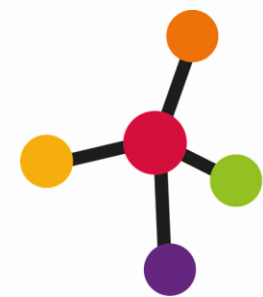


BIO International Convention 2025

June 16-19, 2025 • Boston Convention & Exhibition Center
Boston, Massachusetts

DIGITAL HEALTH INNOVATION HUB



Cluster lombardo
scienze della vita

Cluster lombardo scienze della vita

DESCRIPTION

Cluster lombardo scienze della vita serves as the representative organization for the entire life sciences ecosystem of the Lombardy Region. It brings together over 100 public and private entities across the territory, from research, industry and clinics, spanning pharmaceuticals, medical devices, research, and innovation.

Its capacity for representation is further strengthened by the participation of industry associations within the Confindustria system. Thanks to Farindustria, Assobiotec, Confindustria Dispositivi Medici and Assolombarda, it can effectively reach nearly all organizations operating in the life sciences sector, that exceeds 2,000 in Lombardy alone.

Field of activity and technology

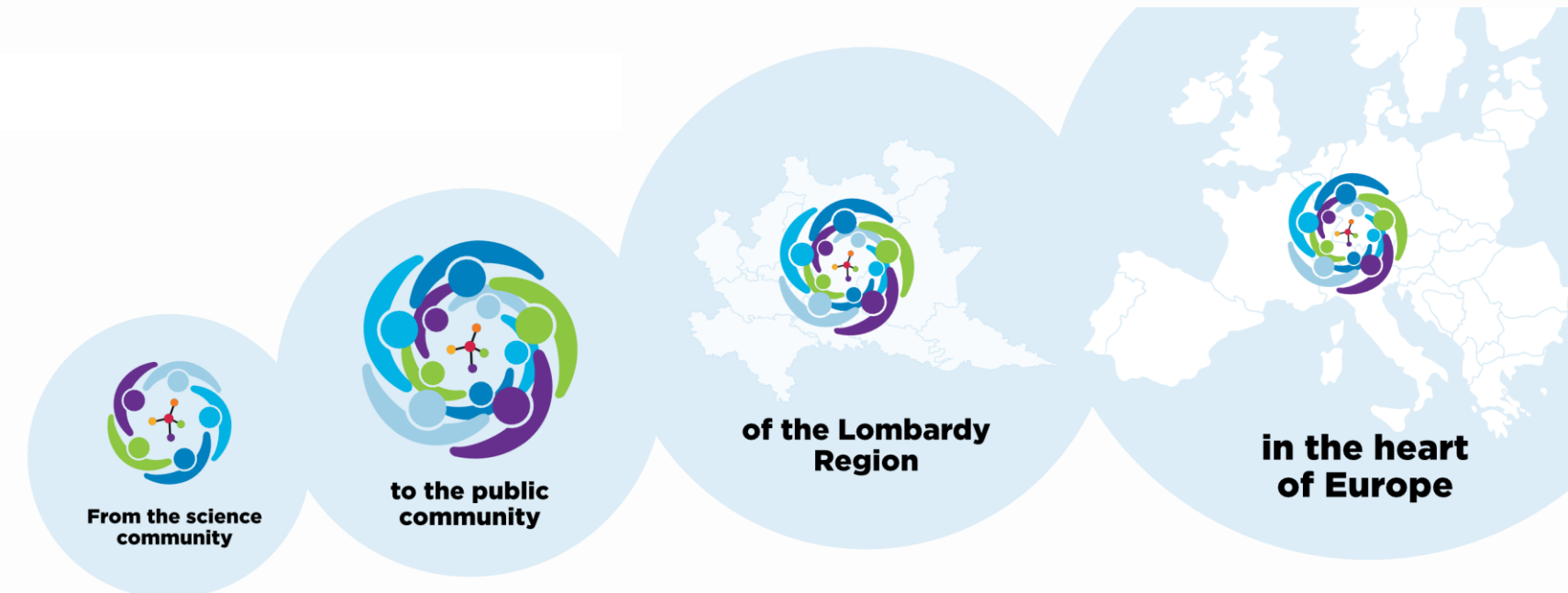


Creation of a virtuous ecosystem

Cluster lombardo scienze della vita works to foster connections and synergies, also at the international level, to generate innovation in the life science sector and to improve the lives of all citizens.

The main scopes of action are:

- **Research and open innovation** → *The Cluster encourages the development of R&I skills in the Lombardy ecosystem, to promote Lombardy as a hub of excellence for research and innovation, by fostering technology transfer process and collaboration between business and research;*
- **Networking & community sharing** → *The Cluster facilitates the exchange of knowledge and know-how on R&I, strengthening the development of the life science community in Lombardy, in connection with Italian and European partners;*
- **Visibility and representation** → *The Cluster increases the visibility of the Lombardy value chain, both in the national and international scene. It maintains daily contact with regional and national institutions, also in defining strategic trends at regional, national and EU level.*



Lombardy Life Science Ecosystem

Lombardy is home to over one third of the Italian life sciences sector, generating an economic impact equal to 12,6% of the Regional GDP with over 346 thousand employees. This territory concentrates more than 50% of national clinical research on drugs and medical devices, both in terms of active studies and investments, and is therefore a highly attractive territory for the international ecosystem.

Lombardy stands out as a hub for innovation, including in the field of digital health, where many research centres and companies (from start-ups to SMEs and corporates) are rising and even exporting know-how and solutions, serving healthcare (for prevention, monitoring, and care) as well as pharma and medtech for R&D and maximization of products efficacy, security and effectiveness.

We are talking about a fast growing and made in Italy value chain which accounts for more than 4 billion euro in Italy (with a growth rate of more than 9% per year).

THE VALUE CHAIN

Represents **12,6%** of Lombardy total GDP
10,1% of GDP in Italy
346,153 employees: 18.3% of the national figure

THE ENTERPRISES

Share of domestic added value **52.3%**
 The health services sector in Lombardy generates **18.3%** of added value

PHARMA

262 pharma local units with over 30,000 employees (34% of the national figures)
560 million € investments in R&D: 12% of the national investments of this sector
 With an **export value** of 9.8 billion €, 20% of the national value of pharmaceutical exports

MEDICAL DEVICES

1,401 companies (over 1/3 of the national figure)
51,747 employees: 44% of the sector's total national employment value
 A national market accounting to **5.9 billion € in exports**, which represents 47.6% of the national medtech market value

RESEARCH

Over 7.000 researchers
+40 Research Centers and a national Life Science Technopole
19 I.R.C.C.S (Research Hospitals) – 36% of national I.R.C.C.S. – with Over 33.000 of Impact Factor
50% of national clinical trials

THE UNIVERSITIES

332,171 students belong to the University network
15 Universities: 7 with medical faculties

Digital Health Innovation Hub

DESCRIPTION

Cluster lombardo scienze della vita has launched the Digital Health Innovation Hub project bringing together the whole life science ecosystem to promote collaborations that can foster clinical trials, research, patents, joint projects (commercial and R&D operations field) and innovative solutions development within the Digital Health sectors (e.g. digital therapeutics, AI solutions, Patients Support Apps, ...)

The Cluster proposes itself as a platform for the Lombardy and Italian life sciences ecosystem, working as a catalyst for innovation and partnership, aiming to lay the foundations for the development, adoption and scaling of cutting-edge digital health solutions.

