



Integration and analysis of heterogeneous big data for precision medicine and suggested treatments for different types of patients.

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@Project_IASIS

iASiS: Big Data to Support Precision Medicine and Public Health Policy

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Vision and Objectives

iASiS Vision:

Turn clinical, pharmacogenomics, and other **Big Data** into actionable **knowledge** for personalized medicine and health policy-making

Objectives:

- **Integrate** automated **unstructured** and **structured** data analysis, **image** analysis, and **sequence** analysis into a **Big Data framework**
- **Develop** a **framework** for supporting **personalised** diagnosis and treatments

Pilot 1: Lung Cancer

Motivation:

- **Lung cancer** among the most
 - common and deadly diseases
 - costly cancers
- **Lung cancer** is a **heterogeneous** disease. Characteristics **differ**
 - between **patients**
 - among a tumor **regions**

The **iASiS** framework will enable:

- **Discovery** of correlations among **tumor** spread, prognosis, response to treatment
- **Unraveling** molecular mechanisms that predict response to different **tumor types (signatures)**

Pilot 2: Alzheimer's disease

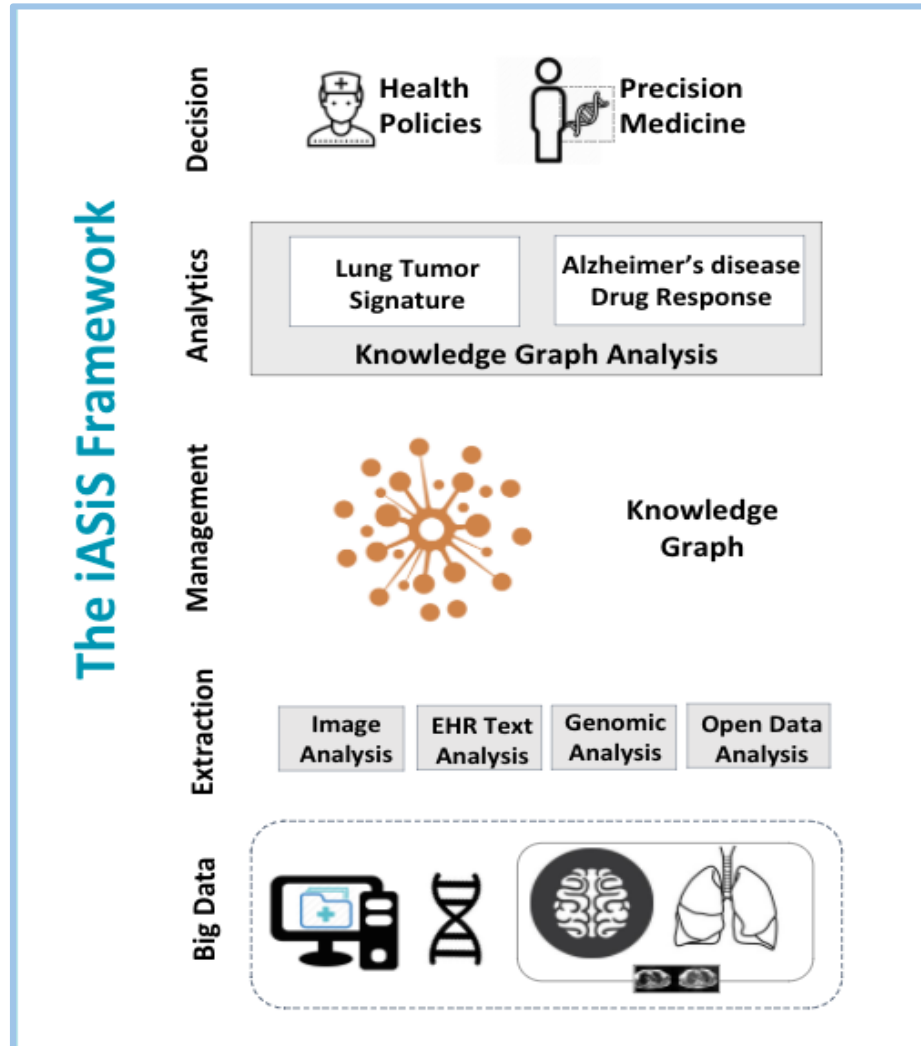
Motivation:

- Approximately, **10% of people** over 65 suffer from Alzheimer's
- **Heterogeneity** of the symptoms **impedes** accurate diagnosis and treatments

iASiS will enable

- **Discovery** of patterns **associated with** prognosis, outcomes and response to treatments
- **Association** of **medical** and **lifestyle** advice to Alzheimer's **risk** and stages of **severity**

The iASiS Framework



iASiS will provide a Big Data framework and data analytics tools for supporting:

- **precision medicine** and
- **public health policy making.**

During all the steps of **data management and analytics**, the **iASiS framework will enforce**

- **privacy** and
- **access control.**

How the Community can contribute?

Datasets:

Pharmacogenomics and Clinical datasets:

- Information about **Lung cancer** or **Alzheimer's** patients
- **Clinical record** data, **images** related to clinical records, and **genomic data**

Data Analytics Tools:

Data analytics tools able to

- **Run** on top of the the **iASiS** knowledge base and
- **Uncover unknown** patterns in patients with **Lung cancer** or **Alzheimer's** disease.

Partners involved

