

# e-SmartBIMS. Novel components to enable smart interoperability and analytics in Biobanks

**Consortio:** Noray Bioinformatics; Ibermatica; VizzDAT; Karolinska Institutet

**Tecnología:** Administración Digital & Salud; Inteligencia Artificial

## Descripción general:

SmartBIMS develops novel software products that will enable interoperability and exploitation of the Biobank data. The main components are: an automation tool to codify medical texts to SNOMED-CT, an Application Program Interface (API) to facilitate Biobank Big Data management and sharing and mobile APPs to allow the standardized data collection and visualization. All of them will be integrated in a commercial platform called SmartBIMS that will give answer to current technological market needs.

In SmartBIMS project, the following new technological products will be generated:

- 1) An innovative Kit of automatic coding of medical texts to SNOMED-CT. Both a tool and a methodology will be developed to support the automated coding of texts written in natural language to SNOMED-CT. It will include a coding system that, based on NLP and machine learning techniques, automates the coding of texts in SNOMED-CT. It will also allow the correction of texts in real time to guide the introduction of the correct terminology to encode the information of the system. A Validation Panel will show the quality and viability of the tagged information, so that Biobanks can validate, modify, correct and influence the new future coding of the system. These functionalities will be implemented in a web service to be easily integrated into other systems.
- 2) An analysis API adapted to the facilities of the Biobanks that will provide them with Big Data capabilities to exploit all the data (clinical, research) associated with different types of biological samples. It will also allow providing new analysis services to customers and academic departments.

3) A mobile APP suite that will make easy the experimental & clinical data collection and its visualization in a standardized way.

4) A novel web product called SmartBIMS (Smart - Biobanks Information Management System) that will communicate with the previous components to enable automatic coding in SNOMED-CT thus allowing the harmonization of data and interoperability with other Biobanks, health systems and researchers, and will provide standardized data analytics capabilities. It will also allow closing the research cycle in such a way that all the data generated by a research study can be associated in a consistent way with the original samples, allowing the reuse of data and knowledge. The Biobank may offer this new information in its portfolio to researchers, who will avoid duplication of efforts, thus reducing costs and time.

**Programa:** Eurostars (CIIP-20202004)

**Duración:** 27 meses (2022 – 2022)

**Presupuesto global proyecto:** 421.780,00 €

**Presupuesto Grupo Ayesa:**



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## Role of Ayesa:

Ibermática is going to develop a new product that allows the automated coding of textual information associated with a sample of the biobank in SNOMED-CT coding. This product will be offered as software as a service, which will allow its use through web services. Its functionalities range from quality writing assistance (without typographical errors, inaccuracies, inconsistencies, etc.), to the correct coding of the text in SNOMED-CT, which will allow the exact coding to be returned or at least the closest. That is, it will be a new software tool for coding texts written in natural language to SnomedCT that can sell and license to customers.

The software proposed by Ibermática has a direct impact both in facilitating the process of coding the SNOMED-CT terms of the biobanks and in the future exploitation of the information. In addition, and after the relevant adaptations to the corpus of other medical processes this software can be applied to other fields / medical specialties

