EBRAINS

# EBRAINS AISBL

## Annual Report 2022-23

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# Message from the Chair of the EBRAINS Board of Directors

The past year has seen an impressive expansion in the Membership of our EBRAINS AISBL. It now boasts 10 Full Members, with the addition of Fonden Teknologirådet (representing Denmark) and Stichting Radboud Universiteit (representing the Netherlands), and has no less than 47 Associate Members. This expansion confirms the strong support for EBRAINS, increases the range of expertise that the Association can draw on and broadens its geographical coverage: today, EBRAINS has members in Austria, Belgium, Denmark, France, Germany, Greece, Italy, Ireland, Lithuania, the Netherlands, Norway, Portugal, Spain, Sweden and Switzerland. The breadth of EBRAINS' appeal is underlined by the fact that nearly half the overall membership is comprised of institutions that have not been part of the Human Brain Project's core project.

The Association has also taken some important organisational steps that strengthen the organisation's governance, notably the implementation of the National Node Board (NNB), representing our nine emerging National Nodes, with Prof. Philippe VERNIER of France's CEA as Chair and the creation of two advisory committees. The EBRAINS Science and Technology Committee (ESTC), chaired by Prof. Renaud JOLIVET of Universiteit Maastricht in the Netherlands, held its first in-person meeting at the end of 2022. Its mandate is to provide EBRAINS with sound advice regarding the scientific and technical evolution of our research infrastructure. A more recent addition is the EBRAINS Ethics and Society Committee (EESC), which will help us to live up to the high standards set by the Human Brain Project in those areas.

The EBRAINS AISBL has also been successful with many Horizon Europe Projects in the past year. It now takes part in six funded Projects, including the EBRAINS PREP project that it coordinates. The latter project is critical for preparing the sustainable future of the EBRAINS RI. EBRAINS has also taken part in seven project proposals in the round of calls closing in March and April.

Our financial planning is not yet assured: EBRAINS still needs to "bridge the gap" between the end of the HBP and the start of the ESFRI Operation Phase. Discussions on this are ongoing and will be concluded shortly. In the meantime, the National Nodes of EBRAINS are taking a greater responsibility for the operation of the RI services, while the Central Hub is being streamlined. This process needs to be planned very carefully, so we can retain a core of the expertise and capabilities needed to plan and implement the transition of our RI, and allow it to commence its Operation Phase on a new organisational and funding basis. I am confident that this process will be concluded successfully in the coming months.

**Professor André SYROTA, MD, PhD**

Chair, Board of Directors, EBRAINS AISBL
Chair, Stakeholder Board, the Human Brain Project
Advisor, Commissariat à l'énergie atomique et aux énergies alternatives
Former Chairman and CEO, INSERM
Professor Emeritus, Université de Paris Sud

# Message from the Chief Executive Officer

Brain research is in a period of unprecedented growth and EBRAINS has been part and parcel of it, as its primary enabling Research Infrastructure. Although we are still in what ESFRI calls the Preparation Phase of an RI, we already offer an extensive range of services and serve a community of thousands of users around the world.

In the past year, we have prioritised developing the system of EBRAINS National Nodes, following the earlier emergence of the Central Hub. In this approach, we are not reinventing the wheel; rather, we are applying tested methods used by many other Research Infrastructures. The aim is to provide integrated cross-border services, which create a positive gain over the sum of what National Nodes can provide individually, while anchoring this collective effort in national research communities and so making a stronger case for national funding. I am delighted that we now have the EBRAINS National Node Board (NNB) in place with Prof. Philippe VERNIER as its Chair. We are running a dedicated project, called EBRAINS PREP, to build the system of EBRAINS National Nodes and make sure it has a sound institutional and legal architecture.

EBRAINS is about helping to advance science, and I am pleased that our work in this field has been led by Prof. Viktor JIRSA, appointed as the Chief Science Officer of EBRAINS in June 2022 and supported by the EBRAINS Science and Technology Committee (ESTC), which started later that year. Our Science Vision (https://www.ebrains.eu/page/science-vision) advocates a broad EBRAINS Knowledge Space that provides for the integration of data and models, complemented by an EBRAINS Knowledge Loop that enables the inclusion of simulated, virtual data and the drawing of insights through different inference tools. The ESTC, under the leadership of its newly appointed Chair, Prof. Renaud JOLIVET, is working intensively on the EBRAINS 10-year scientific roadmap, projecting future developments for which the Research Infrastructure will be particularly impactful. We now also have in place the EBRAINS Ethics and Society Committee (EESC), which is central to the EBRAINS vision.

I am proud that, as well as serving many individual researchers by providing open access to its RI services, EBRAINS has also created a strong portfolio of projects that it contributes to. These focus on some of the most important areas of brain research and brain medicine. For example, EBRAINS is building a distributed research platform for modelling and simulating complex neurobiological phenomena of human brain function and dysfunction in a data protection compliant environment (eBRAIN-Health project) and it is providing the gateway to the emerging system for Testing and Experimentation Facilities in AI solutions for health (TEF-Health project). We are also a member of the pilot project of the European Health Data Space, an important initiative that will help us to overcome existing barriers to accessibility of brain health data.

The enormous growth of our membership base is a testimony to the strong resonance of EBRAINS and the promise it brings to the community. Being able to pull together unique expertise from around Europe and beyond is one of our strongest assets. No Research Infrastructure has emerged without its challenges. This is part of everyone's formative experience. We are drawing our own lessons from everything the past year has brought, helping us to improve on excellence and the value we provide to the community. It will make us stronger and more relevant in enabling scientific breakthroughs.

**Paweł ŚWIEBODA**

Chief Executive Officer, EBRAINS AISBL
Director General, the Human Brain Project

# Message from the Chair of the EBRAINS National Node Board

Neuroscience research is a vivid and fast-evolving field of research, certainly the largest in life and health sciences. It is also a very diverse one, from experimental, to clinical and computational neuroscience, with large overlaps with cognitive science, computer science, robotics and information science. For several years now, neuroscience has entered in the era of “complexity”. Investigating a complex system such as the brain and its pathologies requires a multidisciplinary, multiscale approach with cumbersome and costly methods.

This diversity of approaches, the huge amount of data they generate, the immense value of these data for both a better understanding of brain functions and its application to the pathophysiology, diagnosis, treatment and prevention of brain diseases makes coordination, mutualisation and sharing of data a major challenge in its own right. Neuroscientists now understand that a new game-changer is mandatory for research practice. Such a vision has been stimulated by the Human Brain Project (HBP), which has generated many useful tools and data.

EBRAINS is the proud legacy of the HBP and its mission is to become this necessary game-changer for neuroscience. In addition, the outcome of the only European Flagship Project in life science must now be shared with and used by a much larger community. For this reason, EBRAINS has been structured and organised by combining two complementary dynamics, one bottom-up and the other top-down. Here, the National Nodes come into play, as the bottom-up component of the infrastructure, while the Management Board provides top-down input.

It is at the national level that tools and services are now defined and selected, on criteria of excellence and usefulness for the whole Neuroscience research community. The National nodes are committed to providing and sustaining mature Services. They must also inform, animate and train more and more users from academic research, of course, but also from hospitals and industry, another important challenge for the field. Each National Node is also free to develop services and actions on its own agenda, to accommodate the specificities and peculiarities of each national community. The National Nodes form the vibrant, living body components of the research infrastructure (RI).

But these national operations and actions require coordination and proper alignment with the general strategy of the RI for the smooth development of services and their integration and interoperability. This is what the National Node Board (NNB) is all about. The NNB is thus working for a common vision and definition of the RI across national communities. It will also help to coordinate transnational services, because many of those are not developed and implemented by a single country. At present, this the case for most EBRAINS services, if not all of them.

On a more short-term basis, the NNB will assist the Management Board in coordinating the National Node Plans in the context of the EBRAINS-PREP project, which should result in an organisational framework for an RI capable of standing on its own two feet by 2025. The NNB will also share the vision and strategy coming from the national communities with the Management Board and the EBRAINS Science and Technology Committee, the latter’s role being essentially advisory and prospective. EBRAINS now has the governance and advisory bodies it needs to operate in a balanced and dynamic way.

The National Node Board was appointed at the beginning of 2023 and its first meeting was held 11 Apr. The NNB will continue meeting on a monthly basis, and more frequently if needed. I would like to acknowledge the commitment and involvement of the various national communities in the development of the RI. The NNB and the national research teams it represents are convinced of the importance of developing a digital RI such as EBRAINS. The spirit of the National Node leaders is very constructive and each Node is eager to contribute its own brick in the process of building the EBRAINS edifice.

Trygve LEERGARDT, the other NNB members and I are proud and happy to serve such an inspiring project driven by a lively and motivated community of researchers all over Europe.

**Philippe VERNIER**
Chair, EBRAINS National Node Board
Directeur, Institut des sciences du vivant Frédéric Joliot
Commissariat à l’énergie atomique et aux énergies alternatives

# Strategic Priorities & Objectives

Early in 2021, the EBRAINS Management Board (MB) started to define a strategic planning and management framework for EBRAINS, using the Balanced Scorecard approach[1], with separate scorecards for: **Finance**, **Users/Stakeholders**, **Internal Processes** and **Organisational Capacity**.

