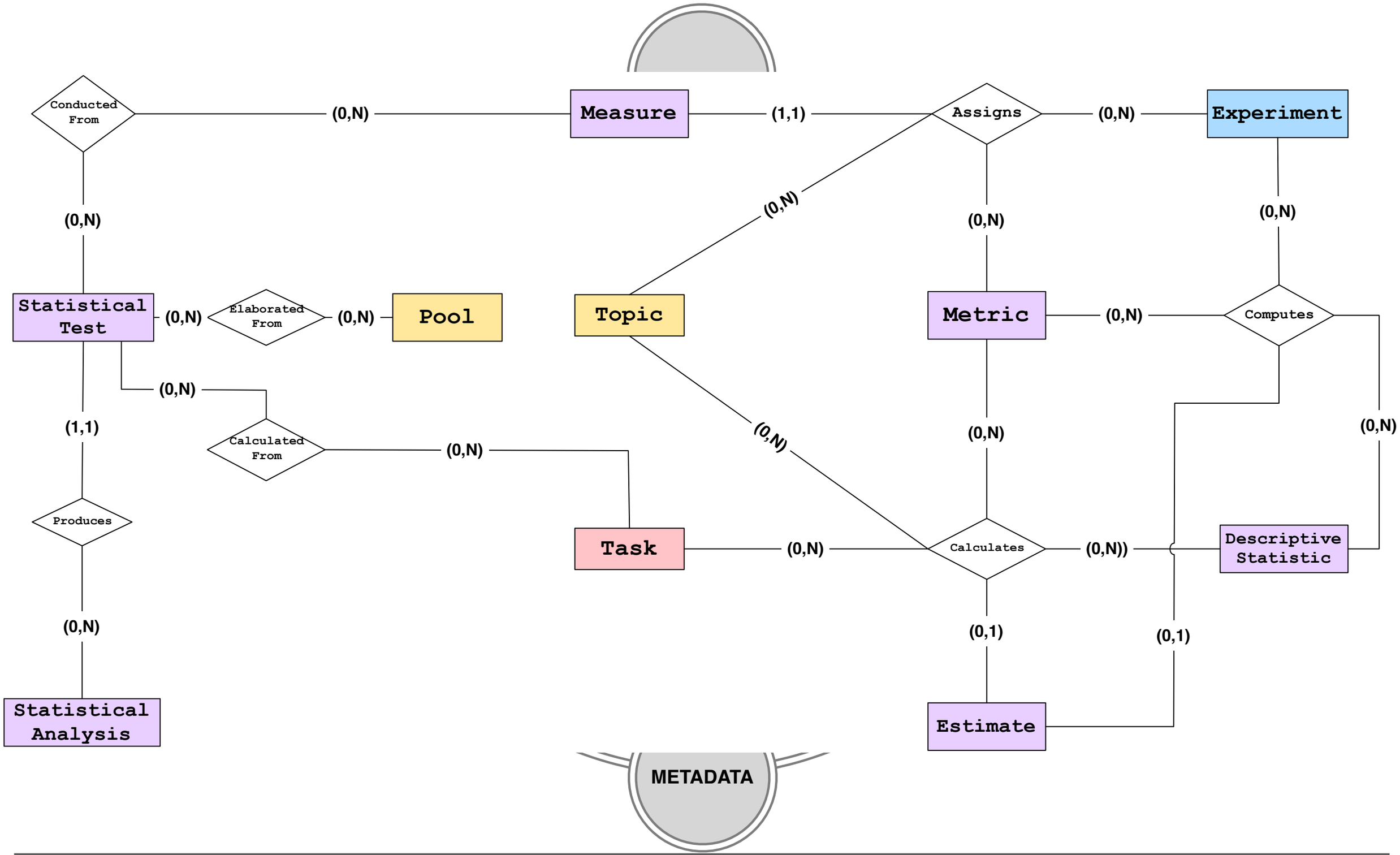
Roles

Access Control and **Concepts**

The Advanced Features: Measurement

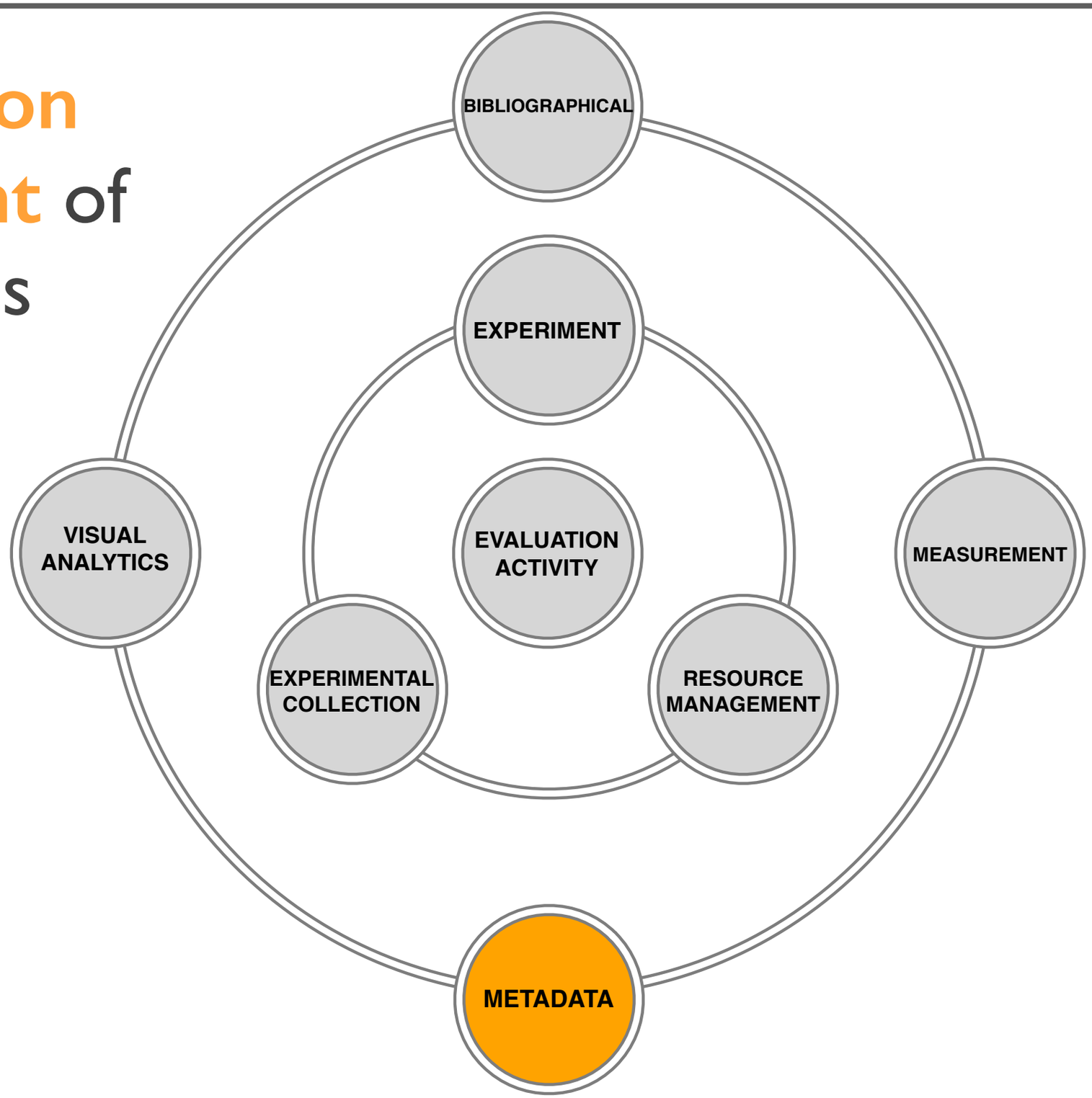