Field of activity and technology

Digital Health

Proposer

Cluster lombardo scienze della vita



Digital Health Innovation Hub

BUSINESS PROPOSAL

Lombardy Digital Health Innovation Hub will actively engage with global entities at BIO International Convention, facilitating strategic connections and knowledge exchange, through the organization of both internal and external meetings during and after the event, fostering collaborations among Public and Private life science stakeholders: from Lombardy to USA, to the world. Moreover, the Cluster will act as a facilitator for matching funds to support these collaborations, thanks to its link with the Lombardy Regional Government Department and Counsellorship for University, Research and Innovation.

These collaborations will enhance the Hub's capacity to attract investments, foster international cooperation and position Lombardy as a leading hub for digital health innovation.



Requested investment

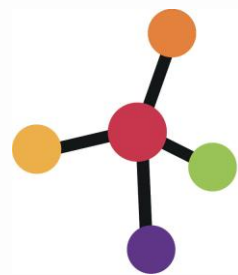
Defined for each project developed by Cluster members

Target investor

Defined for each project developed by Cluster members

Digital Health Innovation Hub

PROJECT MEMBERS



Cluster lombardo
scienze della vita

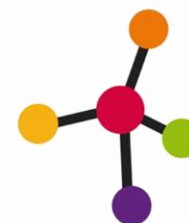


Proposer

Cluster lombardo scienze della vita



The “CONCERTO” platform for the computational modelling of myocardial perfusion by CT scan



Proposers



Type of organization

Private Hospital

Areas of specialization

Cardiology and cardiac surgery in the adult

Located in Milan

DESCRIPTION

Centro Cardiologico Monzino, founded in 1981, is the first hospital in Europe dedicated exclusively to the research, treatment and prevention of cardiovascular disease. Thanks to its commitment on cardiovascular health, Monzino is able to perform more than 1,500 surgeries, 80,000 specialist examinations and 113,000 major diagnostic tests per year. Research activities are fully integrated with clinical departments, to translate as quickly as possible scientific results into new approaches for prevention, diagnosis, and patient care.



POLITECNICO
MILANO 1863

Type of organization

University

Areas of specialization

Engineering, Architecture and Industrial Design

Located in Milan

DESCRIPTION

Politecnico di Milano is a public scientific-technological university founded in 1863 that trains engineers, architects and designers. It has always focused on quality and innovation in teaching and research, developing a fruitful relationship with the economic and productive reality through experimental research and technology transfer. It also wants to be a solid, recognizable and reliable reference point for sustainable development in Italy and Europe. Research is increasingly linked to didactics and constitutes a priority commitment that allows Politecnico di Milano to achieve high-level international results and to bring together the university and the business world. Research activity also constitutes a parallel path to that of cooperation and alliances with the industrial system.

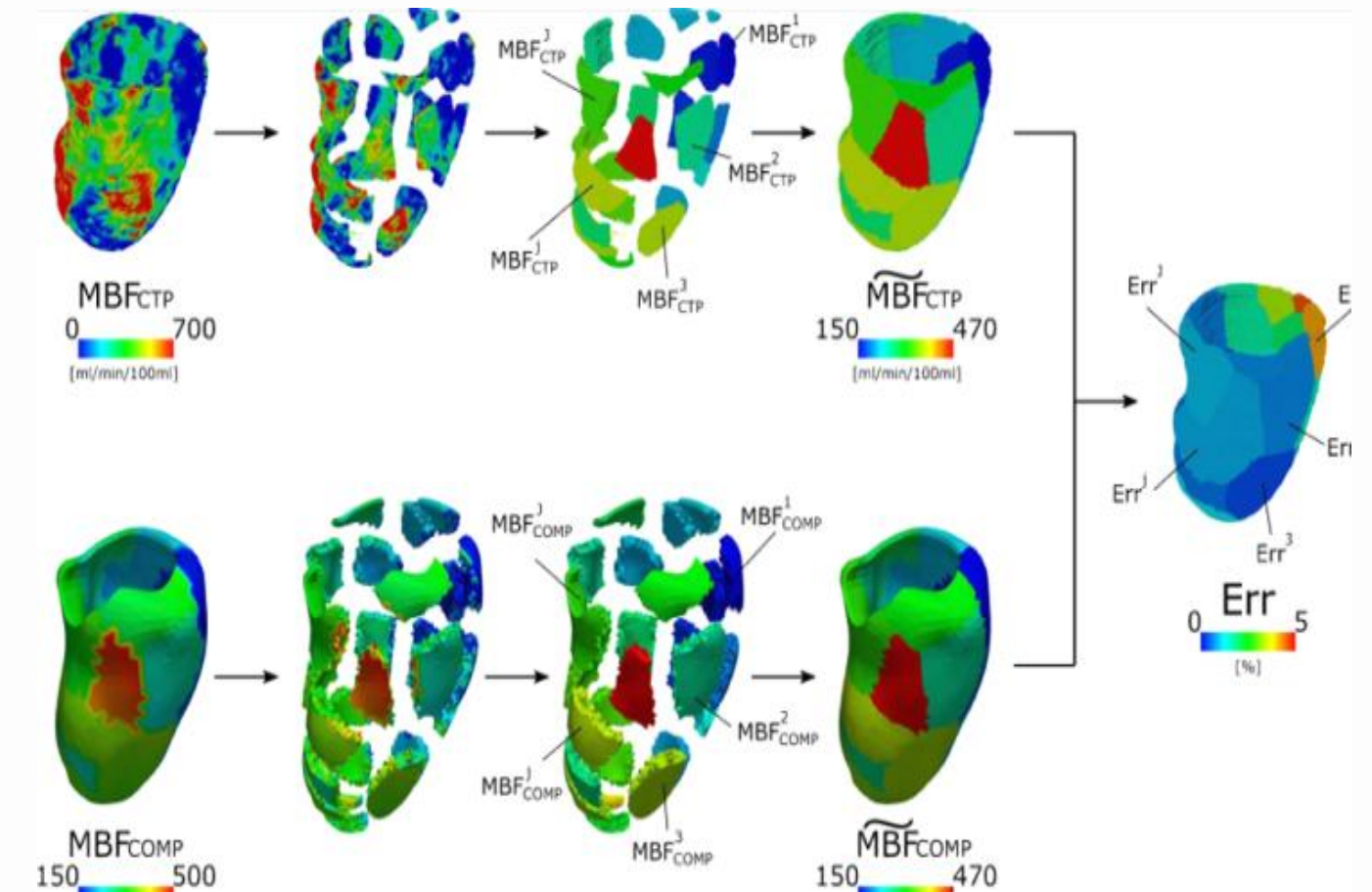
The “CONCERTO” platform for the computational modelling of myocardial perfusion by CT scan

DESCRIPTION

Field of activity and technology: *Stress coronary computer tomography perfusion (stress-CTP) enables myocardial blood flow (MBF) mapping for the functional evaluation of coronary artery disease (CAD) but requires additional scan with intravenous administration of stressor, related side effects and radiation exposure. CONCERTO relies on a computational method for the simulation of MBF from routine basal coronary CT scans without any stress protocol in patients with suspected CAD.*

Development stage: *the model has been validated in 40 Retrospectively studied patients and 60 more are planned within 2025. Excellent computational times (from 15 to 5 hours per patient) have been achieved thanks to the implementation of AI. (Technology Readiness Level, TRL 3).*