The high-level elements of the framework are shown in the table below. The Strategic Priorities show where EBRAINS wants to go and the Strategic Objectives set out the main things that we have to do to get there. The MB has defined Key Results for each Strategic Objective and defined indicators and targets to help it manage implementation and measure progress.

The framework was validated with AISBL staff and the Board of Directors (BoD) Sep-Oct 2021. Their recommendations were incorporated in the current version shown below, which was approved by the BoD on 2 Feb 2022. Each scorecard is "owned" by an MB member who reports progress to the MB each quarter. The process is supported by the Chief Programme Officer and the EBRAINS Programme Office (EPO) team.

| GO-TO INFRASTRUCTURE | FINANCIAL SUSTAINABILITY | HBP SUCCESS |
|---|---|---|
| **EBRAINS STRATEGIC PRIORITIES** | | |
| EBRAINS should be the Go-To Infrastructure for brain researchers, meeting their research needs and demands. | EBRAINS should be financially sustainable with diverse sources of income. | EBRAINS will coordinate the HBP to ensure its success as an EU Flagship with lasting impact on brain research. |
| **EBRAINS STRATEGIC OBJECTIVES** | | |
| • Ensure top-level impact of the Research Infrastructure.<br>• Increase value of products for users and product/market fit.<br>• Improve user experience<br>• Increase product offering | • Secure funding for Central Hub operations<br>• Secure funding for service and support provision, including basic infrastructure<br>• Secure diversified sources of funding | • Improve scope of scientific engagement<br>• Improve communication of HBP achievements |
| • Increase number of National Nodes and AISBL members | | |
| GO-TO INFRASTRUCTURE | FINANCIAL SUSTAINABILITY | HBP SUCCESS |

The progress made towards achieving the Strategic Objectives and the related Key Results was presented to the BoD on 30 November 2022 by the Chief Programme Officer, along with proposed changes to the Key Results. The changes, which involved reducing the number of Key Results and rewording certain targets, were approved by the BoD, and are reflected in the table above.

As of the end of Q1 2023, 11 out of 27 Key Results and 3 out of 15 Strategic Objectives were achieved. The targets were set for the end of 2023 and several Strategic Objectives are on track to be achieved by this time.

[1] https://hbr.org/1992/01/the-balanced-scorecard-measures-that-drive-performance-2

# EBRAINS: a distributed research infrastructure on the ESFRI Roadmap

EBRAINS plans to make tools and services to support neuroscience research available via 11 emerging National Nodes, coordinated by a Central Hub, the EBRAINS AISBL, located in Belgium and Switzerland. The number of Nodes will continue to grow and EBRAINS is already in discussion with a number of countries to translate their interest into Node building.

# Organisational Framework

As a distributed RI on the European Strategy Forum on Research Infrastructures (ESFRI) Roadmap, the EBRAINS RI is being built as a network of **National Nodes**, which are the primary suppliers of user-facing tools and services. Node activities are coordinated by a **Central Hub**, the EBRAINS AISBL. With the advent of the EBRAINS Preparation Phase (a key formal ESFRI-defined stage in the development of an RI), the initial set of EBRAINS National Nodes is starting to take shape and additional Nodes are under consideration.

## The Central Hub

The Central Hub (the EBRAINS AISBL), is responsible for:

- Coordinating the National Nodes.
- Coordinating and managing the operation of RI services and facilities provided by National Nodes and by the Central Hub, ensuring that agreed quality standards are adhered to.
- Coordinating and managing access to the RI services provided by National Nodes and the Central Hub.
- Leading the collective effort by all EBRAINS Members to promote the RI.
- Managing interactions with other relevant RIs and brain initiatives in Europe and globally.
- Defining the collective EBRAINS strategy for securing government and private funding, to maintain, update and strengthen the RI service offering provided by National Nodes and Central Hub.
- Identifying and monitoring measurable Key Performance Indicators, addressing the excellence of scientific services, the sustainability of the RI as a whole and the individual services it offers.
- Supporting the RI governance structure, helping it to function effectively and coordinating the implementation of its decisions by all Members.

## National Nodes

A National Node is the part of the EBRAINS RI that is implemented in one country by one EBRAINS Member or, preferably, a group of EBRAINS Members, based in that country. Each Node Partner must be a legal entity (university, research institute, company or NGO) and be a Full or Associate Member of the AISBL. The Node Partners are responsible for providing a defined set of user-facing services, within the framework of the EBRAINS Strategy. A National Node is also responsible for developing the EBRAINS community within its country. A National Node must offer at least one defined EBRAINS RI service and provide supporting services (events, user and community support, and industry exploitation). A National Node may also provide base infrastructure services and/or facility-based services. Each National Node is led by a **Lead Partner**, responsible for coordinating, organising and representing the Node. In the EBRAINS PREP project, each Lead Partner is responsible for preparing a viable **Node Plan** for its Node and for obtaining all the required signatures for the **National Node Agreement**. Within the frame of the EBRAINS PREP project, the Lead Partner is expected to:

- Define the organisation of its Node.
- Define the strategy of its Node (with the other Node Partners).
- Ensure the flow of information between the Central Hub and the Node Partners.
- Organise EBRAINS community activities to increase community support and the RI user base.
- Interact with its national government to obtain its support and national funding for EBRAINS.
- Apply for its Node to be on its country's national RI roadmap.

Where a Node is implemented by more than one Partner, a National Node consortium agreement between the Partners should specify clearly how responsibilities for the Node, its services and its operations, are distributed between the Partners. The Lead Partner appoints a named individual, the **Node Leader**, to lead and manage the Node, supported by a **Node Scientific Coordinator** and a **Node Manager**.

Each National Node is responsible for organising and funding itself to deliver the service(s) that it has committed to provide, in line with the EBRAINS Strategy, its Node Plan, its National Node Agreement, its Service Agreements and other quality requirements and standards, which will be managed centrally.

# Legal framework

The EBRAINS AISBL is an international non-profit association based in Belgium and is the current legal form of the EBRAIN RI. The **AISBL Statutes** contain the basic rules, such as objectives, membership, governance decision-making, accession and dissolution, and state the rights and obligations of all parties involved in the operation of the association, such as the members of the General Assembly and the BoD. The **AISBL By-laws** specify details on meetings, voting, management team responsibilities, legal and financial powers, etc.

The statutes allow for two types of **Membership**. One is **Full** (currently limited to one per country) and the other is **Associate**. Membership details are set out in the AISBL Statutes and By-Laws, and are provided to all Members as part of the process to become a Member. Each Member nominates an individual to represent it in the Association. All Node Partners or other entities providing services through the EBRAINS RI must be either Full or Associate Members. It is strongly recommended that the Lead Partner of a Node be a Full Member of the Association and so be able to vote on in the EBRAINS GA on important RI decisions.

A National Node is constituted via a **National Node Agreement** which defines the relationship between the Node Partners and the EBRAINS AISBL. This agreement, which will be similar for each National Node, will define the rights and obligations of the AISBL and the National Node consortium.

**Node Service Agreements** will be signed directly between the EBRAINS AISBL and each Service Provider (Node Partner) that offers an EBRAINS RI Service. These service agreements will define the rights and obligations of both parties to guarantee service delivery.

# Funding framework

Today, EBRAINS relies primarily on EU funding, mostly through the HBP SGA3 grant, supplemented to a limited extent by AISBL membership fees, to cover the costs of running its Central Hub and offering RI services. In the future, the HBP grant may be complemented by additional EU funding to help the transition of the EBRAINS RI from the HBP environment to a post-HBP one.

The future sustainable, diversified funding model that EBRAINS will need to put in place as part of this transition will give a much more prominent place to national funding, supplemented by other sources, and a much-reduced role for EU funding. Successful applications by National Nodes to have the services they offer included in their respective national infrastructure roadmaps (and hence funding plans) will be a critical element for implementing this transition. This process will be closely monitored and supported by the EBRAINS Central Hub.