The Advanced Features: Measurement

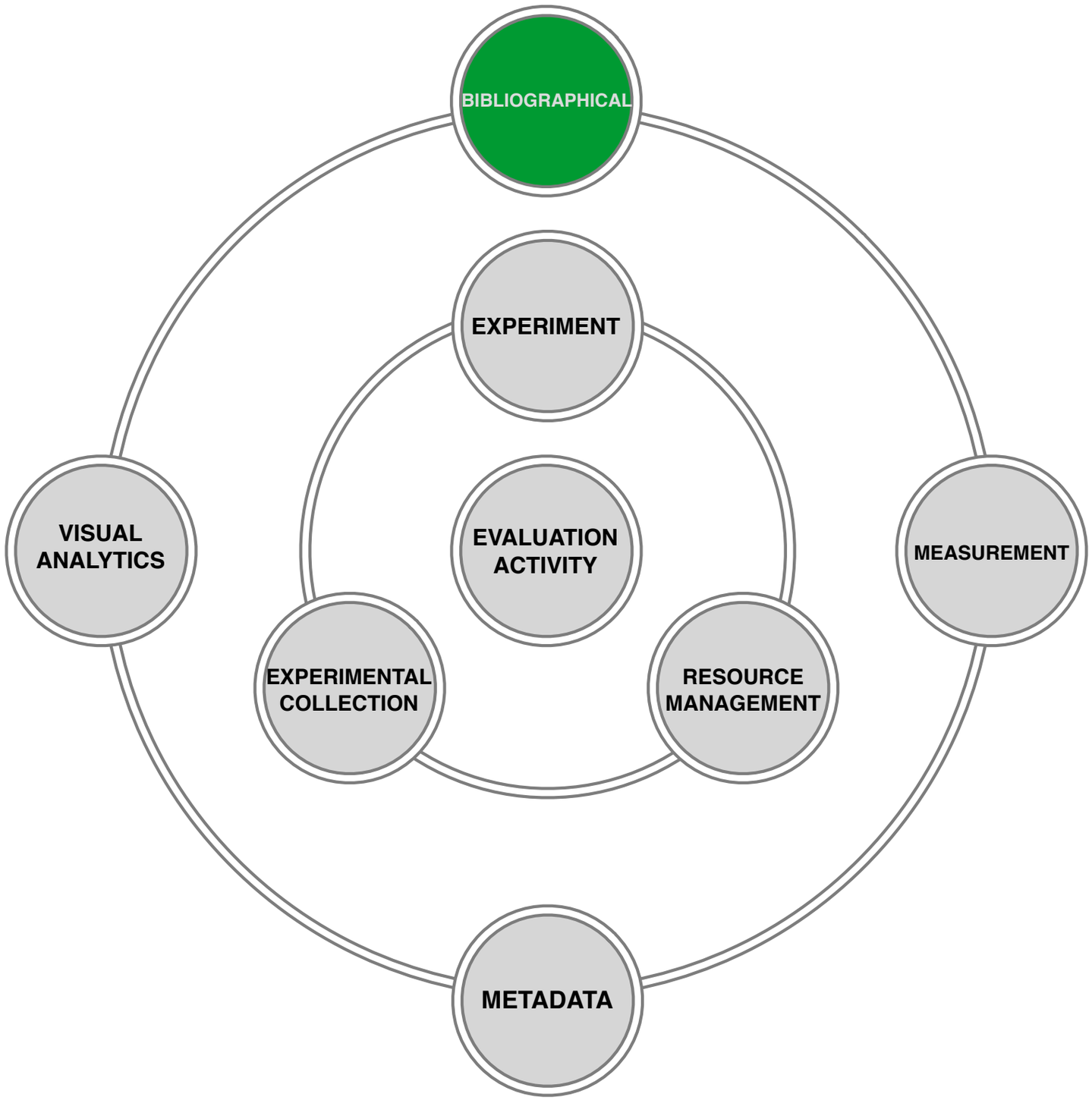


The Advanced Features: Metadata

The **description and enrichment** of the resources