Capital raised: *1M€ under PNRR Proof-of-Concept ongoing.*



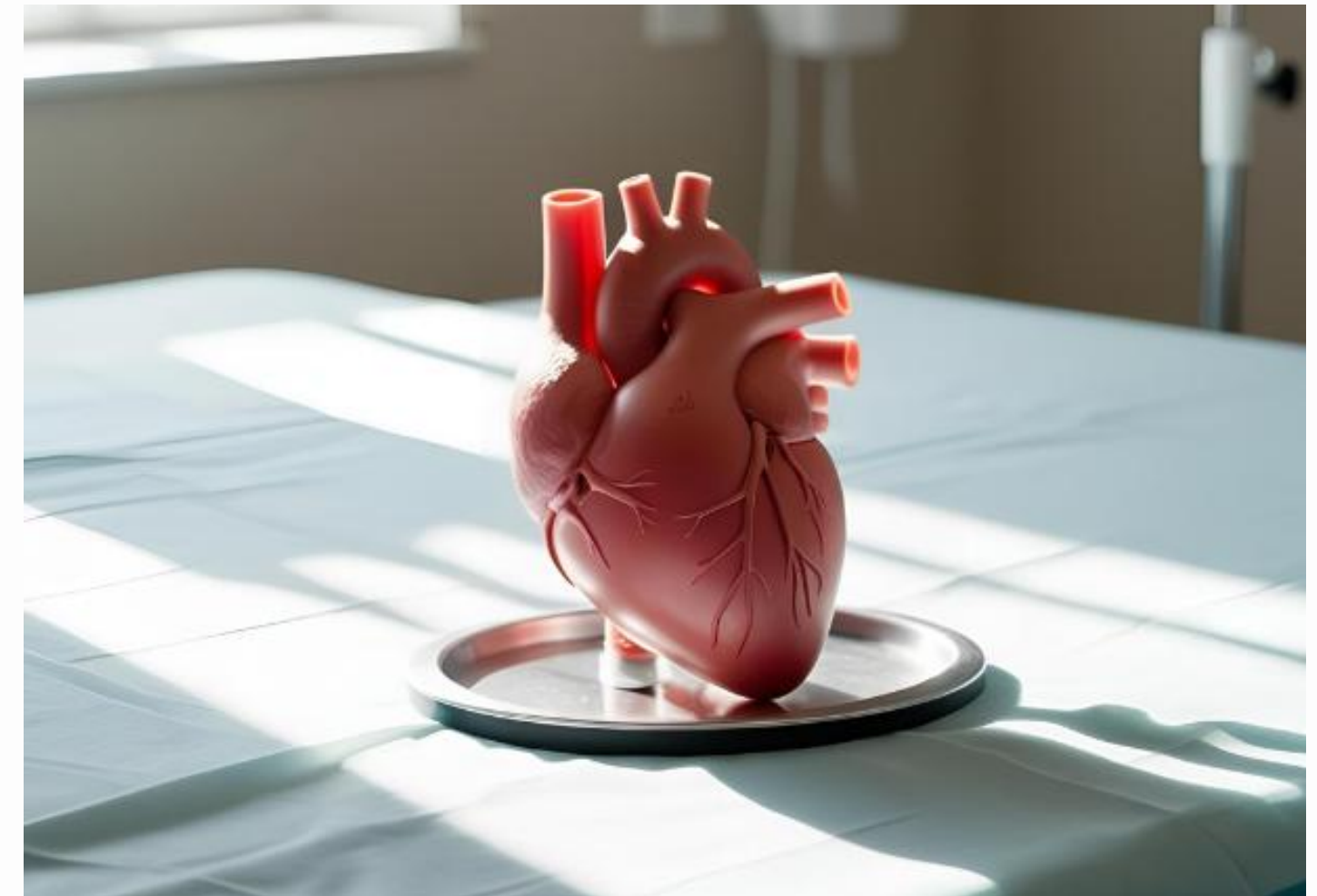
Proposer

Centro Cardiologico Monzino IRCCS (Prof. Gianluca Pontone MD PhD), Politecnico di Milano (Prof. Christian Vergara PhD)

The “CONCERTO” platform for the computational modelling of myocardial perfusion by CT scan

BUSINESS PROPOSAL

CONCERTO is conceived as a stand-alone software applicable to all type of CT scan for the diagnosis of CAD. The research team is actively searching for out-licensing opportunities addressing cardiac imaging market leaders in FFR-CT which can consolidate their control on the market by adding MBF to FFR-CT, or «no-FFR-CT companies» to give them the possibility to jump inside the market with MBF (as an alternative to FFR-CT and not as an addition).



Requested investment

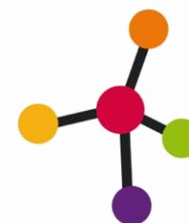
~ 2 M€ up to 2028

Target investor

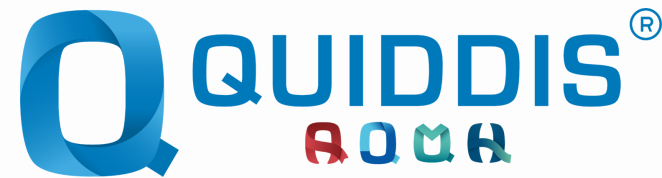
Medium/Large Medical Device Company; Venture Builders



Quiddis Health - REACT/RUFFLE/Speech Therapy



Proposer



Type of organization

Enterprise - SME

Areas of specialization

- *Software development*
- *E-learning services: delivery platform and content creation platform*
- *Bespoke content creation for training, rehabilitation and education*

Located in *Milan*

DESCRIPTION

Grammelot Srl is a technology consultancy company specializing in software development and e-learning services, through its dedicated unit, Quiddis. With over 30 years of experience, the company has created proprietary software to develop and deliver online training for professionals. Building on this expertise, it later applied the same technology to offer distance rehabilitation and prevention programs. The platform was adapted to meet the specific needs of patients and therapists, leading to the creation of a catalog of exercises aimed at enhancing both physical and cognitive abilities, ultimately improving users' quality of life.

Quiddis Health - REACT/RUFFLE/Speech Therapy

DESCRIPTION

Quiddis Health is a combined digital health system composed of a delivery platform - accessible on Desktop by therapists and on a Tablet app by patients - and three catalogs of digital on-demand exercises with complete tracking:

- *REACT* for physical and ADL rehabilitation
- *RUFFLE* for cognitive decline prevention
- *Speech Therapy* for speech impairment rehabilitation

Field of activity and technology

Distant rehabilitation and prevention program

Development stage - MVP

Capital raised - € 20.000,00 + € 25.000,00

Proposer

Grammelot Srl - Quiddis Health



Quiddis Health - REACT/RUFFLE/Speech Therapy

BUSINESS PROPOSAL

Given the global growth of the digital health market and the distinctive nature of its solution—based on on-demand, traceable exercises with detailed online reporting—Grammelot is pursuing two main lines of development:

- *adding new exercises to enlarge the catalog, in order to cover other physical and cognitive abilities or new technologies (eg. AI) to improve rehabilitation + translating it into new languages*
- *reinforcing the system (Desktop and app) making it international with 24/7 support for patients*



Requested investment

\$ 500.000,00 + \$ 500.000,00

Target investor

Equity investor



**I.R.C.C.S. Policlinico
San Donato**
Gruppo San Donato



**UNIVERSITÀ
DI PAVIA**

DynaCor - Dynamic Coronary ischemia

Computational tool for ischemic risk stratification



Proposers



Type of organization

Private Research Hospital

Areas of specialization

Cardiovascular Diseases

Located in *Milan*

DESCRIPTION

Policlinico San Donato Research Hospital is the largest and most renowned Italian center specialized in the field of cardiovascular treatments. Founded in 1969, the multi-specialty healthcare institution is a leader in Italy and among the best centers in Europe for the amount as well as for the complexity of performed cardiac surgery and interventional cardiology procedures in children (>1,000 procedures per year) and adult patients (>1,000 surgical interventions and 6,000 interventional cardiology procedures). The San Donato's Arrhythmology and Electrophysiology Unit delivers one of the highest numbers of cardiac ablations in the world (>1,400 per year).