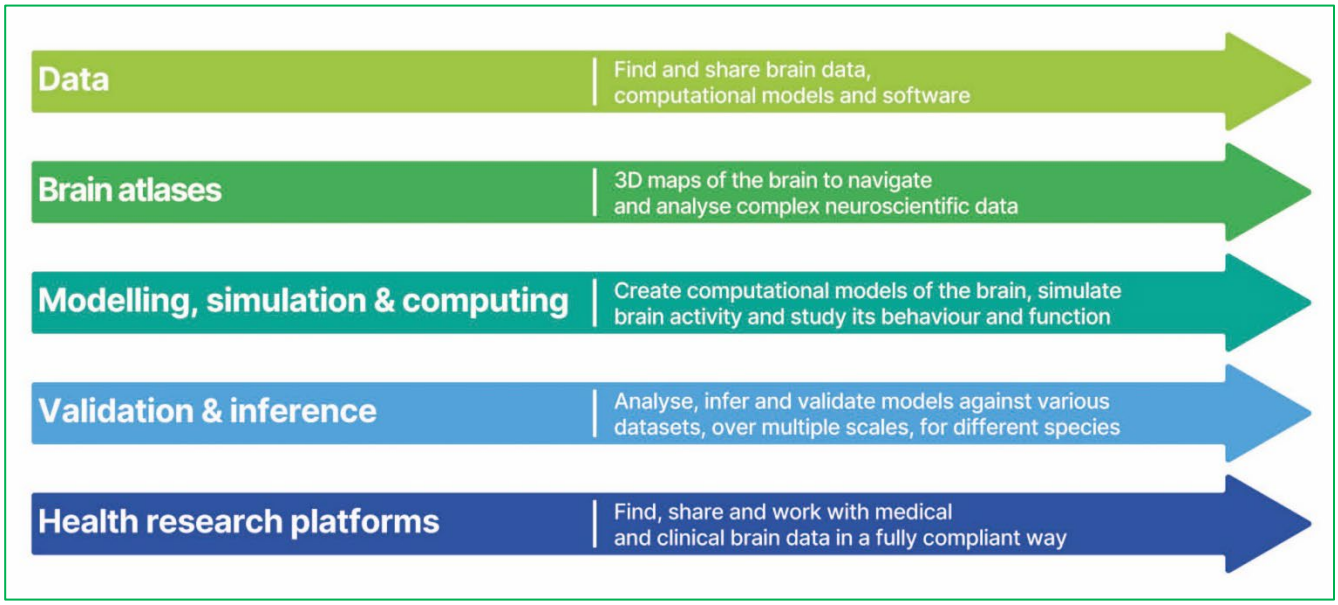
# Future evolution

As part of the “EBRAINS PREP” Horizon Europe Project, EBRAINS will review the legal forms used by ESFRI Landmark RIs (mature, operational RIs with national funding) and decide which one EBRAINS will have in place for its Operation Phase. A total of 25 RIs have adopted the European Research Infrastructure Consortium (ERIC) format, and the ESFRI Final Report on EBRAINS’ successful proposal for inclusion as a project in the ESFRI Roadmap 2021 Roadmap recommended that EBRAINS “Consider using ERIC as the final legal entity".


EBRAINS CEO Paweł ŚWIEBODA presenting to the World Health Summit in Berlin, 17 Oct 2022.


The first “in-person” meeting of the EBRAINS National Nodes took place in Brussels on 1 Feb 2022.

## EBRAINS AISBL Research Infrastructure Service Categories




EBRAINS RI supporting Science: The tools and capabilities offered by EBRAINS to support neuroscience research are grouped in five thematic Service Categories.

# EBRAINS AISBL Membership

The EBRAINS AISBL has 10 Full Members and 47 Associate Members, as of 1 Jun 2023.

| # | Accession | FULL MEMBERS | Country |
|---|---|---|---|
| 1 | 23 Aug 2019 | Commissariat à l'énergie atomique et aux énergies alternatives | FR |
| 2 | 23 Aug 2019 | Forschungszentrum Jülich | DE |
| 3 | 23 Aug 2019 | Universitetet i Oslo | NO |
| 4 | 23 Aug 2019 | Universidad Politécnica de Madrid | ES |
| 5 | 23 Aug 2019 | Kungliga Tekniska Hoegskolan | SE |
| 6 | 23 Aug 2019 | École Polytechnique Fédérale de Lausanne | CH |
| 7 | 27 Feb 2020 | Consiglio Nazionale delle Ricerche | IT |
| 8 | 1 Jul 2022 | Universiteit Hasselt | BE |
| 9 | 1 Sep 2022 | Fonden Teknologirådet | DK |
| 10 | 1 Sep 2022 | Stichting Radboud Universiteit | NL |

| # | Accession | ASSOCIATE MEMBERS | Country |
|---|---|---|---|
| 1 | 1 Jun 2021 | Charité Universitätsmedizin Berlin | DE |
| 2 | 1 Jan 2022 | Université d'Aix Marseille | FR |
| 3 | 1 Feb 2022 | Bit&Brain Technologies S.L. | ES |
| 4 | 1 Feb 2022 | Consorci Institut d'investigacions Biomèdiques August Pi i Sunyer | ES |
| 5 | 1 Feb 2022 | Fundación Sant Joan de Déu | ES |
| 6 | 1 Feb 2022 | Quirónsalud | ES |
| 7 | 1 Feb 2022 | Universidad Rey Juan Carlos | ES |
| 8 | 1 Apr 2022 | Fundació Institut de Bioenginyeria de Catalunya | ES |
| 9 | 1 May 2022 | Zentralinstitut für Seelische Gesundheit | DE |
| 10 | 1 May 2022 | Université Grenoble Alpes | FR |
| 11 | 3 May 2022 | Karolinska Institutet | SE |
| 12 | 1 Jul 2022 | Vrije Universiteit Brussel | BE |
| 13 | 1 Jul 2022 | Umeå Universitet. | SE |
| 14 | 1 Jul 2022 | Fundación de Investigación HM Hospitales | ES |
| 15 | 1 Jul 2022 | Universität Heidelberg | DE |
| 16 | 1 Jul 2022 | Universiteit Antwerpen | BE |
| 17 | 1 Jul 2022 | Heidelberg Institute for Theoretical Studies | DE |
| 18 | 7 Jul 2022 | Katholieke Universiteit Leuven | BE |
| 19 | 1 Aug 2022 | Université de Bordeaux | FR |
| 20 | 1 Aug 2022 | Institut du cerveau et de la moelle épinière | FR |
| 21 | 1 Aug 2022 | Institut national de la santé et de la recherche médicale | FR |
| 22 | 16 Aug 2022 | Mittuniversitetet | SE |
| 23 | 1 Sep 2022 | Lietuvos sveikatos mokslų universitetas | LT |
| 24 | 1 Sep 2022 | Universiteit Gent | BE |
| 25 | 15 Oct 2022 | Università degli studi di Modena e Reggio | IT |
| 26 | 1 Jan 2023 | Fonds de Dotation Clinatec | FR |
| 27 | 1 Jan 2023 | Universidad de Granada | ES |
| 28 | 1 Jan 2023 | European Brain Research Institute (EBRI) "Rita Levi-Montalcini" | IT |
| 29 | 1 Jan 2023 | Athena Research & Innovation Center | GR |
| 30 | 1 Jan 2023 | Trinity College Dublin | IE |
| 31 | 1 Jan 2023 | CINECA Consorzio Interuniversitario | IT |
| 32 | 1 Jan 2023 | Stockholms Universitet | SE |
| 33 | 6 Jan 2023 | IRCCS SYNLAB SDN S.p.A. | IT |
| 34 | 6 Jan 2023 | Université Catholique de Louvain | BE |
| 35 | 6 Jan 2023 | Sorbonne Université | FR |
| 36 | 6 Jan 2023 | Université de Mons | BE |

| # | Accession | ASSOCIATE MEMBERS | Country |
|---|---|---|---|
| 37 | 9 Jan 2023 | Technische Universiteit Delft | NL |
| 38 | 23 Jan 2023 | Université Libre de Bruxelles | BE |
| 39 | 1 Feb 2023 | Agencia Estatal Consejo Superior de Investigaciones Cientificas (CSIC) | ES |
| 40 | 16 Feb 2023 | Bernstein Network Computational Neuroscience | DE |
| 41 | 17 Feb 2023 | Scuola Internazionale Superiore di Studi Avanzati (SISSA) | IT |
| 42 | 17 Feb 2023 | Université de Liege | BE |
| 43 | 23 Mar 2023 | Instituto de Engenharia de Sistemas e Computadores, Tecnologia e Ciência | PT |
| 44 | 1 Apr 2023 | Centre national de la recherche scientifique | FR |
| 45 | 5 Apr 2023 | Medizinische Universität Innsbruck | AU |
| 46 | 14 Apr 2023 | Fundació Institut de Recerca Biomèdica | ES |
| 47 | 14 Apr 2023 | Politecnico di Milano | IT |
| | *Candidate* | *Università di Pavia* | *IT* |
| | *Candidate* | *Instituto de Salud Carlos III* | *ES* |

# EBRAINS involvement in EU Projects

The origins of the EBRAINS RI lie in the EU's HBP FET Flagship project, which started in Oct 2013, funded under FP7 and then Horizon 2020. The HBP's current SGA3 grant runs until Sep 2023, when the HBP will end. As part of its transition to an enduring post-HPB RI, the EBRAINS AISBL is getting involved in projects funded under the current EU Framework Programme, Horizon Europe (HE).

## Active Projects

**EBRAINS AISBL as Project Coordinator**

- EBRAINS PREP (HE Call: INFRA-2021-DEV 02 01). A EUR 3 million grant to put in place the organisational framework for the transition to an operational ESFRI RI. The project started on 1 Sep 2022. The EBRAINS AISBL budget is EUR 1.3 million.

