Providing pharmaceutical companies, healthcare professionals and patients with an innovative semantic interoperability framework facilitating the efficient and homogenized access to distributed EHRs

**Vision**

To advance clinical practice and accelerate medical research, by providing pharmaceutical companies, healthcare professionals and patients with an innovative semantic interoperability framework facilitating the efficient and homogenized access to anonymized aggregated distributed Electronic Health Records (EHRs), while conforming to all legal and ethical issues.

**Creating and Accessing Anonymized Data Cubes**

Data (i.e. phenotypes, genotypes, and other) are extracted from the EHRs and formed into multiple data cubes so that only aggregated (and anonymized) data are available. Then noise is added on the aggregated data using perturbation. Only cells with values above a pre-specified threshold are stored. The data cubes are created in the data providers premises in a “closed world room”, and are then transferred to a server in the data providers site. The data cubes can be accessed by the Linked2Safety platform using a SPARQL endpoint.

**Data Analysis Space**

The data analysis space provides a number of algorithms for performing quality control, feature selection, data mining and single hypothesis testing on the data. It also allows the combination of these algorithms and the creation of workflows that can be applied on the data of interest.

**Concluding Remarks**

- Data cubes concept for anonymizing the data
- Galaxy based scientific workflow management system:
  1. User friendly
  2. Reuse and sharing of workflows
- The platform will be tested using the following usage scenarios:
  1. Subject selection for Phase III clinical trial
  2. Phase IV post authorization clinical trial
  3. Identification of relations between molecular fragments and specific adverse event types

**Partners**

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<tr>
<th>Country</th>
<th>Organization</th>
<th>Name</th>
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<tbody>
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<td>University of Cyprus</td>
<td>INTRASOFT International S.A. (Project Coordinator)</td>
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<td>UK</td>
<td>University of Manchester</td>
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