INB/ELIXIR-ES as part of the Research Infrastructures ecosystem
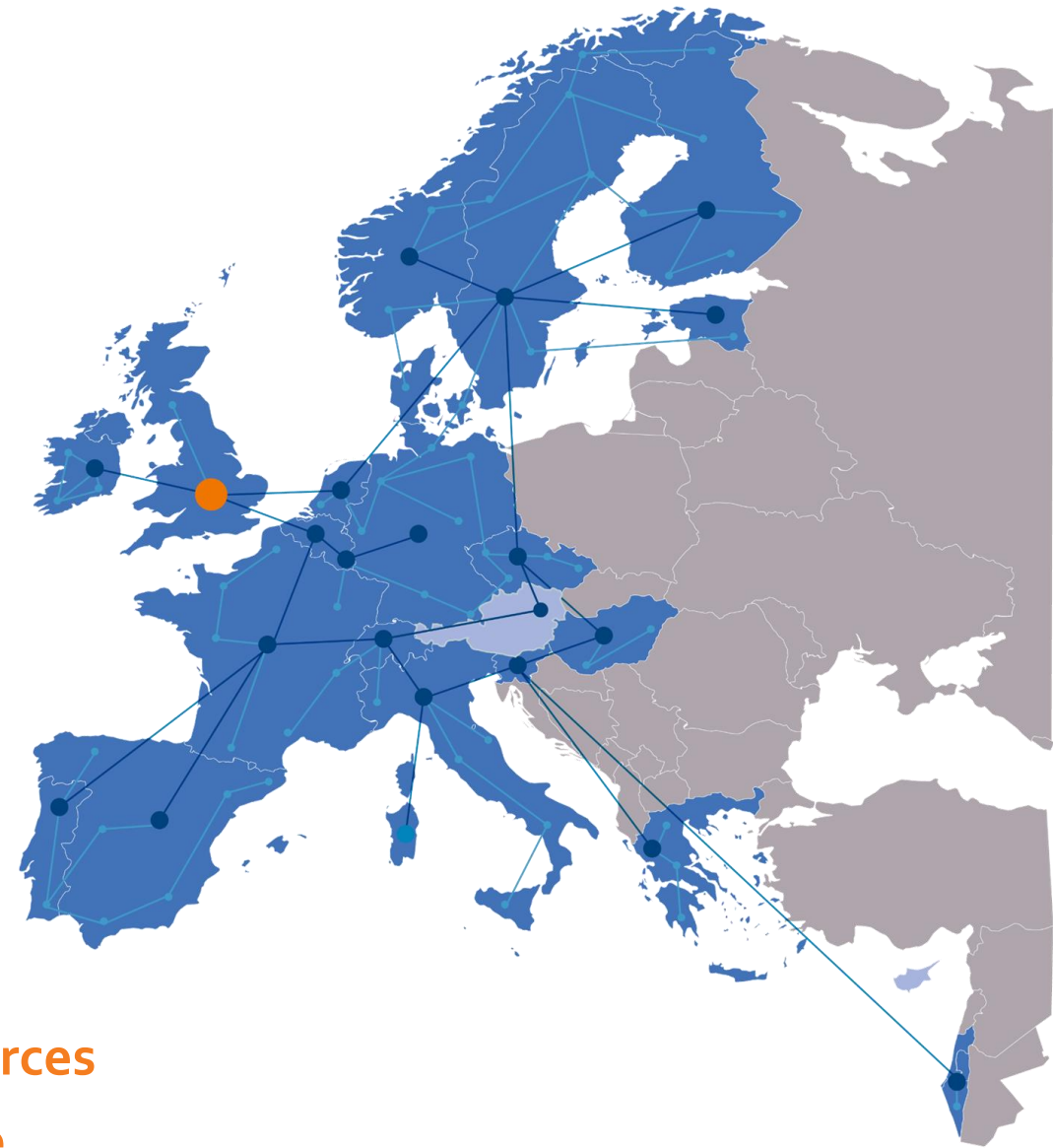
Salvador Capella-Gutierrez, PhD (BSC-CNS)

ELIXIR Europe

ELIXIR is an intergovernmental organisation that brings together life science resources such as

- databases
- software tools
- training materials
- interoperability resources
- compute resources
- data management support

The goal of ELIXIR is to **coordinate bioinformatics resources from across Europe so they form a single infrastructure**.

ELIXIR - Platforms and Communities

ELIXIR coordinates activities through at least one of the five 'areas of activity' called Platforms:

➔ Compute

➔ Data

➔ Interoperability

➔ Tools

➔ Training

These Platforms are driven by 13 ELIXIR Communities which develop standards, services, and training within their life science domains.