**EBRAINS AISBL as Project Partner**

- PHRASE (HE Call: EIC-2021-TRANSITION). The objective of PHRASE (Personalised Health cognitive assistance for RehAbilitation SystEm) is to create a workflow that integrates the best available scientific knowledge and to obtain efficient prognosis and intervention protocols for stroke and other brain-related diseases. The Coordinator is Eodyne Systems S.L and the project started 1 Apr 2022. The EBRAINS AISBL contributes to tool development, interoperability and business model, with a budget of EUR 0.5 million.
- eBRAIN-Health (HE Call: INFRA-2021-TECH). The project focuses on modelling and simulating neurobiological phenomena of human brain function and dysfunction. The Coordinator is Charité Universitätsmedizin Berlin and the project started on 1 Jul 2022. The EBRAINS AISBL contributes to tool development, interoperability and business model, with a budget of EUR 1 million.
- EHDS2 Pilot (HealthData@EU Pilot) (HE Call: EU4H-2021-PJ-06). The EHDS2 Pilot Project for a European Health Data Space (EHDS) is working on the secondary use of health data and has 15 partners, including national hubs, EU agencies and RIs. It is coordinated by France's Plateforme des Données de Santé and started on 1 Oct 2022. The EBRAINS AISBL serves as one of the data provider platforms, and is involved in IT infrastructure, security, metadata catalogues, data quality and interoperability, with a budget of EUR 0.08 million.
- AISN (HE Call: HLTH-2021-DISEASE-04-04). The AISN (Integrating AI in Stroke Neurorehabilitation) project will develop and validate operating procedures and guidelines for integrating AI in a healthcare continuum, focussing on post-stroke rehabilitation. The project is coordinated by Stichting Radboud Universiteit and started on 1 Dec 2022. The EBRAINS AISBL budget is EUR 0.5 million, for activities related to technical expertise, tool development, interoperability, data management, communications and sustainability.
- TEF-HEALTH (HE Call: DIGITAL-2022-CLOUD-AI-02-TEF-HEALTH). Testing and Experimentation Facility (TEF-Health) is a Digital Europe-funded project to carry out tests and experiments using AI solutions in real or realistic environments and to implement evaluation activities to facilitate market access. As part of this innovation activity, EBRAINS will provide a single EU-wide entry point through its platform, hence contributing to speeding up the development and the market access of AI solutions in healthcare. The Coordinator is

Charité Universitätsmedizin Berlin and the project started on 1 Jan 2023. The EBRAINS AISBL has a budget of EUR 0.2 million to provide virtual testing services, and innovation and business development services.

# Proposals

The EBRAINS AISBL is coordinating or is part of the Consortium for seven HE proposals submitted in 2023.

**EBRAINS AISBL as Proposal Coordinator**

- ELASTIC (HORIZON-INFRA-2023-DEV-01-06). The European and Latin American Shared Technology and Infrastructure Consortium has the objective of enhancing collaboration with Research Infrastructures outside of Europe. The proposal was submitted on 9 Mar 2023. The EBRAINS AISBL would coordinate the project, deliver training and lead WP1: Brain Health, with a budget of EUR 0.35 million.
- TREOSC (HORIZON-INFRA-2023-EOSC-01-06) is a project on sensitive data management in EOSC where the EBRAINS technologies, especially Health Data Cloud and the Medical Informatics Platform would be made available to the broader scientific research community. The proposal was submitted on 9 Mar 2023. The EBRAINS AISBL would coordinate the project and provide the sensitive data platform, with a budget of EUR 0.9 million.
- Virtual Brain Twin (HORIZON-HLTH-2023-TOOL-05-03) is for personalised treatment of psychiatric disorders. This project aims to create an ecosystem for generating virtual brain twins for psychiatric patients, by leveraging the consortium's detailed knowledge and expertise in neuronal microcircuit simulation, mathematical analysis, innovative AI tools, psychiatric care and clinical studies. The proposal was submitted on 14 Apr 2023. The EBRAINS AISBL would coordinate the project, be in charge of communications and integration in the EBRAINS RI, with a budget of EUR 1.2 million.

**EBRAINS AISBL as Proposal Partner**

- CSA Brain Health (HORIZON-HLTH-2023-DISEASE-03-06): Designing a European Brain Health Landscape. The Coordination and Support Action (CSA) Brain Health will lay the ground for an envisaged European Partnership (EP) on Brain Health. Twenty participants from 11 Member States, Associated Countries and Third Countries will pursue the work plan jointly. The overall objective of the CSA is to sizeably contribute to maintenance and restoration of brain health for citizens in Europe and worldwide. The project is coordinated by the Deutches Zentrum für Luft- un Raumfahrt EV (DLR) and the proposal was submitted on 6 Apr 2023. The EBRAINS AISBL would lead WP4 Global Outreach and WP5 RI and enabling activities, and participate in WP1 Management and design, with a budget of EUR 0.26 million.
- INTEGRATE-LMedC (HORIZON-INFRA-2023-DEV-01). This focuses on concept development for a research infrastructure to manage, integrate and sustain large medical cohort studies. The project will develop a new concept to guide and support decision-making for the next-generation research infrastructure (RI) to facilitate efficient utilisation and harmonisation of large medical cohorts (LMedC), and to accelerate scientific and medical breakthroughs in Europe and beyond. Achievement of the ambitious objectives will only be possible through the integration of 11 highly interdisciplinary partners including established ERIC / ESFRI infrastructures such BBMRI, ECRIN, EIRENE and EBRAINS with unique expertise in conceptualizing and implementing European RIs. The project is coordinated by BBMRI ERIC and the proposal was submitted on 9 Mar 2023. The EBRAINS AISBL will have a budget of EUR 0.2 million.
- GreenDIGIT (HORIZON-INFRA-2023-TECH-01): Greener Future Digital Research Infrastructures. This aims at improving the sustainability of Research Infrastructures. It is coordinated by the University of Amsterdam. The proposal was submitted on 9 March 2023. EBRAINS will work on assessing the environmental impact of RIs and validate the results of the study, with a budget of EUR 0.4 million.
- MAGICSTIM (HORIZON-EIC-2023-PATHFINDEROPEN-01-01): Avatar-guided transcranial MAGnetoacoustIC STIMulation. This is an European Innovation Council project to develop non-invasive technology for brain stimulation. The project is coordinated by Fundacion Investigation HM Hospitales and the proposal was submitted on 6 Mar 2023. The EBRAINS AISBL's responsibility would be WP9 "Dissemination, Exploitation, and Communication", with specific responsibility for tasks on "Establishment of internal and external communication structures" (Task T9.1) and "Planning and organisation of dissemination and collaboration activities" (Task T9.2), as well as for some level of integration of data and/or software from the project into the EBRAINS platform. The EBRAINS budget would be EUR 0.2 million.

# Human Brain Project Coordination

The EBRAINS AISBL was set up to manage the RI created by the HBP and make it sustainable after the end of the HBP, and to replace Switzerland's EPFL as HBP Coordinator, which it did on 1 Mar 2021. To allow the AISBL to take over this demanding role seamlessly, the experienced HBP Project Coordination Office team left the EPFL and became AISBL employees on 1 Jun 2021.

Since then, the AISBL has fulfilled all the Coordinator tasks for HBP SGA3 Grant Agreement, the 4th and final phase of the FET Flagship project. While the first reporting period (RP1) of SGA3, from 1 Apr 2020 to 31 Dec 2021, focused on the transition from SGA2 and structural change, the second reporting period (RP2) is about consolidation, alignment and delivery. The EBRAINS AISBL played a major role in the consolidation and alignment processes, as demonstrated by the number of significant amendments that were implemented to realign project activities and resources in response to the RP1 review and the need for a 6-month no-cost extension due to the COVID-19 pandemic.

The AISBL has continued to enhance coordination, communication, reporting and delivery within the project. Decision-making and collaboration across the Consortium and with key stakeholders, highlighted in RP1, continued to improve in this reporting period, with an increase in both the number and quality of coordination and governance meetings, involving the Science and Infrastructure Board, the Science and Infrastructure Board Panel, the Directorate, the Stakeholder Board, Work Package Managers, and regular WP7 (HBP Management and Coordination) meetings.

Similarly, the AISBL delivered all its planned coordination obligations during this period (Tasks, Deliverables, Milestones, Reports and Outputs). Among these were: its final Deliverable (D7.8) and Milestone (MS7.5) and six Amendments (covering both the overall HBP Framework Partnership Agreement (FPA) and the SGA3 Grant Agreement). The AISBL invested resources to improve data collection and data visualisation for easier tracking and monitoring of progress, and to support reporting to governing bodies and decision-making. Several new features were developed in the PLUS project management and monitoring tool, such as data dashboards and charts to enhance the reporting of Publications, Outputs, KPIs and reporting in general.


The EBRAINS booth at the final Summit of the Human Brain Project, which took place in Marseille, 27-31 Mar 2023.

# Science

The development of the EBRAINS research infrastructure must be guided by a forward-thinking scientific vision, aimed at advancing brain research, brain medicine and technology, by addressing the community needs identified with the help of our national nodes. To initiate this process, a science task force was established in the summer of 2022, consisting of leading HBP researchers such as Mavi SANCHEZ-VIVES, Rainer GOEBEL, Pier STANISLAO PAOLUCCI, Egidio D'ANGELO, Claudia WHEELER-KINGSHOTT, Timo DICKSCHEID, Andrea BROVELLI, and Viktor JIRSA (Chair). An essential starting point was the scientific vision based on digital brain twins, as meticulously outlined in the Zenodo paper "The coming decade of digital neuroscience"[2] by nearly 100 authors (20% from institutions that have never been a beneficiary of the HBP core project, of which half are in Canada or the USA) and endorsed by prominent members of the broader neuroscience community. This choice will necessitate the use of EBRAINS to integrate and provide access to extensive databases. The former will facilitate applications in digital and personalised medicine, while the latter will lay the foundation for the strategic roadmap leading to the potent long-term Digital Twin capability.