The Advanced Features: Bibliography



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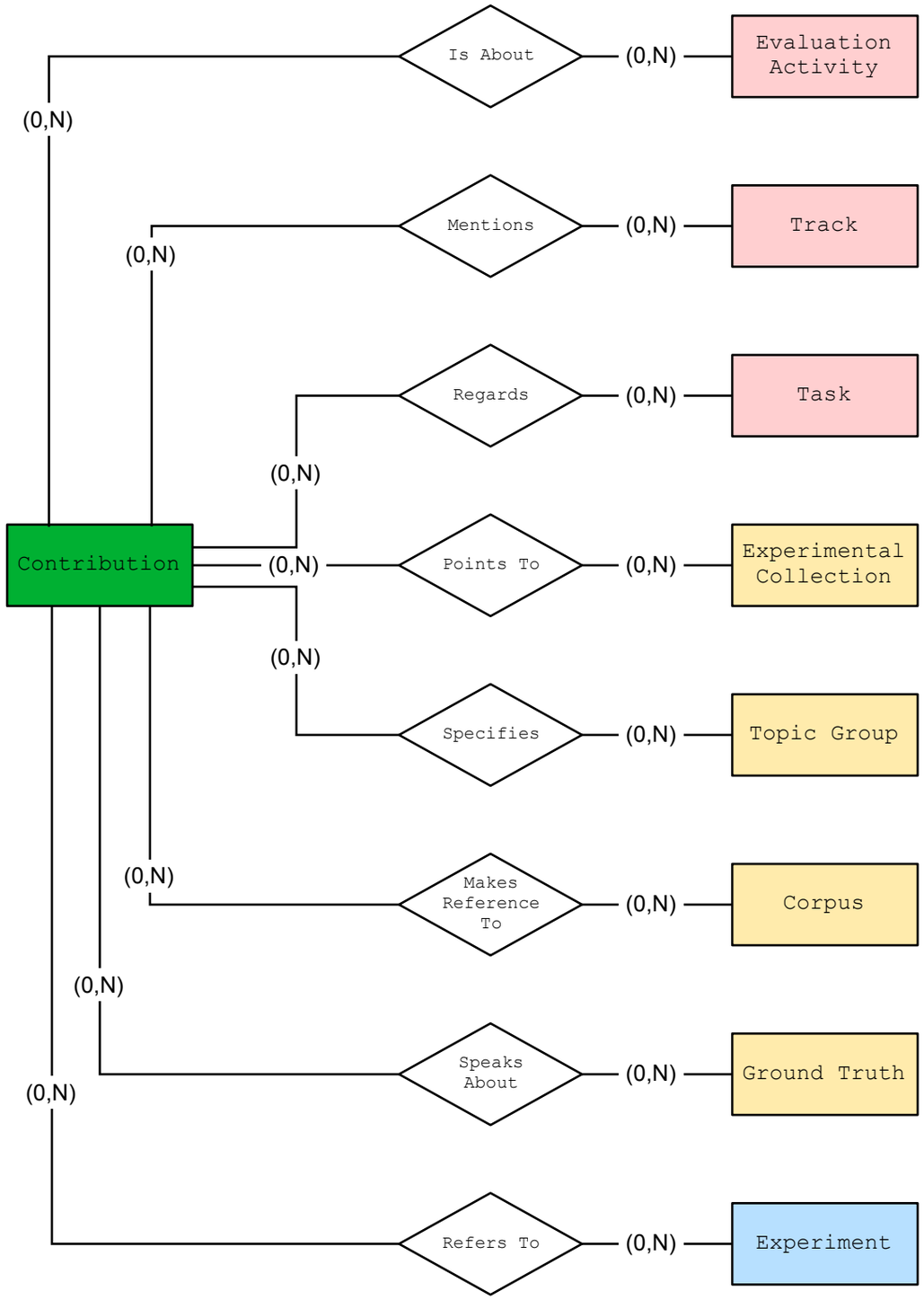
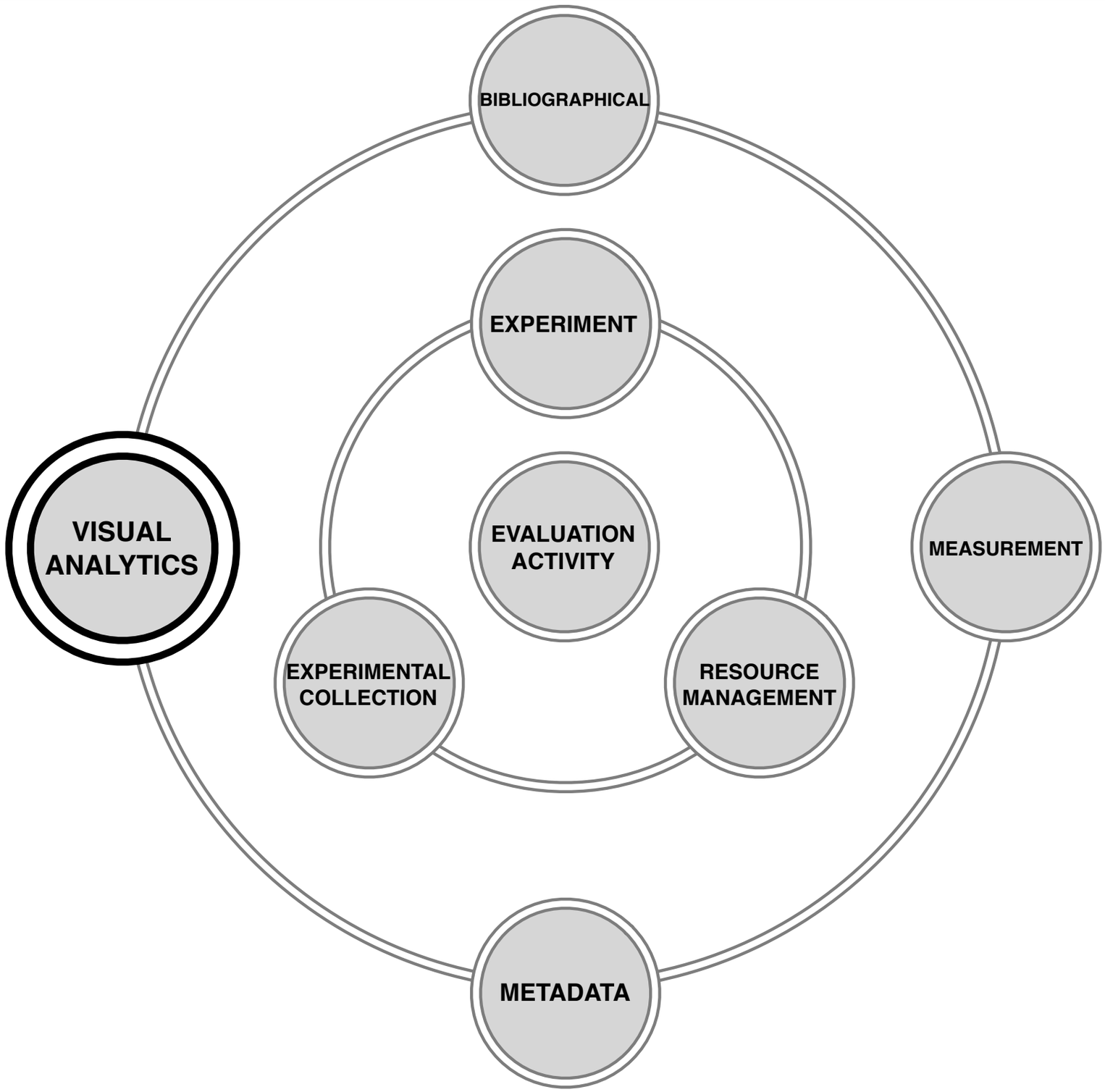