Type of organization

University

Areas of specialization

C3D Lab - 3D and computer simulation laboratory, that conducts research in cardiovascular biomechanics

Located in *Pavia*

DESCRIPTION

UniPV enjoys international prestige in many areas of research, cooperating with the most qualified research centers worldwide. UniPV has been recognized by the European Commission as a Jean Monnet European Centre of Excellence. Key numbers of UniPV technology transfer are: 67 published patents families, of which 39 have been published in the last five years, 22 active spin offs, half of which operates in the Life Sciences sector, 8 in the agrifood, food safety, environment-aerospace and renewable energy sector and 3 in ICT and electronics.

DynaCor - Computational tool for ischemic risk stratification

DESCRIPTION

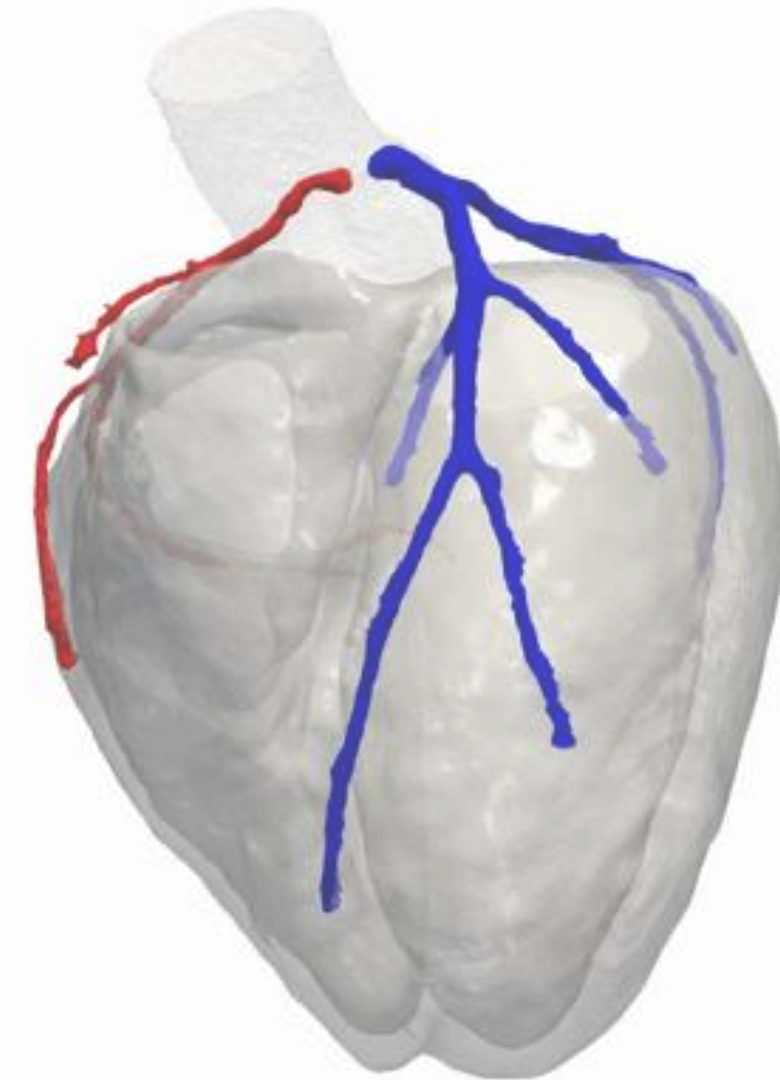
An innovative patient-specific computational model that can simplify and improve evaluation and care of people with Anomalous Aortic Origin of Coronary Artery (AAOCA). The software simulate coronary flow and myocardium oxygen consumption during increasing heart rate. This AI-implemented solution analyses standard diagnostic images to automatically identify and classify AAOCA and estimate a personalized ischemic risk profile and safe intervals for physical activity in relation to the ischemic risk.

Field of activity and technology

Medical imaging processing – supporting medical decision during the evaluation of patient with anomalous coronaries and identification of the best treatment.

Development stage *TRL 3*

Capital raised *1,4 MLN no-profit funds*



Proposer

Policlinico San Donato Research Hospital & University of Pavia

DynaCor - Computational tool for ischemic risk stratification

BUSINESS PROPOSAL

DynaCor is a cloud-based service for CT scan analysis that provides clinicians and hospitals with an easy and accessible evaluation of AAOCA patients. The tool can also be integrated into CT post-processing suites as a plug-in.

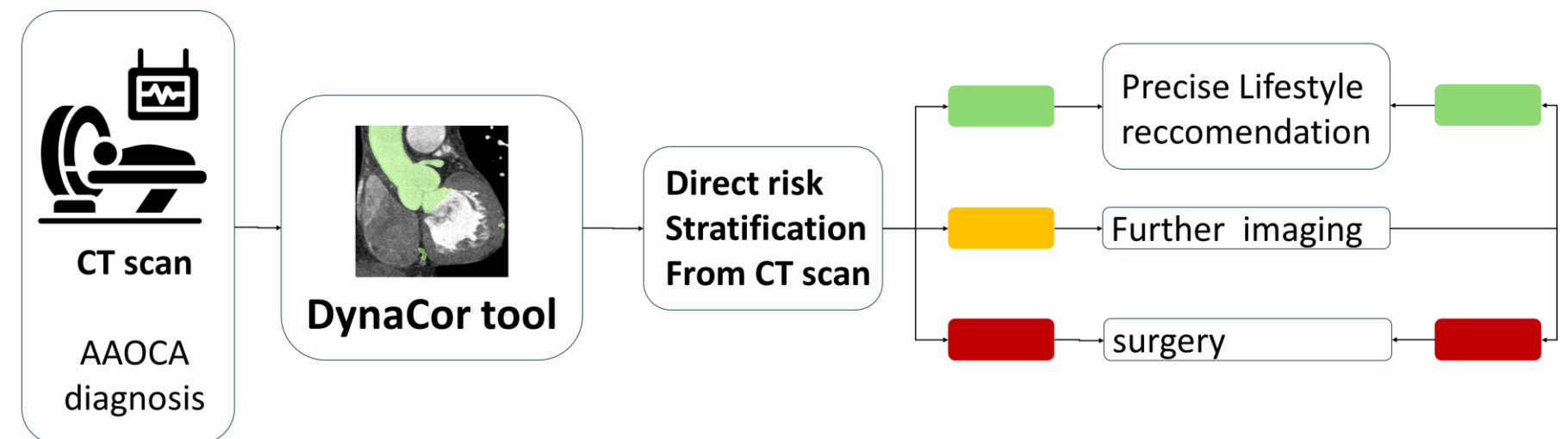
The tool will:

- *Reduce the number of diagnostic tests from 5 to 1, lowering costs and risks*
- *Provide a precise estimation of the risks associated with physical exercise*
- *Allow small clinics to deliver high standard care*

Proof of principle clinical study is ongoing

The proposers are seeking partners for the development of:

- *a consistent workflow of data and related processing*
- *an integrated software platform (diagnostic software)*
- *an ICT infrastructure*

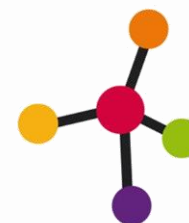


Target investor

Seed VC, Medtech imaging companies interested in co-development



Leverage AI on IEO and CCM Clinical Data Platform to accelerate drug and molecular signatures discovery



Proposers



Type of organization

Private Hospital

Areas of specialization

Oncology

Located in *Milan*

DESCRIPTION

*The **European Institute of Oncology (IEO)** is one of the world's most prestigious hospitals and the fastest growing comprehensive research center in Europe dedicated to the prevention, diagnosis and treatment of cancer. Since 1997, the IEO has been recognized as a Scientific Institute for Research, Hospitalization and Healthcare (IRCCS) providing the highest quality care while also conducting intensive research activities. IEO has contributed to a better understanding of various tumors and has led to new protocols and treatment regimens which have become standard practice both nationally and internationally. IEO and Centro Cardiologico Monzino are part of the same group, as IEO acquired CCM in 2000.*

Contact point: tto@ieo.it



Type of organization

Private Hospital

Areas of specialization

Cardiology and cardiac surgery in the adult

Located in *Milan*

DESCRIPTION

***Centro Cardiologico Monzino** is the first hospital in Europe dedicated exclusively to the research, treatment and prevention of cardiovascular disease and, since 1992, recognized as IRCCS. Thanks to its commitment on cardiovascular health, CCM is able to perform more than 1,500 surgeries, 6,600 interventional procedures, 80,000 specialist examinations and 113,000 major diagnostic tests per year, with a high level of success and reliability. Research activities are fully integrated with clinical departments into a multidisciplinary approach, to translate as quickly as possible, scientific results into new approaches for prevention, diagnosis, and patient care with the mission "Research for Care".*

Contact point: tto@cardiologicomonzino.it

Leverage AI on IEO and CCM Clinical Data Platform to accelerate drug and molecular signatures discovery

DESCRIPTION

Leverage the power of AI on the IEO - CCM Clinical Data Platform (IEO-CCM CDP) to (re)design drug discovery, drug re-purposing, new molecular signature- based diagnostic and prognostic models.

Field of activity and technology

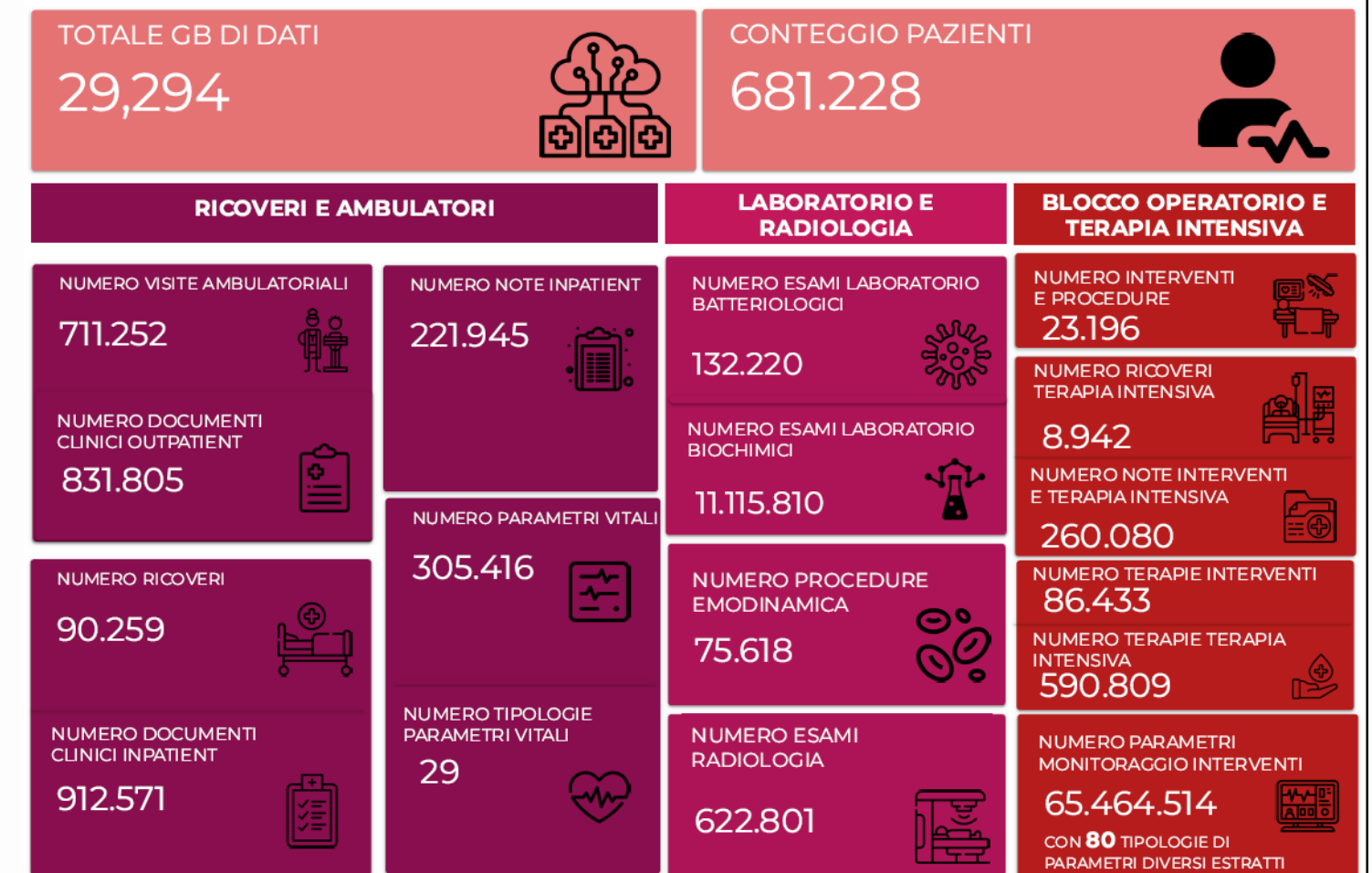
Life Sciences, Pharma, Digital Healthcare, High Performance Computing, HPC, Cloud Technologies, AI algorithms, Advanced Analytics

Development stage

Clinical Data, Multiomics evidence, RealWorld Data are digital assets ready for ingestion into AI-based pipelines/algorithms