To help ground its deliberations, the task force also analysed a total of 41 comprehensive use cases, submitted by 24 RI users (90% HBP members, 10% non-HBP members), representing various domains relevant to EBRAINS, including computational neuroscience, cognitive neuroscience, molecular neuroscience, brain medicine, anatomy and physiology, robotics, neuroimaging and AI. The primary outcome of this analysis emphasised the necessity for EBRAINS to facilitate the development of customisable science workflows within a digital environment.

These workflows can be broadly categorised into two types: **clinically oriented workflows**, which encompass multiple key services and emphasize the macroscopic (system) level of brain organization, and **preclinical workflows**, which involve mechanistic investigations in fundamental neuroscience, typically covering a smaller number of key services and emphasising the microscopic level of brain organisation. To meet this requirement, a network of interconnected key services can be grouped into service categories such as Data, Health Data, Atlas, Modelling and Simulation, and Validation and Inference. Additionally, the potential inclusion of a sixth service, Embodiment, would support world and physics simulation, relevant to areas like neurorobotics or applications of brain stimulation. Ensuring interoperability and seamless exchange of information among these services necessitates their organisation within a multilateral network, surpassing simple bilateral compatibility and toolbox organisation. This unique organisational structure, and the sheer diversity of services offered, are features that set the EBRAINS research infrastructure apart from others worldwide.

The science task force also provided initial recommendations on the operational approach, software development and overall strategy of EBRAINS. Subsequently, the EBRAINS National Node board and the EBRAINS Science and Technology Committee (ESTC) were established in the fall of 2022. The scientific vision outlined above was presented to the Board of Directors, National Nodes and ESTC on multiple occasions, undergoing continuous refinement throughout this process. The ESTC will continue to support its development and contribute to building a scientific roadmap for the next decade. The subsequent paragraphs provide the current scientific vision, proposed mission and strategy for roadmap development. The science task force also initiated a Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis, which needs to be validated and refined by the ESTC.

## Proposed EBRAINS Scientific vision and mission

EBRAINS scientific vision is to revolutionise how neuroscience research is performed, changing the research culture from fragmented individual laboratory efforts to integrated platform research, ultimately leading to a better understanding of the brain, and improving brain health and technology. We strive to be the premier digital infrastructure for neuroscience research by providing unique brain data of highest quality across multiple species, integrated with cutting-edge analysis, validation, and curation tools, as well as multiscale brain models that facilitate seamless interoperation and knowledge exchange. Researchers can build customised science workflows across the entire scientific value chain and generate new neuroscience knowledge that would be otherwise inaccessible, paving the way for innovative solutions to the most pressing challenges in neuroscience. Our ultimate goal is to accelerate the pace of scientific discovery, generate new insights into the brain, and translate these insights into tangible benefits for society.

[2] DOI: 10.5281/zenodo.7764003 (https://zenodo.org/record/7764003#.ZHYEwnZByUk)

The EBRAINS mission is:

- To enable cutting-edge research and innovation in neuroscience by continuously enhancing and maintaining our research infrastructure to the highest standard of excellence,
- To support a diverse and inclusive scientific programme that serves the needs of a broad global community, fosters collaboration and cross-disciplinary research, and helps to drive transformative discoveries in the field of neuroscience.
- To develop strong and lasting partnerships with industry to promote knowledge transfer and accelerate the translation of research into new brain-based technologies and therapies.
- To be a neutral and authoritative voice for brain science, advocating for evidence-based policies that support fundamental research, and engaging with policymakers and stakeholders to promote awareness and understanding of the importance of neuroscience research.
- To provide world-class training and education opportunities for the next generation of scientists and engineers.
- To inspire and engage the public in brain science, fostering awareness, understanding and support for neuroscience research and its potential to improve brain health and well-being for all.

## Towards an EBRAINS 10-year science roadmap

In 2023, EBRAINS is undertaking an ongoing process of engaging with the community, particularly via the National Nodes and in close collaboration with the ESTC, to facilitate the formulation of a comprehensive scientific roadmap spanning the next ten years. To accomplish this, the ESTC has established six working groups focused on the following areas:

1) Health Data and Clinical Challenges
2) Brain Simulation across all Scales
3) Neurotech and Artificial Intelligence (AI)
4) Brain Imaging Data and Inference
5) Education and Outreach
6) Technology of Infrastructure

These working groups are tasked with conducting internal assessments of the current state-of-the-art within each respective domain, identifying their specific requirements, and providing expert recommendations on how EBRAINS can effectively contribute to their advancement. These should be available in 2024.


The first meeting of the EBRAINS Science and Technology Advisory Committee (ESTC) took place on 25 Nov 2023.

# Ethics and Society

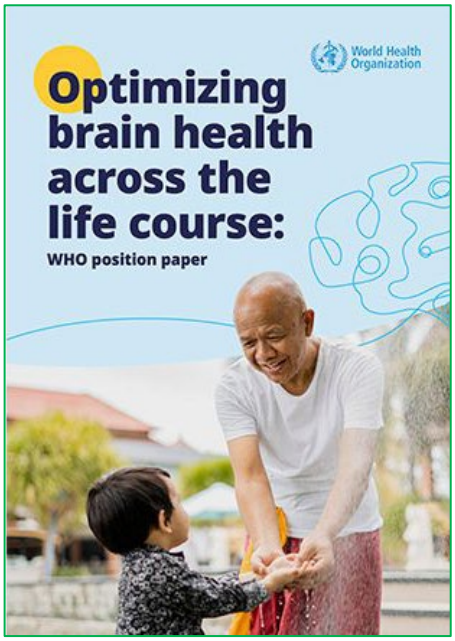
## EBRAINS Ethics and Society Vision

EBRAINS serves the European scientific community by promoting the public good. EBRAINS and its constituent organisations embrace the principles and values of the European Union as expressed in its Charter of Fundamental Rights. We at EBRAINS realise that true scientific and technical excellence requires ethical excellence: The integration of ethical and social reflection into all of its activities.

EBRAINS complies with all relevant European and national legislation of the EU Member States and upholds the ethical standards for European research as laid down in principles and policies of relevant programmes and bodies such as Horizon Europe and ESFRI. Furthermore, EBRAINS strives to:

- Promote human rights with a focus on how they are impacted by neuroscience and emerging neurotechnology.
- Engage with relevant stakeholders and the general public, including communities of patients and historically marginalized minorities in a culturally sensitive two-way dialogue.
- Promote trust and uphold EBRAINS social acceptability.
- Anticipate the possible consequences of EBRAINS research to pre-empt problems and promote positive impacts.
- Provide space and opportunity to reflect on the ethical acceptability, desirability, and sustainability of EBRAINS processes and their outcomes and products.
- Commit to addressing the ethical and societal issues raised by EBRAINS and its use.
- Integrate societal values into the design and development of EBRAINS structures and technologies; thus, including and going beyond privacy by design towards value-sensitive design and responsibility by design.
- Implement and follow Equality, Diversity, and Inclusion as guiding principles for research, collaboration and interaction with stakeholders.
- Collaborate with other major initiatives and international partners, aiming at improving the way scientific research is led and increasing the involvement of diverse stakeholders to benefit society.

The present EBRAINS Ethics and Society vision is the result of an iterative process initiated jointly by EBRAINS and the Human Brain Project (HBP). It has been inspired by relevant documents, by the insights of the HBP community and by the invaluable advice from international experts as well as input from EU citizens. It has entailed careful reflection and the examination and evaluation of different viewpoints. The EBRAINS' Board of Directors and its Management Board are extremely grateful for the time and the energy of so many that led to a vision that we, as EBRAINS, are committed to and proud to endorse and promote.




EBRAINS is proud to have contributed to the WHO's position paper "Optimizing brain health across the life course, published 9 Aug 2022.

# Communications and Stakeholder Engagement

## EBRAINS as a major player in the brain research environment

Over the last year, EBRAINS has intensified its communication efforts to increase awareness of its research infrastructure, reinforce its reputation and underline its central position in the brain research environment. These efforts focused on: a) ensuring a strong digital media presence for the RI, thereby securing a larger followership and a higher engagement rate than other, longer-established RIs; b) using webinars, videos and newsletters (to more than 5,000 subscribers) to highlight the scientific impact of EBRAINS tools and services, and their use by veteran neuroscientists and young researchers alike; and c) training young researchers to use EBRAINS tools and services, with(more than 1,000 students participating in EBRAINS training sessions over the last 18 months.