The Advanced Features: Visual Analytics



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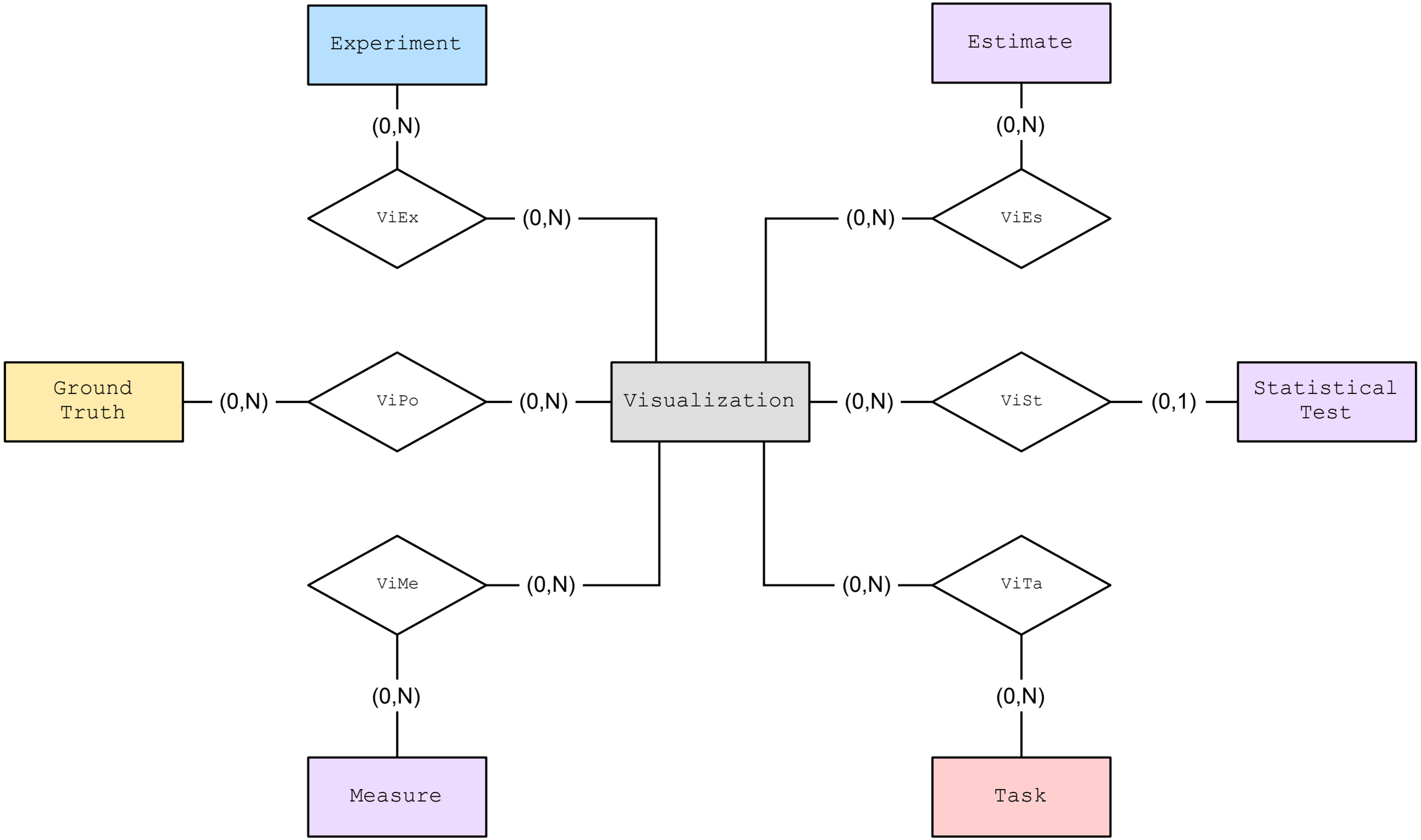
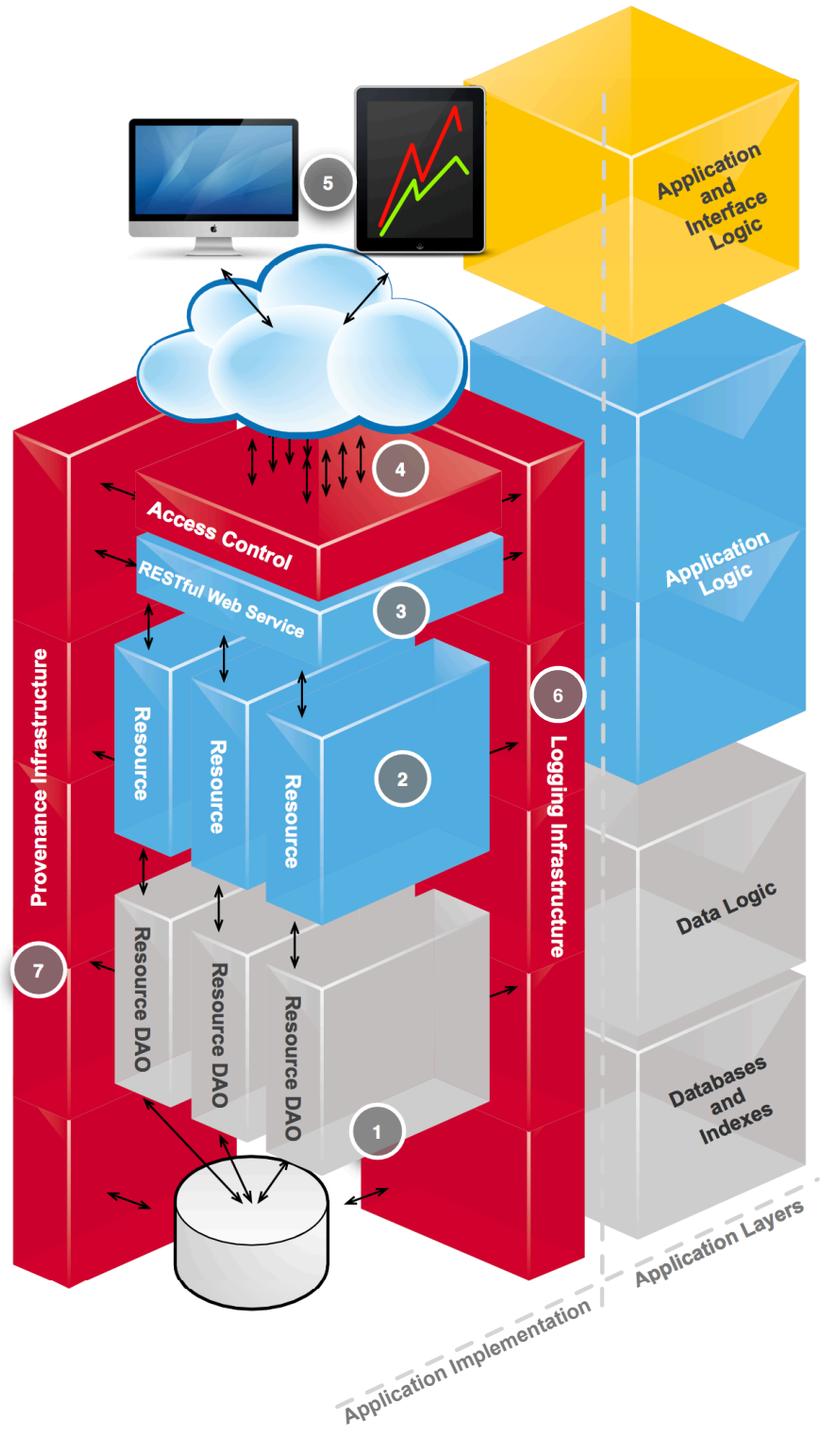
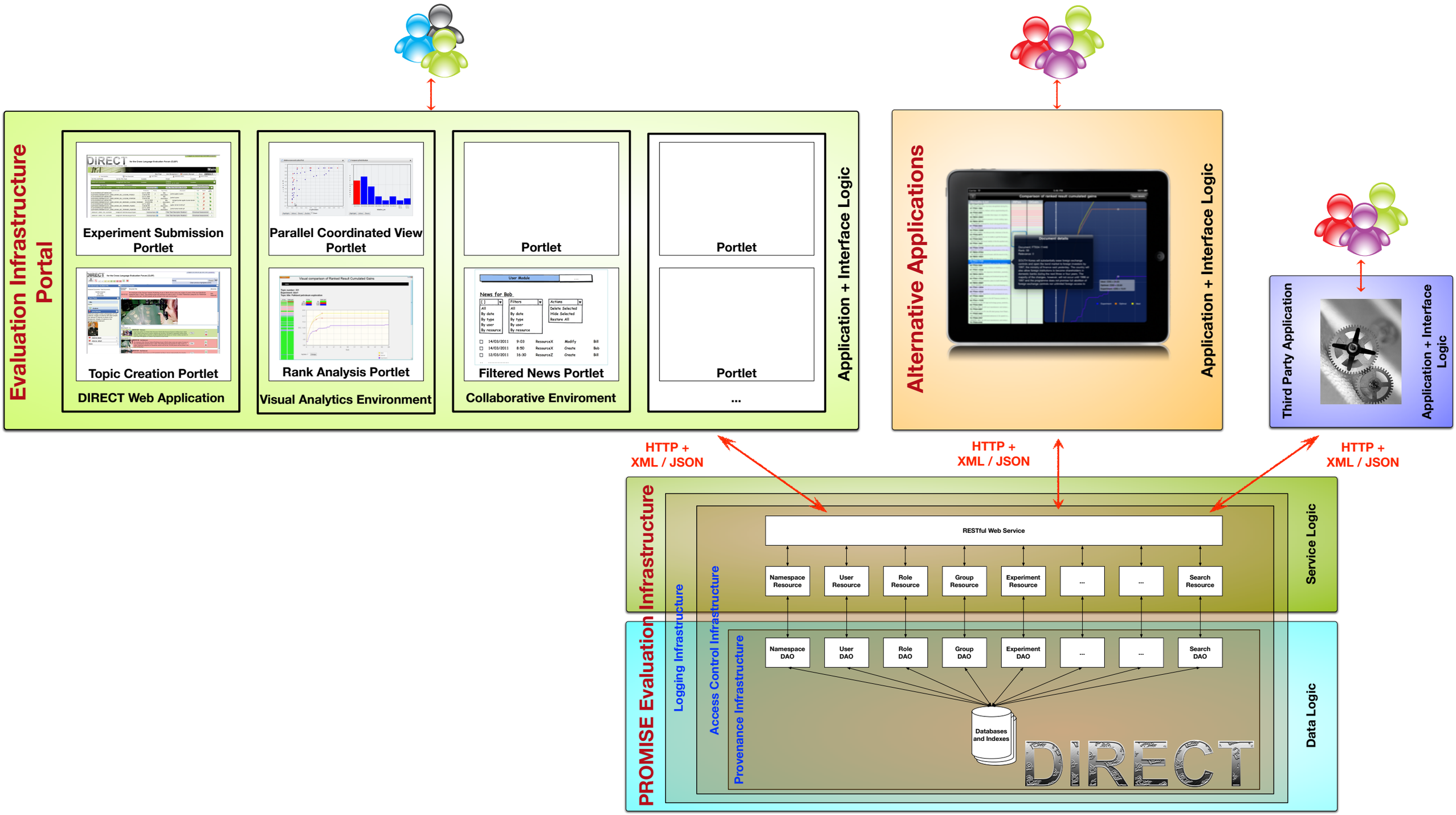


