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# HEaLth Investments ObServatory (HELIOS)

## PROJECT LEADS

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## OVERVIEW AND GOALS

The overall goal is to build a feasible, low cost and flexible platform to use science to describe science. The conceptual framework for the approach is based on the insight that science is done by scientists. Research funding has an effect on science by influencing the way in which scientists create ideas and transmit them through scientific networks. The empirical framework is pragmatic: the HELIOS team leverages new cybertools to capture and repurpose existing information without burdening researchers. Finally, the HELIOS dissemination framework uses dynamic and interactive tools to present information so that stakeholders can visualize and build a better understanding of the results of national research investments.

- 1) Task 1: Repurpose INCa data to a programmatic infrastructure which allows for the generation of web-based tools and further analysis through an application programming interface (API). Link together previously separate data sources containing information on:
  - a. People
  - b. Grants
  - c. Publications
  - d. Patents
  - e. Topic modeling (content analysis) of grants and publications
- 2) Task 2: Develop a web-based visualization tool for INCa and OST research managers based on both the API developed in Task 1 and the work done in the HELIOS feasibility study.

## STRUCTURE OF PROJECT

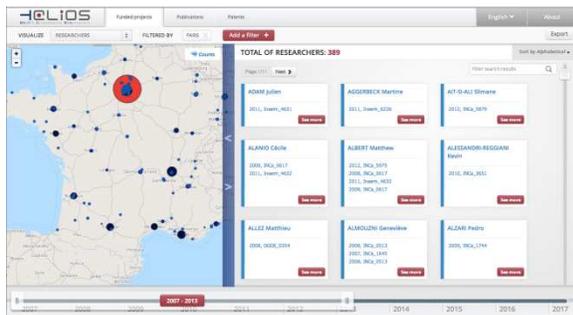
HEaLth Investments ObServatory (HELIOS) is a collaboration between the Observatoire des Sciences et des Techniques (OST), Institut National du Cancer (INCa), and Institut National de la Santé et de la Recherche Médicale (INSERM) with the American Institutes for Research (AIR) in Washington, DC.

The HELIOS vision is to describe and analyze the activities of scientific networks in order to measure the scientific, social, economic and workforce results of science investments.

### MAIN FINDINGS & SUCCESSES

In September 2012, the HELIOS team conducted a small-scale study in France that confirmed the feasibility of using existing data to document the results of INCa investments in scientific research. In January, 2013, the team began building a framework-driven data infrastructure and a prototype data visualization tool to demonstrate the value of the HELIOS approach to science policy. INCa and INSERM data were repurposed and linked to external sources of publication and patent data. The tool interface is designed to emphasize nationwide, public-private collaborations on grant and publications. We used natural language processing and topic modeling to compare researcher activities on grants and publications and to visualize the French cancer research portfolio in an international context.

### Web tool screenshots:



### MAIN TECHNICAL CHALLENGES

- Researcher name disambiguation on publications
- Visualization of topic modeling results for a broad audience
- Geocoding of researcher locations

### NEXT STEPS

The project team is working to expand HELIOS. For the next phase, the team hopes to leverage existing data from a consortium of five French research funding organizations to build an open-source HELIOS platform that exploits common elements but facilitates individually customized interfaces. The HELIOS platform will generate data and data visualizations to facilitate new types of research portfolio and outcome analyses. The expanded platform will provide an empirical framework to begin to describe the national scientific research enterprise.