Emphasis was also placed on leveraging speaking opportunities at influential brain-related conferences, events, meetings, workshops and other venues. EBRAINS was represented at close to 50 events over the last 18 months, thereby spreading the word about the added value of our RI for brain science. EBRAINS was present at brain-related gatherings such as FENS, INCF, SfN, the International Brain Research Organization (IBRO) and the European Brain Council (EBC), and at conferences on ethics, RRI and FAIR data. EBRAINS also reached out to patient associations, including Alzheimer Europe, the European Federation of Neurological Associations (EFNA), Gamian-Europe (for mental health patients) and the Duchenne Data Foundation (for muscular dystrophy), and participated in several of their meetings and workshops. A strong working relationship has also been developed with the European Academy of Neurology (EAN), which invited EBRAINS to speak at its annual conferences in 2022 and 2023, which typically bring together more than 10,000 participants. EBRAINS is pursuing a joint project with the EAN with a view to federating stroke registry data. EBRAINS' involvement in the European Health Data Space Pilot (https://ehds2pilot.eu/) has given our RI visibility in this extremely important effort.

EBRAINS' enhanced visibility and reputation have been confirmed by the evident desire of major institutions to have our RI as a partner in their Horizon Europe proposal consortia. As mentioned in the Active Projects section above, EBRAINS is currently participating in six EU-funded projects and is a prospective partner in seven proposals. EBRAINS' contribution in the European Brain Research Area (EBRA) project has been followed by our RI joining a consortium that has submitted a proposal to prepare a European Brain Health Partnership, which aims to make brain research a priority for European research agenda and to lay the foundation for a major collaborative brain research initiative in the next European Union Framework Programme for research funding, and in individual Member State funding plans.

## Reaching out to new communities

Awareness of the EBRAINS RI was increased via presence at major neuroscience conferences (FENS and SfN), brain disease-oriented seminars (Alzheimer Europe Association and "One Neurology"), health data-related workshops (EU Health Data Space project), and the HBP Summit in Brussels in Oct 2021. "EBRAINS Roadshows" introduced the EBRAINS RI to European neuroscience associations in nine European countries and relations were strengthened with the INCF, the International Brain Initiative and the World Health Organisation. Involvement in the European Brain Research Area connected EBRAINS with other key brain research stakeholders, paving the way for future collaboration. Training on EBRAINS' services was conducted at different events, especially during the HBP Scientific Conference, which was attended by more than 200 scientists from outside the HBP.

## EBRAINS as an advocate for brain research on the international scene

The EBRAINS leadership has been active in advocating for brain research over the last year, speaking about the RI's added value at high-level international conferences, such as the World Health Summit, World Health Organisation workshops, and at EU Research and Innovation meetings. An advocacy campaign, involving key HBP and non-HBP scientists, has been developed in the area of neurotechnology and discussed with EU policymakers and industry representatives. EBRAINS has also strongly supported global and European initiatives in mental health.

EBRAINS worked with the Organisation for Economic Cooperation and Development (OECD) to organise two workshops on key brain health-related topics. These workshops brought together scientists from diverse disciplines and allowed valuable discussions on future areas of collaboration to help address the social challenges that neurodegenerative diseases pose for an ageing population.

## A user-centric approach

With helping to enhance brain science being central to our mission, EBRAINS' success will, to no small degree, be measured by the number of researchers using the tools and services it offers, and by the scientific breakthroughs that the platform enables. For this, closer and more targeted communication with the users is essential. To enhance user experience, the EBRAINS website has been radically transformed, from the previous, largely "descriptive" website, to a new portal which gives users easy access to the various tools and services, and to the necessary resources and tutorials. The new portal was launched in April 2023 and has been generating very positive feedback. Built using flexible website technology, it will continue to evolve, in close cooperation with the service providers, to constantly adapt to the evolution of the RI and the needs of its users.

## A dynamic community expanding beyond the HBP

Communication efforts to increase EBRAINS' visibility and reputation have helped to attract many new, non-HBP, members to EBRAINS, as documented in the EBRAINS AISBL Membership section above. The new associate members which have joined the EBRAINS' ranks over the last year are enriching our RI, broadening our thinking and approaches, and bringing new ideas and enthusiasm.

As part of the EBRAINS PREP project, the Central Hub has been advising the National Nodes on their national communication and outreach plans and providing them with communication support materials (branding guidebook, presentations, communication plan templates, etc.) to help them build EBRAINS awareness in their local neuroscience communities.

On 1 February 2023, a first EBRAINS "in-person" meeting was organised with ~70 participants, representing a large part of the new EBRAINS family. Interactive discussion sessions allowed participants to exchange thoughts on topics as essential as the strengths, vulnerabilities, challenges and opportunities for EBRAINS moving forward. The meeting was an important opportunity for people to meet - many for the first time – and get to know each other better. It highlighted the need for increased sharing to leverage collaboration opportunities but, above all, it also showed a genuine willingness on the part of the participants to work together for to make EBRAINS a success.


EBRAINS took part in the Bernstein Network conference on computational neuroscience in Berlin, 13-17 Sep 2022.

# EBRAINS, other RIs and International Projects

EBRAINS has engaged in the consultation on the Impact Assessment of Research Infrastructures, organised by the European Strategy Forum on Research Infrastructures (ESFRI). Other EBRAINS contributions to ESFRI have included providing answers to comprehensive questionnaires and active participation in the ESFRI Stakeholders Forum, where we provided perspectives on issues such as RI funding and impact.

EBRAINS organised a dedicated side event at the International Conference on Research Infrastructures (ICRI) in 2022, showcasing its impact and influence in brain science, and highlighting the ways in which EBRAINS supports the ongoing development of brain science. During ICRI, EBRAINS also took part in a side event hosted by EIRENE, a newly established ESFRI infrastructure that addresses the challenges associated with human exposome studies. EBRAINS has also engaged with the EATRIS research infrastructure at local French events, including the "Translational Neuroscience Day" co-organized by NeurATRIS and Celphedia.

A standout international collaboration that EBRAINS contributed to was a project proposal submitted for the Horizon Europe DEV-01-06 call. The collaborative proposal, named “ELASTIC” involved other European partners, including LifeWatch ERIC, RedCLARA, EMSO ERIC, Barcelona Supercomputing Center and Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas (CIEMAT) and Latin American organisations, including the Ministerio de Ciencia, Innovación, Tecnología y Telecomunicaciones de Costa Rica, Universidad Adolfo Ibáñez (BrainLat) and Instituto Antártico Chileno. ELASTIC's mission would be to boost bi-regional cooperation across multiple fields including Brain Health, Biodiversity, Climate Change, and Information and Communication Technologies (ICTs). Within the sphere of Brain Health, EBRAINS would work with the Latin American Brain Health Institute (BrainLat).

EBRAINS has become a member of the European Open Science Cloud (EOSC) Association and is helping to shape the future of the European Open Science Cloud, guiding its implementation strategy, contributing to advisory groups, participating in general assembly meetings, and engaging in critical policy dialogues. EBRAINS participated in the EOSC working group, alongside representatives of other RIs, including Euro-BioImaging, CESSDA ERIC, LifeWatch ERIC, CLARIN ERIC, OPERAS, EATRIS-ERIC, BBMRI-ERIC, ESRF, EMBL, ELIXIR Hub, Instruct ERIC, ELI ERIC, ESS, CERN and FAIR.

EBRAINS has a significant collaboration with Euro-BioImaging, a European Research Infrastructure that provides essential imaging services to neuroscientists. Together, we have organised exploratory and training workshops to demonstrate the complementary services offered by both RIs, address key topics like FAIR data principles, and identify potential areas of collaboration.

EBRAINS' collaboration with the Biobanking and BioMolecular resources Research Infrastructure Consortium (BBMRI-ERIC) aims to leverage complementary expertise in the field of biobanking. Through the collaboration established via HealthData@EU project, both research infrastructures should contribute to the creation of the European Health Data space and streamline research workflows, enhance the reproducibility of results, and ultimately pave the way for new treatments and improvements in healthcare practices.

EBRAINS is an active participant in the INTEGRATE-LMedC project. This initiative aims to enhance the management, integration and sustainability of large medical cohort studies, identifying necessary new developments and integrating existing pan-European and national capacities. The INTEGRATE-LMedC consortium, including EBRAINS, BBMRI-ERIC, the European Clinical Research Infrastructure Network (ECRIN), and Norges Teknisk-Naturvitenskapelige Universitet (NTNU), amongst others, was formed in response to the increasing availability of health-related data and the need to optimise the European research infrastructure landscape. By actively involving or collaborating with EU RIs, projects and scientific societies such as BBMRI-ERIC, ECRIN, ESBB, EFLM, EIRENE, EBRAINS, and SYNCHROS, the INTEGRATE-LMedC project aims to reduce fragmentation and ensure coordination of efforts and alignment of priorities among Member States and Associated Countries.

EBRAINS is considering a potential collaboration with INFRAFRONTIER, to consolidate efforts in functional genomics. By joining forces, both infrastructures could help advance the understanding of genetic functions and their role in disease, contributing to more personalised and effective treatment approaches.