The Architecture of DIRECT



The Architecture of DIRECT

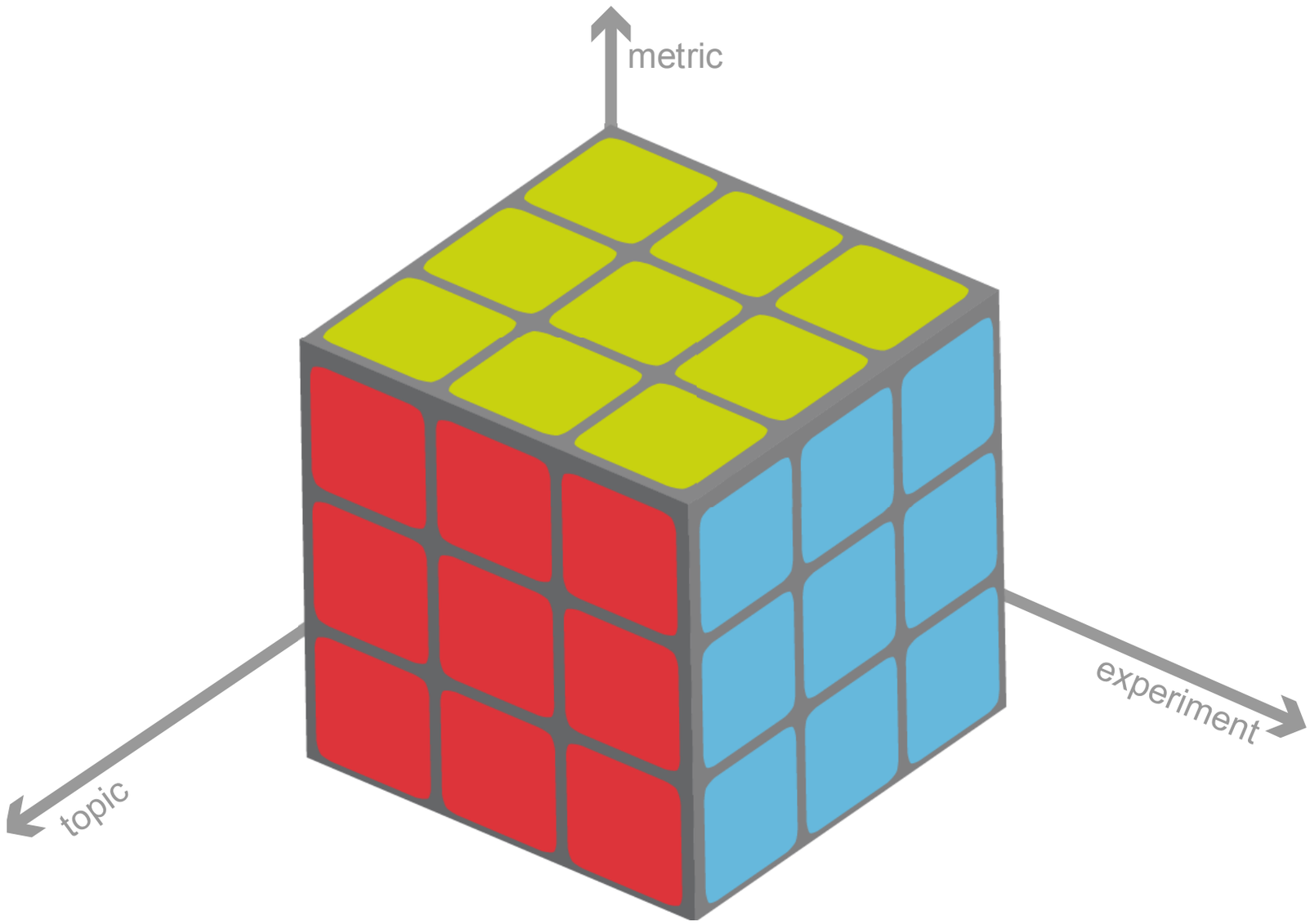


Task, Experiments and Metrics

How users can access experimental data about task, experiments, and related metrics in order to process them?

