

THE NETWORKS OF SCIENCE. DATA-DRIVEN UNDERSTANDING OF SCIENTIFIC PRODUCTION.

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AIM AND SCOPE

- ▶ Science of Sciences is a developing field that focus on quantitative studies of scientific production.
- ▶ As a social activity, scientific output is not independent from the society in which it is produced.
- ▶ This project aims to understand how science is shaped by society and vice-versa.

OBJECTIVES

Advance in the understanding of Science's development across *fields* and *countries*, in our current society, from a *data-driven*, *epistemic* and *social* perspective.

- 1 Analyze the spread of new ideas within a field using semantic analysis,
- 2 Study the spread of knowledge across fields, re-conceptualize the notion of *basic science* based on the evidence found in data of *supplier* and *demanding* fields,
- 3 Analyze the impact of collaboration between authors, institutions, cities, countries. Understand if there are underlying inequalities on these different hierarchical levels, where the *rich get richer* [1],
- 4 Define a author's disambiguation methodology and study career paths across countries and fields. Explore possible inequalities related to gender and ethnicity,
- 5 Extend the concepts of *Globalized Science* and *Knowledge Economy* to the different roles countries play in the international production of science, and its relation with the role these play in global economy as a whole ;

METHODOLOGY

There are two main methodologies to be use:

- ▶ Graph theory, to study the links between science practitioners (researchers, institutions, countries),
- ▶ Natural Language Processing, to do large-scale analysis over scientific communications (papers).

FIGURE 1