KPI CLINICAL DATA PLATFORM

Analisi KPI arricchimento Clinical Data Platform CCM



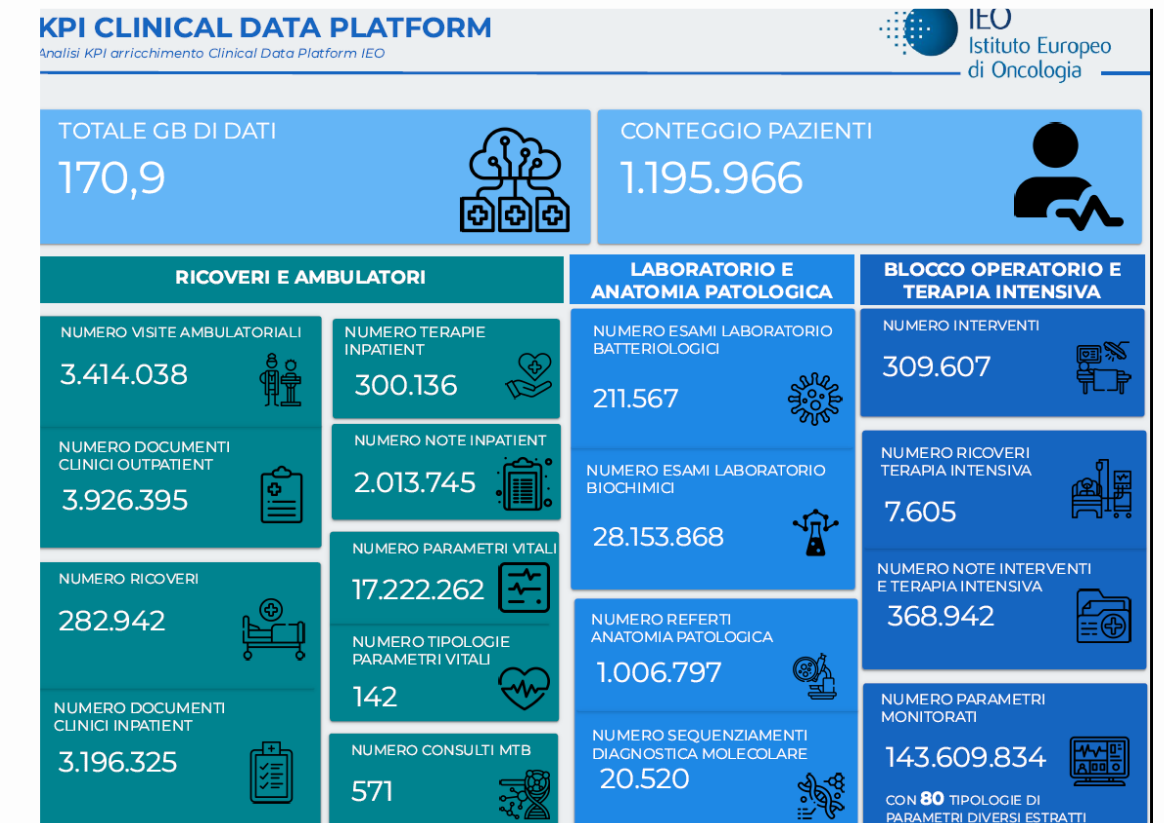
Proposer

Istituto Europeo di Oncologia, IRCCS - Centro Cardiologico Monzino, IRCCS

Leverage AI on IEO and CCM Clinical Data Platform to accelerate drug and molecular signatures discovery

BUSINESS PROPOSAL

Since 2022 IEO has transformed into a data-driven institute. A solid data lake infrastructure, based on Google Cloud Platform and namely IEO-CCM Clinical Data Platform (CDP) has been developed. This platform collects daily clinical data at the point of care, multi-omics data derived from the molecular analysis of biological material from IEO and CCM patients, as well as their real-world evidence (RWE). The IEO CDP contains 30 years' worth of data. The aim is to extract insights from this vast amount of data to find solutions to address unmet clinic needs, support drug repurposing, discover new drugs or to develop new predictive models based on molecular signature among other applications. Additionally, the hospitals own a comprehensive biobank that is being digitalized and integrated with the IEO-CCM CDP. They are also developing AI algorithms in collaboration with external companies and, as dynamic research centres, they conduct both basic and translational research projects. IEO-CCM are actively seeking partnerships with pharmaceutical and biotech companies to explore collaboration opportunities aimed at creating innovative digital platforms.



Requested investment

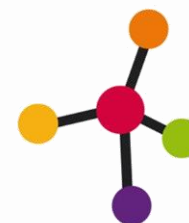
IEO-CCM Clinical Data Platform is ready for the establishment of partnerships.

Target investor

Pharmaceutical and biotech companies aimed to create innovative digital platforms



Galeazzi Virtual Training



Proposer



Type of organization

Private Research Hospital

Areas of specialization

Orthopedics, Regenerative Medicine, Cardiovascular, Bariatric Surgery, Medtech, Artificial Intelligence and digital healthcare, Virtual Reality

Located in *Milan*

DESCRIPTION

*Founded in 1963 in Milan (Italy), the **IRCCS Ospedale Galeazzi – Sant’Ambrogio** (OGSA), since 2001 has been the first hospital for orthopedic admissions in the Lombardy Region and, with 6,000 prosthetic surgery interventions, 1,245 spinal arthrodesis interventions and 98% of cases of femoral fractures operated within 48 hours of hospital admission, it is the Milan reference center for diseases of the musculoskeletal system. Accredited with the National Health System (SSN), OGSA represents a center of excellence in clinical and pre-clinical biomedical research and in teaching activity as a teaching center for the Degree Course in Medicine and Surgery of the University of Milan.*

Since April 2006 OGSA boasts the recognition of Scientific Hospitalization and Treatment Institute (IRCCS) awarded by the Italian Ministry of Health in the discipline of “Diseases of the musculoskeletal apparatus”, and, for over ten years, the acquisition of certification according to the UNI EN ISO 9001 standard for health areas and the management of Scientific Research.

In August 2022 Galeazzi moved to the new hospital building in the “Life Science” technology park MIND– Milan Innovation District. The building is designed according to the most innovative standards of Sustainability and Functionality and obtained the LEED GOLD V4 certification for environmental sustainability. In the new OGSA building two centers of San Donato Group (the first private healthcare group in Italy) were merged: Istituto Ortopedico Galeazzi, international reference center for orthopedic surgery and neurosurgery and Istituto Clinico Sant’Ambrogio, reference center for cardiovascular and bariatric surgery.

Contact Point: *Technology Transfer Office, Dr. Paola Bagnoli email: bagnoli.paola@hsr.it*

Galeazzi Virtual Training

DESCRIPTION

The Need: *The educational training in Medicine is pressed in between two urgent needs: 1) to ensure the uppermost level of safety for the patient; 2) to ensure the highest level of competence for the healthcare professionals through an efficient, reproducible and measurable transfer of expertise.*

Field of activity and technology

The Galeazzi Virtual Training (GVT) is a VR-based educational platform dedicated to the training of surgeons and other medical and paramedical staff. The simulations reproduce the authentic clinical experience, being designed by renowned experts of the field. Basing on the pre-existing level of expertise of the user, the simulation generates specific patterns of interactions maximizing the learning process: the pattern itself may vary during the simulation, according to the user's performance. The entire experience relies on a dynamic flow of interactions between the user and the simulator: the cause-effect chain generates a unique scenario, mimicking the real clinical condition. The outcomes of specific user groups based on their levels of competence (specifically expert and proficient) are analyzed to update and refine the simulation over time, thereby further improving the durability of the simulation. A supervised machine learning algorithm stands behind this specific feature expanding the range of possible interactions (i.e. ALFA).