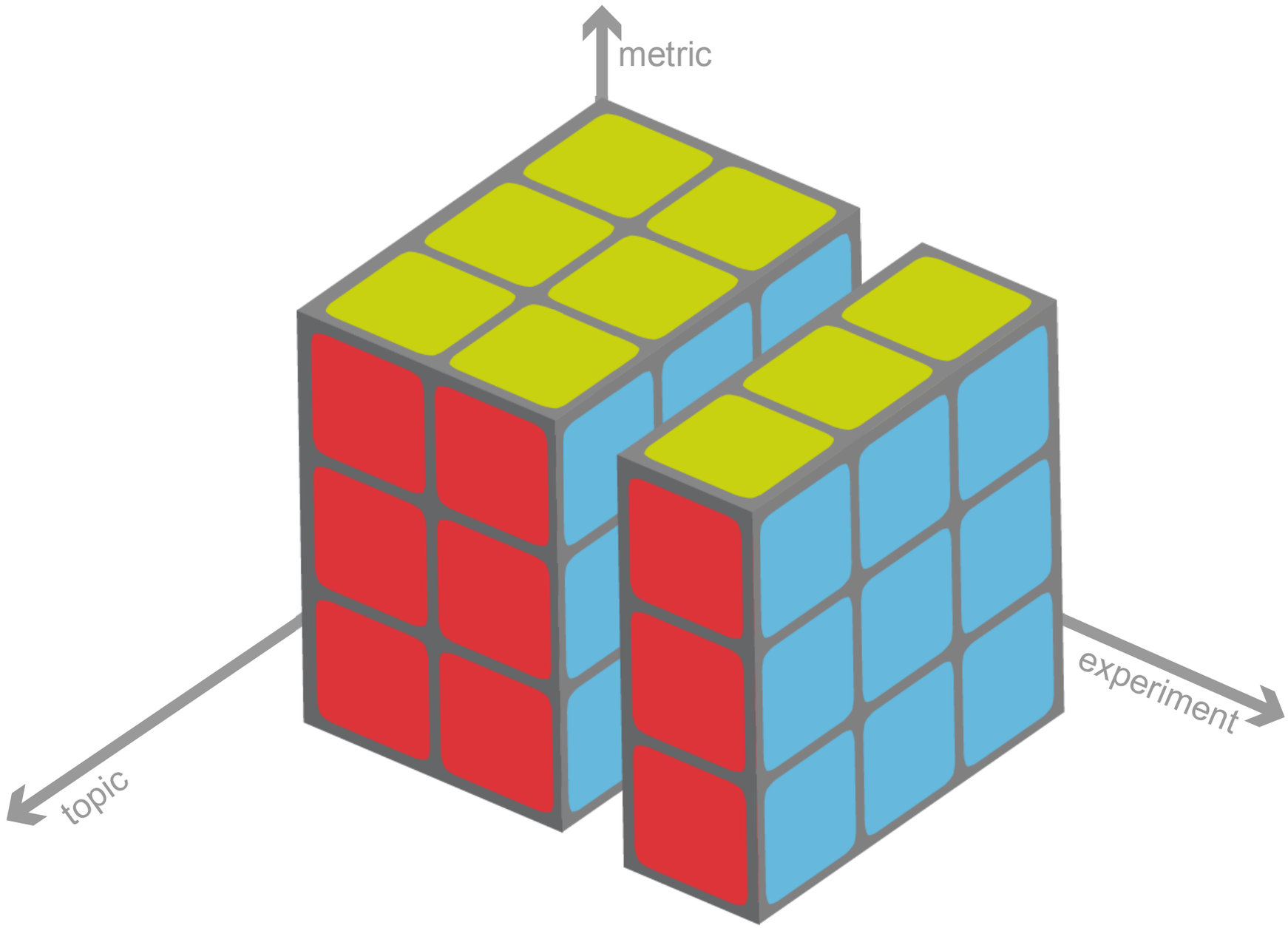
The Data Cube

/task/{id.tsk}{ns.tsk}/metric

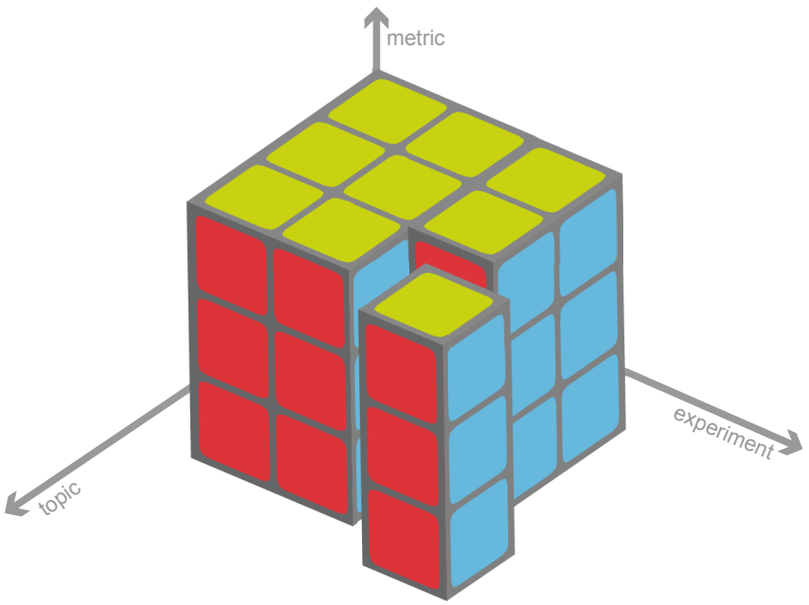


Slicing the Cube