# EBRAINS AISBL Board of Directors (BoD)

| Member | Institution | Country |
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| Frode VARTDAL | Universitetet i Oslo | NO |
| Asunción GÓMEZ-PÉREZ | Universidad Politécnica de Madrid | ES |
| Stefan ÖSTLUND | Kungliga Tekniska Hoegskolan | SE |
| Jan HESTHAVEN | École Polytechnique Fédérale de Lausanne | CH |
| Daniela CORDA | Consiglio Nazionale delle Ricerche | IT |
| Wim VANDUFFEL | Katholieke Universiteit Leuven | BE |

# EBRAINS AISBL Management Board (MB)

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| Christian FAUTEUX | Chief Programme Officer | Executive Director |
| Viktor JIRSA | Chief Scientific Officer | |
| Juan SANCHEZ | Chief Operations Officer | |
| France NIVELLE | Chief Communications & Content Office | |
| Steven VERMEULEN | Chief Infrastructure & Information Officer | |
| Philippe VERNIER | Chair, National Node Board | |
| Jan BJAALIE | Member | Infrastructure Development Director |

NOTE: On 26 Jun 2023, the BoD replaced the above MB with a new one, comprising: Katrin AMUNTS (Co-Director), Philippe VERNIER (Co-Director), Jan BJAALIE, Yannis IOANNIDIS, Viktor JIRSA, Francesco PAVONE and Juan SANCHEZ.

# EBRAINS National Node Board (NNB)

| Member | Node | Institution |
|---|---|---|
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| Trygve LEERGAARD | NO | Universitetet i Oslo |
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| Francesco PAVONE | IT | Laboratorio Europeo di Spettroscopie Non Lineari |
| Liesbet PEETERS | BE | Universiteit Hasselt |
| Richard VAN WEZEL | NL | Stichting Radboud Universiteit |
| Lars KLÜVER | DK | Fonden Teknologirådet |

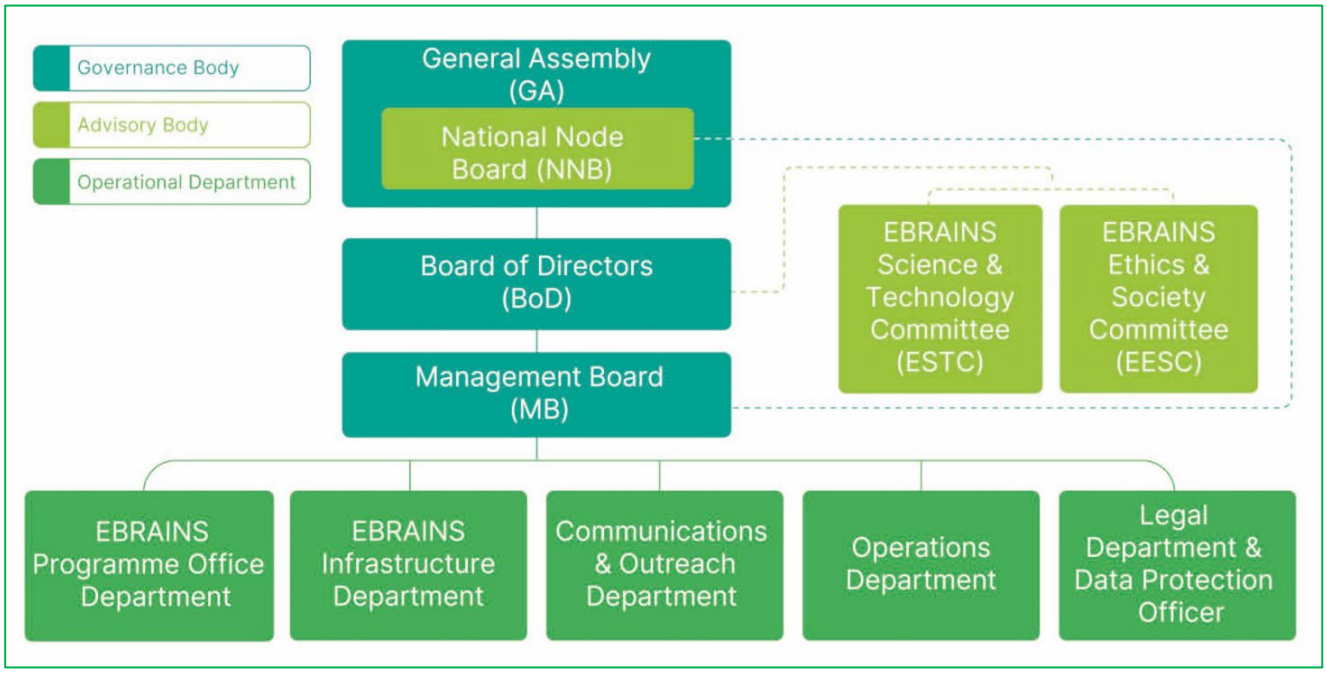
# EBRAINS Science and Technology Committee (ESTC)

| Member | Institution | Country |
|---|---|---|
| Renaud JOLIVET (Chair) | Maastricht Centre for Systems Biology, Universiteit Maastricht | NL |
| Thomas BERGER | Chair of Scientific Committee, European Academy of Neurology | Europe |
| Maurizio CORBETTA | Professor of Neurology, Università degli Studi in Padova | IT |
| Maureen CLERC | Institut national de recherche en informatique et en automatique | FR |
| Andrew DAVISON | Institut NeuroPSI, CNRS Université Paris-Saclay | FR |
| Gustavo DECO | Computational Neuroscience Research, Universitat Pompeu Fabra | ES |
| Egidio D'ANGELO | Brain & Behavioral Sciences Department, Università degli Studi di Pavia | IT |
| Timo DICKSCHEID | Institute of Neuroscience and Medicine, Forschungszentrum Jülich | DE |
| Marianne FYHN | Department of Biosciences, Universitetet i Oslo | NO |
| Cristina GRANZIERA | Department of Biomedical Engineering, Universität Basel | CH |
| Sten GRILLNER | Department of Neuroscience, Karolinska Institutet | SE |
| Sabine HÖLTER-KOCH | Helmholtz Zentrum München | DE |
| Juan MORENO | Neural Rehabilitation, Consejo Superior de Investigaciones Científicas | ES |
| Guy NAGELS | Chair of Neurology, UZ Brussel, Vrije Universiteit Brussel | BE |
| Daniela PERANI | Università Vita-Salute San Raffaele | IT |
| Mihai PETROVICI | NeuroTMA Group, Department of Physiology, Universität Bern | CH |
| Giulia ROSSETTI | Computational Neuromedicine, Forschungszentrum Jülich | DE |
| Philippe RYVLIN | Head, Clinical Neurosciences, Centre Hospitalier Universitaire Vaudois | CH |
| Barbara J. SAHAKIAN | Department of Psychiatry, University of Cambridge | GB |
| Rita SALMELIN | Department of Neuroscience & Biomedical Engineering, Aalto-yliopisto | FI |
| Ausra SAUDARGIENE | Institute of Neurosciences, Lietuvos sveikatos mokslų universitetas | LT |
| Horst D. SIMON | Director, ADIA Lab, Abu Dhabi | AE |
| Petra VERTES | Systems & Computational Neuroscience Group, University of Cambridge | GB |
| Menno WITTER | Director, Norwegian Research School in Neuroscience | NO |
| Emre YAKSI | Federation of European Neuroscience Societies | Europe |

# EBRAINS Ethics and Society Committee (EESC)

| Member | Institution | Country |
|---|---|---|
| Hervé CHNEIWEISS | Head, Neuroscience, CNRS Université Paris-Seine | FR |
| Dominik GROSS | Rheinisch-Westfälische Technische Hochschule Aachen | DE |
| Dipak KALRA | President, European Institute for Innovation through Health Data | Europe |
| Karin JONGSMA | Julius Center, University Medical Center, Universiteit Utrecht | NL |
| Cyril PERNET | Neurobiology Research Unit, Rigshopitalet, Copenhagen | DK |
| Teresa SANCHIS | Head of Strategy, Fundacio Institut de Bioenginyeria de Catalunya | ES |
| Rocio DIAZ | Research Director, Quirónsalud | ES |
| Orla GALVIN | Executive Director, European Federation of Neurological Associations | Europe |

# EBRAINS AISBL Organisation




Hands-on training in using EBRAINS tools and services at the HBP Summit Satellite Events Day in Marseille, 27 Mar 2023.