Proposer

Ospedale Galeazzi - Sant'Ambrogio, Research Hospital

Galeazzi Virtual Training

BUSINESS PROPOSAL

The start up *Hypersurgery*, founded by Dr. Andrea Luca, spinal surgeon of our hospital, develops high quality VR simulations. The collaboration with the hospital allows to guarantee the highest standards of precision and clinical accuracy in reproducing all types of procedures, even the most innovative and cutting-edge.

Medtech companies can commission dedicated simulations for training doctors in the use of their medical devices.

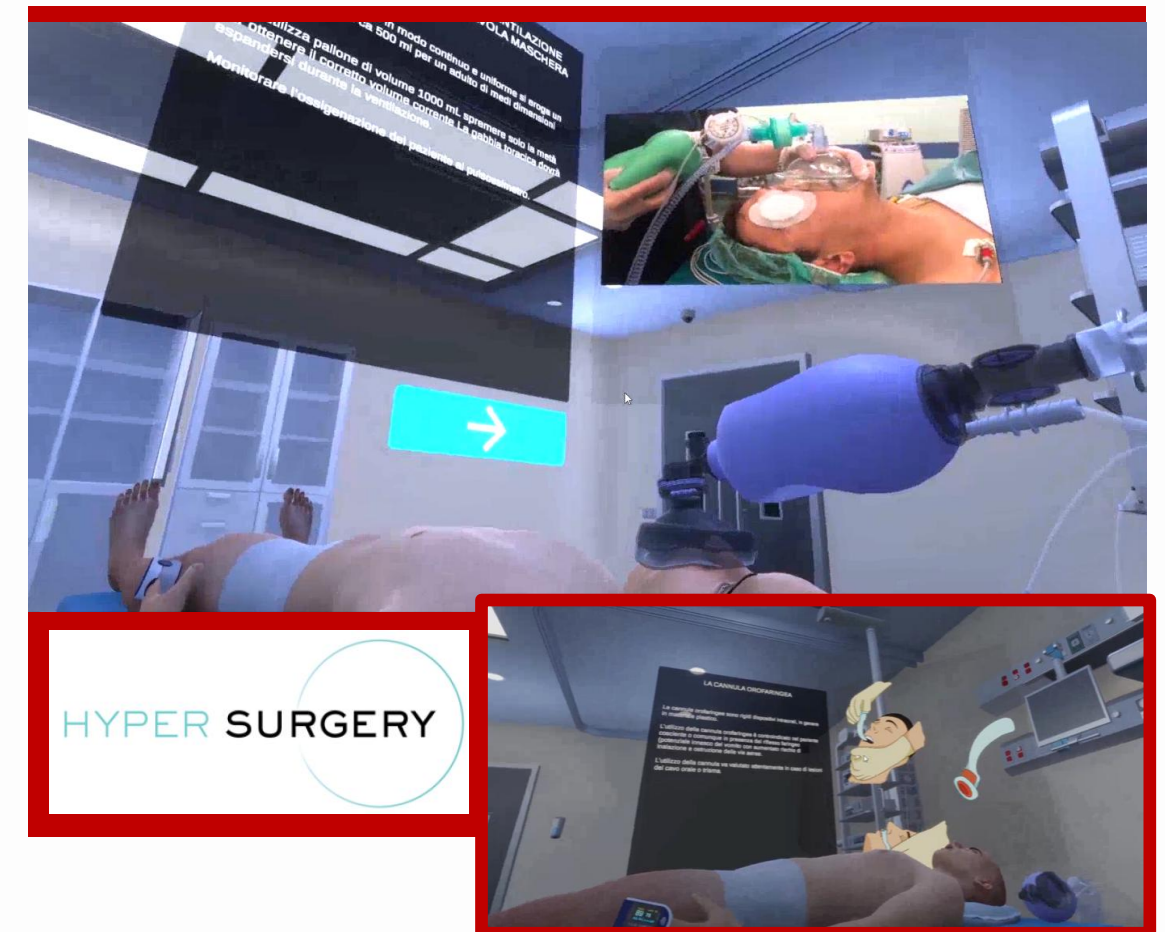
Patents: US and European patent application; Italian Patent granted in 2024.

Development stage Minimum Viable Product (MVP) available.

TRL: 5 for the VR simulator; TRL2 for the AI algorithm ALFA.

Next steps: implementation of a library of VR surgical procedures and implementation of ALFA.

Capital raised: 150k € in non dilutive grants and company services.



Requested investment

500k € seed Investment + about 50k € for each new VR simulated procedure.

Target investor

Venture Capitalists, Business Angels, MedTech companies

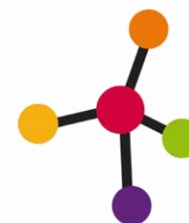


I.R.C.C.S. Ospedale
San Raffaele

Gruppo San Donato

NAP4A

Neurocognitive Assessment Platform for Alzheimer



Proposer



Type of organization

Private Research Hospital

Areas of specialization

Genetic and Rare Diseases, Metabolic Disorders & Diabetes, Neurology & Ophthalmology, Infectious diseases, Inflammation & Autoimmune Disorders, Oncology, Medtech, Artificial Intelligence and digital healthcare.

Located in Milan

DESCRIPTION

***Ospedale San Raffaele (OSR)** is a clinical-research-university hospital established in 1971 in Milan (Italy) to provide international-level specialized care for the most complex and difficult health conditions. OSR is part of Gruppo San Donato, the leading hospital group in Italy. The hospital is a multi-specialty center with over 60 clinical specialties; it is accredited by the Italian National Health System to provide care to both public and private, national and international patients.*

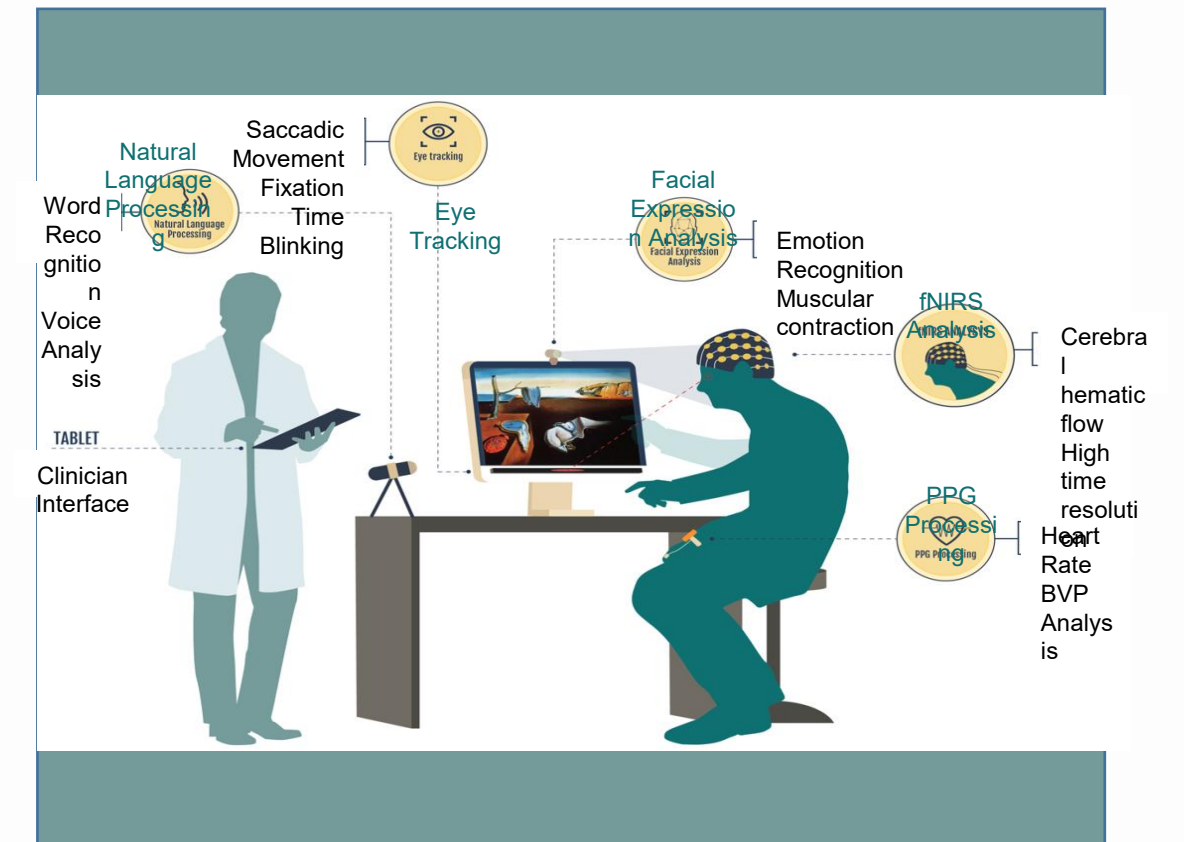
Research at OSR focuses on integrating basic, translational and clinical activities to provide the most advanced care to our patients. The institute is recognized as a global authority in molecular medicine and gene therapy and is at the forefront of research in many other fields. The strong interaction between clinical and scientific areas facilitates rapid transfer of discoveries to patient care. OSR drives successful innovation, adding value to research by forging key industry alliances and engaging in industrial collaborations such as research and licensing agreements. It also fosters innovation through dedicated ventures (e.g., start-ups), where investors, management teams, and researchers combine scientific and managerial expertise. For more details, please visit: www.hsr.it.

