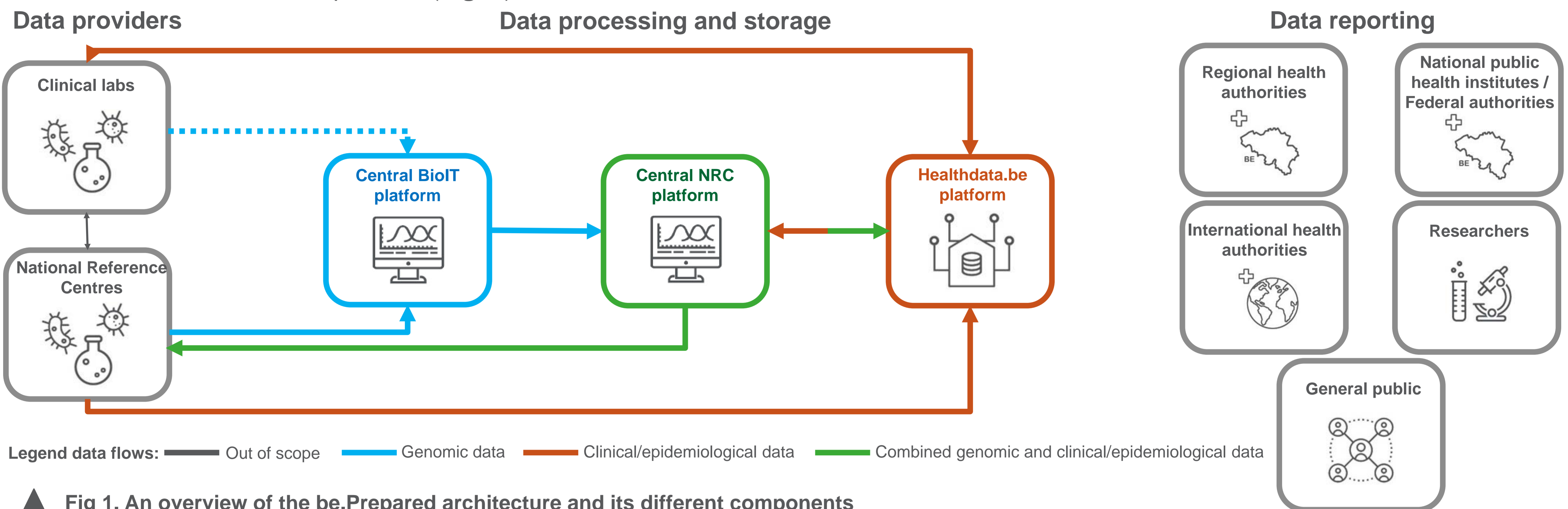


# be.Prepared to increase Belgian integration of health data as a way of strengthening preparedness for infectious diseases

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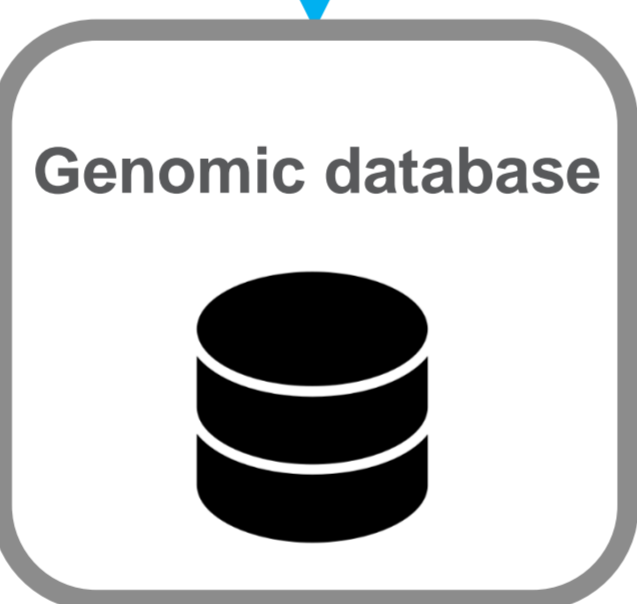
The **Belgian Preparedness Architecture for Infectious Diseases** (be.Prepared) is an overarching Belgian infrastructure that facilitates the integration of health data from different sources in order to strengthen preparedness for infectious diseases. The initial microbial study cases are: *Listeria*, *Mycobacterium tuberculosis*, *Neisseria meningitidis*, *Salmonella*, Influenza and SARS-CoV-2. Here, we present an overview of the components of the be.Prepared architecture: the central bioinformatics (BioIT) platform, the central National Reference Centre (NRC) platform and the healthdata.be platform (Fig. 1).