# Financial Information

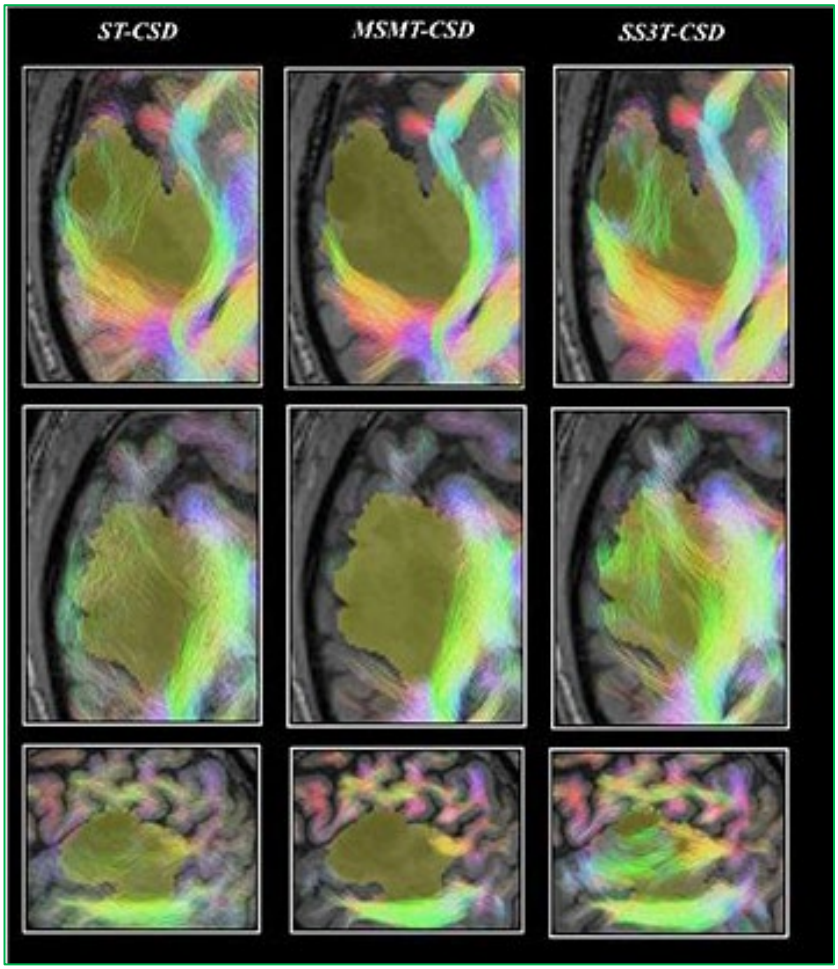
For the period 1 Jan 2022 to 31 Dec 2022. All values are Euros.

| **INCOME** | | | |
|---|---|---|---|
| Membership contributions | 941,667 | | |
| Project contributions | 6,369,167 | of which: | |
| | | H2020 HBP SGA3[3] | 6,012,817 |
| | | H2020 HBP ICEI[4] | 39,616 |
| | | H2020 EBRA[5] | 125,086 |
| | | PHRASE | 33,927 |
| | | eBRAIN-Health | 483 |
| | | EBRAINS PREP | 154,664 |
| | | EHDS" Pilot | 2,575 |
| Financial income & other operating income | - | | |
| Profit carried forward from previous period | 95,241 | | |
| **Total income for 2022** | **7,406,074** | | |
| | | | |
| **EXPENDITURE** | | | |
| Personnel costs | 5,286,320 | | |
| Services and goods | 1,793,140 | of which: | |
| | | Rental & related costs | 216,188 |
| | | Consultancy & service fees | 1,113,010 |
| | | Other costs | 463,942 |
| Other operating expenses | - | | |
| Depreciation | 11,904 | | |
| Financial expenses | 59,634 | | |
| **Total expenditure for 2022** | **7,150,998** | | |
| | | | |
| **Net result for 2022** | **255,077** | | |

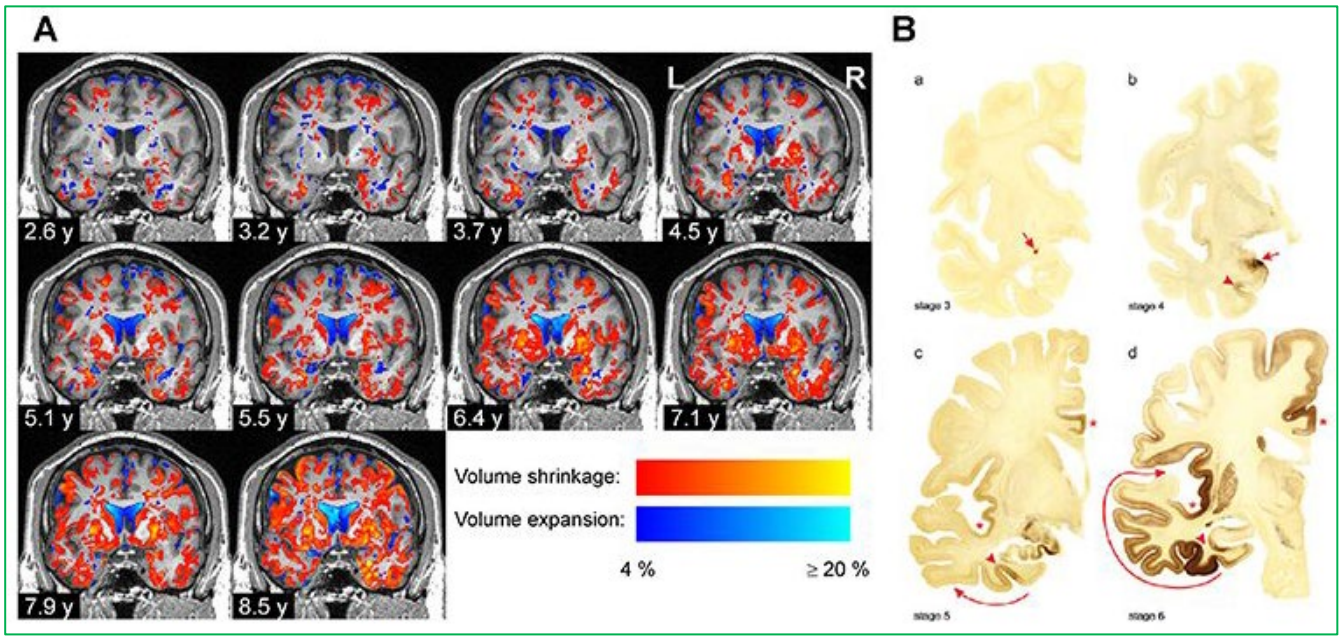
[3] Human Brain Project 3rd Specific Grant Agreement (the final funding period for the HBP FET Flagship).

[4] Human Brain Project Interactive Computing E-Infrastructure (separate HBP grant for base infrastructure).

[5] European Brain Research Area. Partners: European Brain Council, EU Joint Programme – Neurodegenerative Disease Research, ERA-NET NEURON and the HBP.




MRI data from 25 patients before and after tumour resection surgery can now be accessed on the EBRAINS Knowledge Graph.




German researchers have used the EBRAINS Jülich Brain Atlas to help detect loss of brain volume associated with Parkinson's Disease.

# Looking forward

## EBRAINS Preparation Phase

EBRAINS is undergoing an organisational transition, from an EU project offering RI services to a European Distributed Infrastructure on the ESFRI Roadmap. The EBRAINS PREP project, supporting the Preparation Phase of EBRAINS, provides the EBRAINS Central Hub and Nodes with EUR 3 million to fund the putting in place of a new organisational and contractual framework that will allow the EBRAINS RI to operate on a primarily Member State-funded basis in the future and should help the EBRAINS National Node Partners to secure long-term funding for their RI contributions.

In the coming year, the focus will be on defining the services to be provided by the Nodes and on agreeing key foundation elements of the EBRAINS Business Plan, such as Vision, Mission, Core Values, and Value Proposition. The approach taken is to promote a dialogue between stakeholders, in order to reach a consensus on these key issues. The templates for the National Node Agreements and Service Agreements are now close to their final form and negotiations will start with the relevant partners in order to obtain their signatures. Progress has also been made in defining which legal form EBRAINS should take in its Operational Phase, with the completion of an initial study by our contractor X-Officio. This study will be shared with the partners and should help us to move towards a decision.

## HBP Coordination

In the last few months of SGA3, the AISBL will prepare to close the project. This will see the preparation, internal quality control review and submission of some 60 HBP Deliverables, the Project Periodic Report on the second half of SGA3, an impact assessment report on the HBP as a whole (2013-23) and, of course, the final review meeting in November 2023.

The six-month no-cost extension granted to the HBP in SGA3 should allow Partners to make up for delays experienced due to COVID, but stretching funding foreseen for 36 months to cover 42 months will call for careful monitoring and management of HBP financial resources. It will be very important to avoid any underspending. This will require early identification of any potential underspending within individual Work Packages and Tasks, so resources can be reassigned in a timely, transparent and efficient manner. This should ensure that project-critical activities can be sustained in the six-month “no-cost” extension period. An additional challenge will be ensuring the availability of EBRAINS RI services past the end of the HBP, in order to demonstrate them to the HBP reviewers.

## Communications

Attention will be focused on strengthening relationships established with key players, to ensure they translate into effective concrete collaborations. A key activity will be to identify, with the help of EBRAINS scientists, the key neuroscience influencers who are not (yet) part of the EBRAINS network, and to reach out to them to highlight what value EBRAINS can bring to them, their post-docs and their students. We will also strengthen cooperation between the central hub and the national nodes, helping the latter to further build their own local presence. Last but not least, efforts will also be reinforced to build strong ties with the RI users, onboarding them more effectively and, on a more personal level, encouraging them to become active contributors to the platform and making them strong advocates of EBRAINS in their own networks.

## Infrastructure

As part of the ongoing transition from HBP to the EBRAINS RI, the Jülich Supercomputing Centre (Germany) has accepted to host all the EBRAINS services in the immediate post-HBP period, while data storage will remain at the Swiss National Supercomputing Centre (Centro Svizzero di Calcolo Scientifico or CSCS) in Lugano. Migration of services should be completed by the end of September 2023.

In the longer term, the intention is to broaden the EBRAINS services hosting base to include computing facilities in other countries. A portable structure is being specified to allow deployment in academic, public or commercial facilities.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