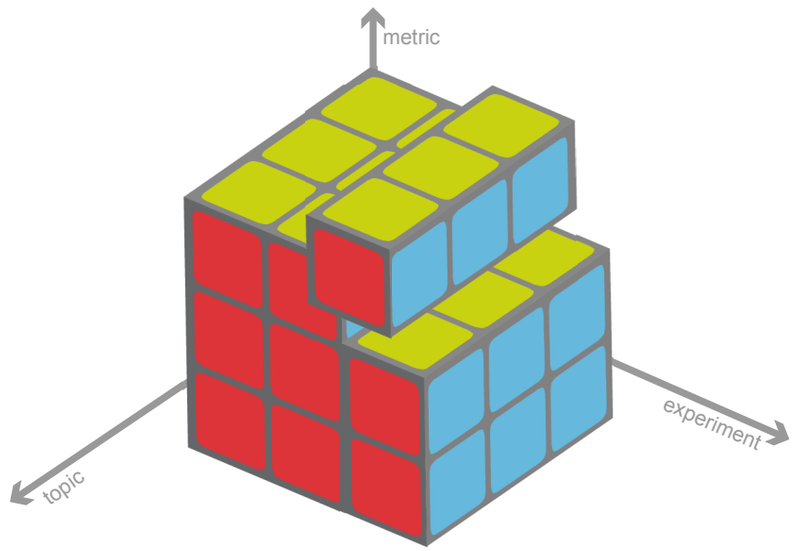
/task/{id.tsk}{ns.tsk}/experiment/{id.exp}/metric



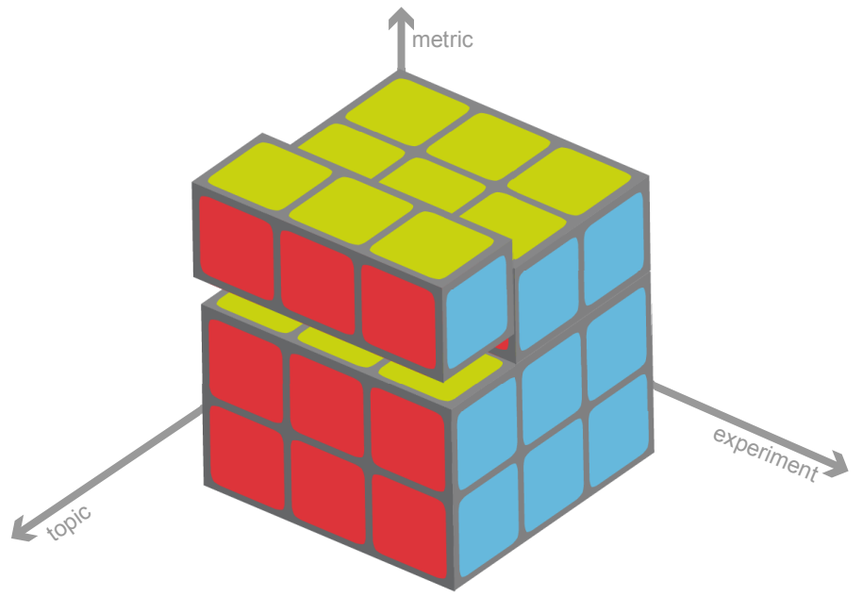
Slicing the Cube



(a)



(b)



(c)