▲ Fig 1. An overview of the be.Prepared architecture and its different components

## Central BioIT platform

- Cloud-based (Azure), **fully-automated**, and isolated solution to process microbial isolate sequencing data into genomic indicators
- Using state-of-the-art **pathogen-specific bioinformatics pipelines**
- Facilitates **outbreak detection**
- Genomic indicators and clustering results are stored in a **genomic database** accessible by the NRC platform(s)

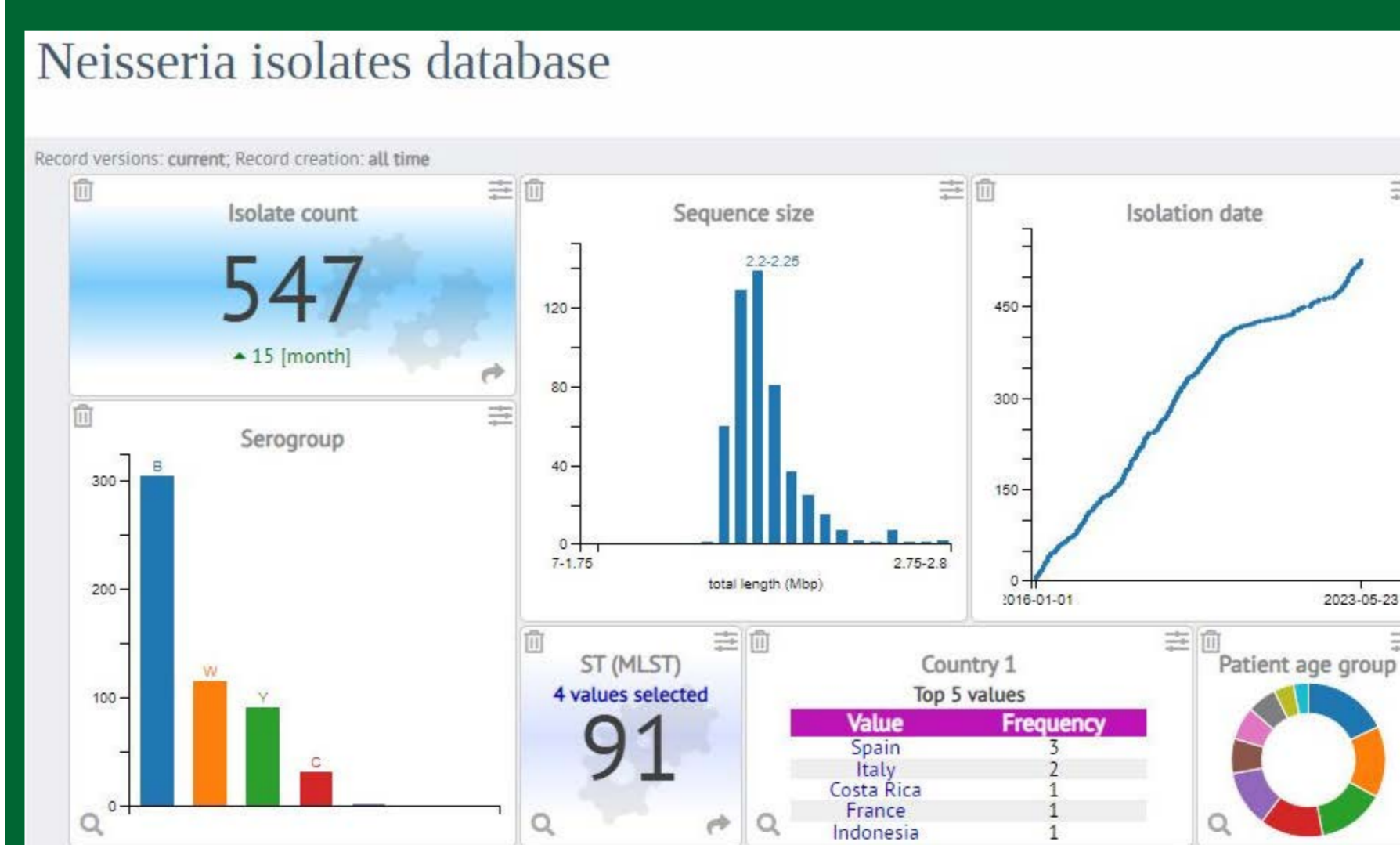


## Healthdata.be platform

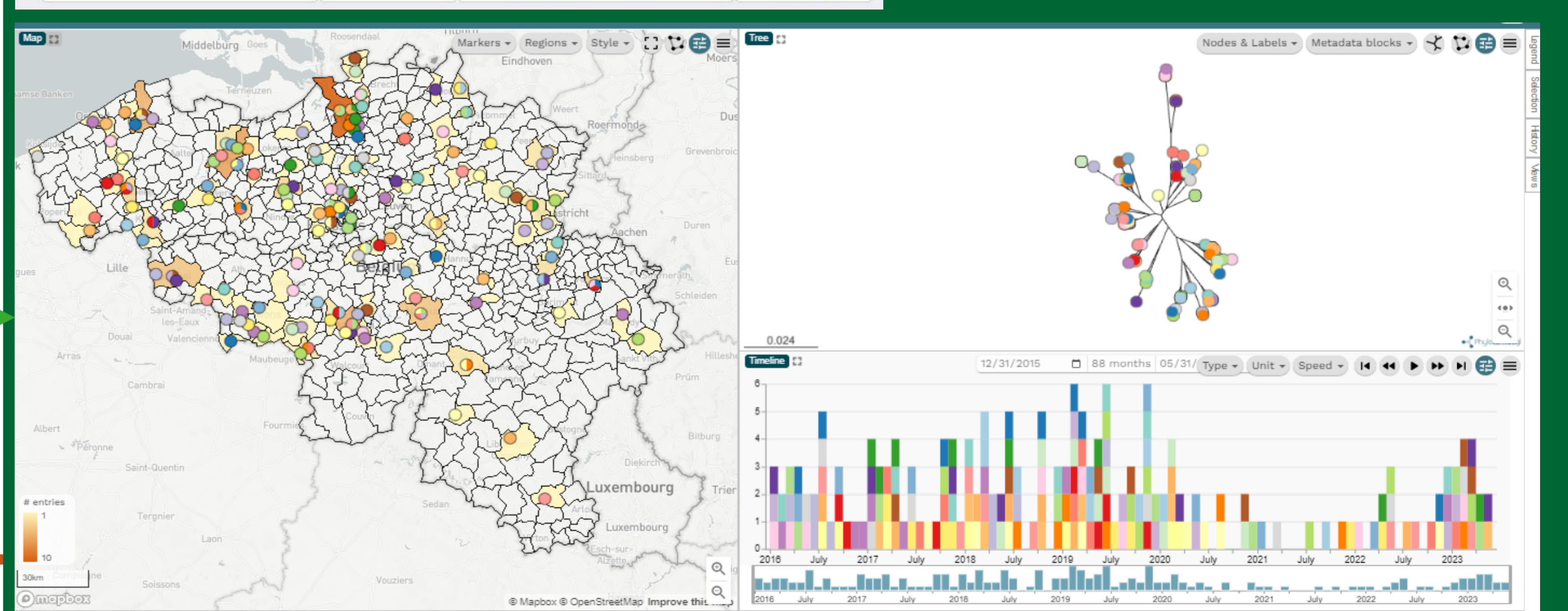
- **Pseudonymized** and centralised data management and analysis platform (HD-DWH)
- Clinical and epidemiological data **combined** with genomic indicator data.
- **Facilitated reporting** to various stakeholders at a national and international level.
- **Secured platform**

## Central NRC platform

- **Centralised** place where clinical/epidemiological data and genomic indicators are aggregated together
- Hosted in-house to ensure data **safety and confidentiality**
- A separate NRC platform for **each pathogen**
- User-friendly interface based on BIGSdb to support NRC scientists in **pathogen surveillance**



◀ Fig 2. BIGSdb dashboard Toolbox enabling detection of potential pathogen outbreaks using graphical overview of the data



▶ Fig 3. MicroReact visualisation Connected to an internal secure instance of MicroReact for spatial and temporal visualisation of infections