This structure is completed by different Focus Groups including the **Cancer Research** one.

ELIXIR - How national nodes contribute to the ecosystem

➔ ELIXIR provides publicly available and free of charge services and resources through its National nodes (and the associated organizations to them), which are used by the entire Life Sciences community.

➔ Following this model, it is possible to utilize some of those services as part of the national activities, e.g. in IMPaCT-Data, and also bring in software developed and maintained by other ELIXIR nodes.

➔ ELIXIR nodes contribute to the overarching ELIXIR objectives with their service delivery plans, with in-kind contributions leading different structures, e.g. platforms, communities, and through commission services to connect existing services, coordinate actions across nodes and explore the use of new technologies.

➔ The Spanish National Bioinformatics Institute (INB) is the ELIXIR node in Spain, which was ratified in 2017.

INB/ELIXIR-ES: Activities in 2022

➔ Establishment of the **Spanish Federated EGA node** (FEGA-es).

➔ **Leadership** in the Beacon and its associated network, and the release and adoption of the Beacon V2, including text-mining extraction and partial manual curation of results by DisGeNET, according to the open-source discovery protocol GA4GH Beacon API.

➔ Maintained the **contribution to IMPaCT, including coordinating IMPaCT-Data**, releasing two demos on how to build a federated ecosystem enabling distributed analysis via Galaxy and using GA4GH Passports and Visas technologies.

➔ **European Genomic Data Infrastructure (GDI):** CNAG-CRG Spanish representative with ISCIII, BSC leads Pillar III.

➔ Maintained the **TransBioNet collaborations** with hCNV community and CIBERER, providing connections with the Genomics pillar (IMPaCT-Genómica).

➔ Contribution to **establishing the Gaia-X Spanish Hub** and co-leadership of the Technology area within the **Health working group**.

➔ **Bioinfo4Women initiative** continued the gender bias projects in the BioHackathon, deepened collaboration with de.NBI WiDS initiative, and launched the **ELEAD leadership pilot** within ELIXIR.

INB/ELIXIR-ES: Activities in 2022

➔ Organised several events such as:

- **European Conference on Computational Biology - ECCB2022** including an **outreach event to connect with the Latin American bioinformatics communities**

- The collocated **ELIXIR Innovation and SME Forum: Data-driven innovation in healthcare diagnostics**

- **Federated EGA Celebration Symposium** and presentation of the **inaugural FEGA nodes** within the 10th GA4GH plenary in Barcelona.

Alloza E, INB/ELIXIR-ES members, Valencia A and Capella-Gutierrez S. **The Spanish National Bioinformatics Institute (INB/ELIXIR-ES). Renovating its portfolio in its 20th anniversary.** *F1000Research* 2023, **12**(ELIXIR):579 (poster) (doi: 10.7490/f1000research.1119435.1)

INB/ELIXIR-ES: A new service delivery plan

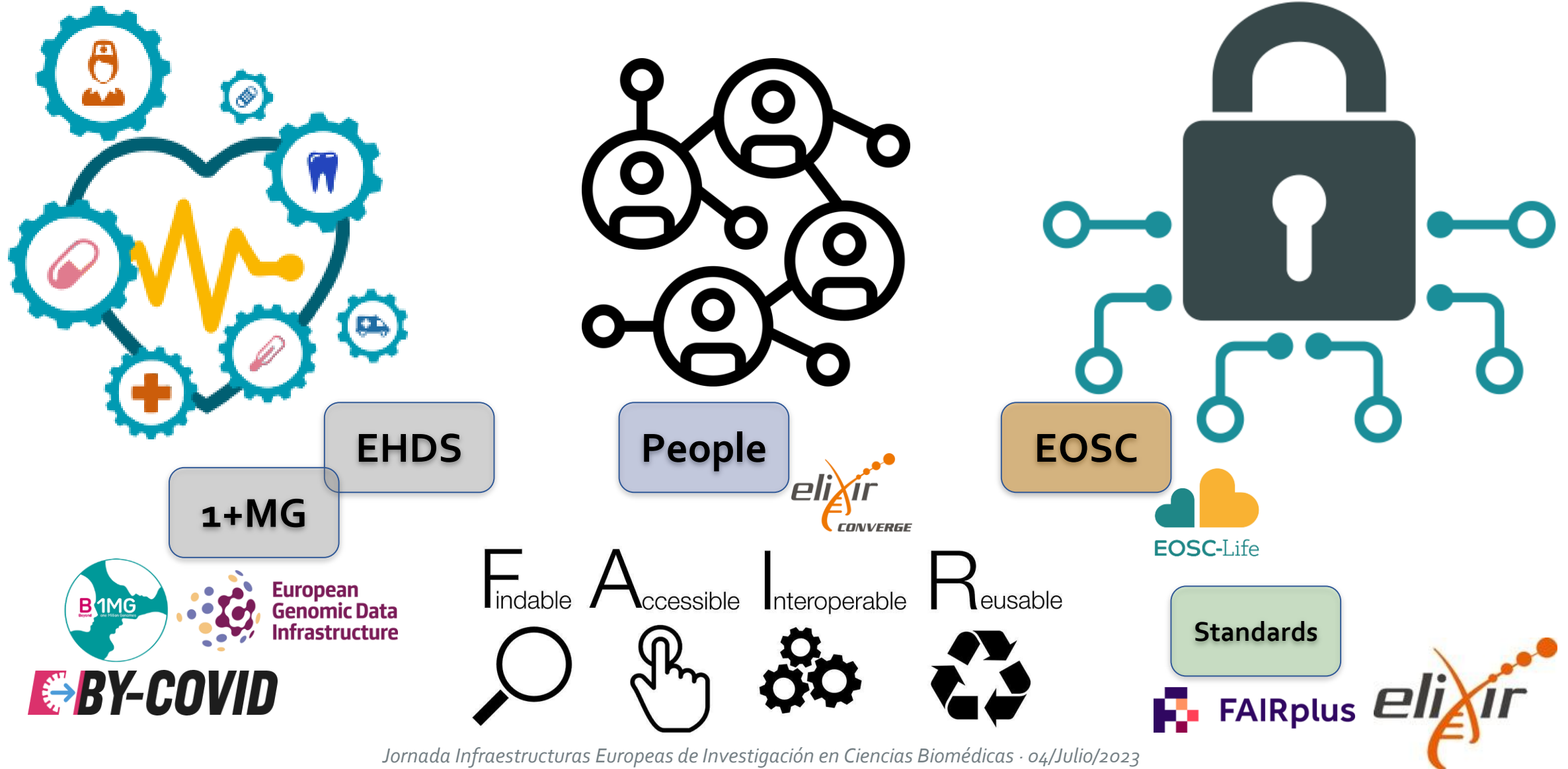|							
3Did | 3D interacting domains *IRB*	Beyondcell *CNIO*	DREIMT *CNIO*	FAIR Cookbook *SAS, BSC*	Hipathia suite *FPS*	**dSysMap** | Mapping human disease-mutations at systemic level *IRB*	Nextflow *CRG*	**rbbt** | Ruby bioinformatics toolkit *BSC*
3D BIONOTES-WS and COVID19 Structural Hub *CNB (CSIC)* Recommended Interoperability Resources	**BioBB** | BioExcel Building Blocks *IRB, BSC*	EGA Beacon *CRG*	FAIRTracks Validation Service *BSC* Recommended Interoperability Resources	**FlexPortal** | INB Integrated platform for macromolecular flexibility *IRB, BSC*	Master Of Pores *CRG*	PanDrugs *CNIO*	SQANTI *I2SysBio (CSIC)*
PMut | Annotations of Pathological Mutations on Proteins *BSC, IRB*	BSC Text Mining Unit tools *BSC*	eggNOG *CBGP (CSIC)*	footprintDB *EEAD (CSIC)*	Interactome3D *IRB*	**MBROLE** | Metabolites Biological Role *CNB (CSIC)*	PhylomeDB *BSC, IRB*	Sqtlseeker2-nf *CRG*
APID Interactomes *IBMCC (CSIC)*	CANTEMIST *BSC*	ETE Toolkit *CBGP (CSIC)*	**GCAT** | Genomes for Life *IGTP*	IntOGen *IRB*	MetaPhors *BSC, IRB*	Redundans *BSC, IRB*	T-Coffee *CRG*
APPRIS *CNIO*	**CSVS** | Collaborative Spanish Variant Server *FPS*	**EGA** | European Genome-phenome Archive *CRG* Core Data Resource	GET_HOMOLOGUES *EEAD (CSIC)*	manta/mvgwas-nf *CRG*	OpenEBench *BSC*	RSAT Plants *EEAD (CSIC)*	**WfExS-backend** | Workflow Execution Service *BSC* Recommended Interoperability Resources

● Platform Collection ● Web-Service ○ Database ● Tool ● Workflow Data

An **ELIXIR perspective** on key concepts for personalized medicine

EHDS

1+MG

People

eliXir
CONVERGE

EOSC

EOSC-Life

Standards

B1MG

European Genomic Data Infrastructure

BY-COVID

F indable   A ccessible   I nteroperable   R eusable

FAIRplus   eliXir

https://inb-elixir.es   http://elixir-europe.org