Contact Point: *Business Development Division, Dr. Paola Bagnoli email: bagnoli.paola@hsr.it*

NAP4A - Neurocognitive Assessment Platform for Alzheimer

DESCRIPTION

Neurocognitive Assessment Platform for Alzheimer (NAP4A) consists of a digital platform that uses advanced technologies to evaluate the neurocognitive state of an individual. It is a theragnostic instrument able to detect early-stage neurocognitive diseases and administering to the patients a treatment based on non-invasive stimuli, through the use of a specific Artificial Intelligence (AI) system. The neurophysiological parameters of the patient (e.g. eye tracking, electrodermal activity, facial expression) as well as his/her behavioral parameters (reaction times and answer accuracy) are recorded through NAP4A wearable and unwearable sensors. The obtained neurophysiological and cognitive data are analyzed for identifying features associated with physiological aging or AD neurodegeneration. Then, through artificial intelligence-based algorithms, predictive models for the identification of the parameters that best characterize a patient at risk to AD conversion are built. Finally, the best model(s) is used to create personalized indices reflecting the probability of a subject to develop AD.



Field of activity and technology

- *FIRST INDICATION: early pre-clinical Alzheimer Disease (AD) detection.*
- *APPLICATIONS: applicability for the early detection and the study of many other neurocognitive disorders.*

Development stage: TRL 4 - Technology validated in lab

Proposer

Ospedale San Raffaele, Research Hospital

NAP4A - Neurocognitive Assessment Platform for Alzheimer

BUSINESS PROPOSAL

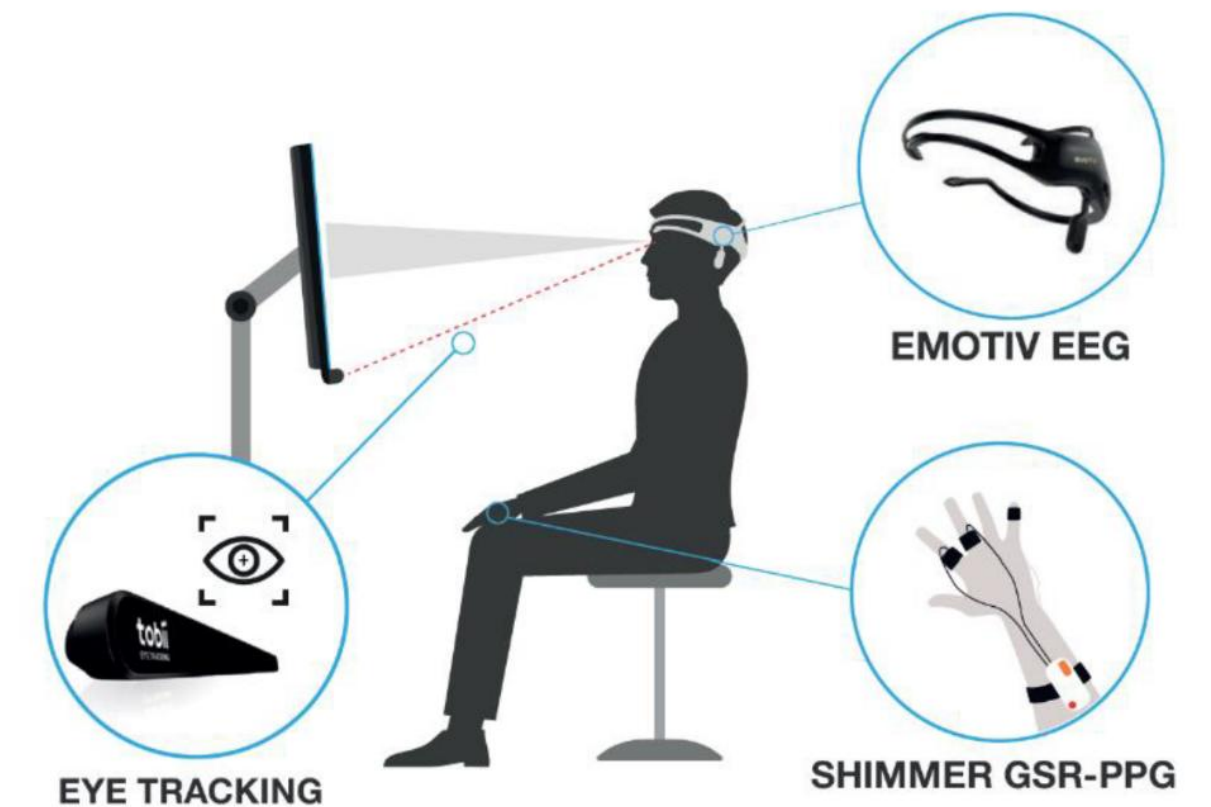
Aims: 1) to develop a digital platform NAP4A for the early detection of subjects at risk to develop Alzheimer Disease (AD); 2) to build a personalized index reflecting the probability of risk to develop AD; 3) To test the NAP4A Platform as a theragnostic tool for the treatment of subject with Amnestic Mild Cognitive Impairment (MCIa); 4) to create a spin off company for the validation and commercialization of the NAP4A platform.

POC: NAP4A is being used in a clinical trial which aims to early detect preclinical AD phase in subject with MCIa. This protocol has been submitted, accepted and approved by the Ethical Committee. 50 healthy subjects and 50 MCIa subjects are being enrolled.

Clinical trial updates: clinical trial ongoing at San Raffaele Hospital. Patient enrolled in March 2025: 31 controls + 7 MCI patients with follow-up visits at 6 months and 1 year.

Patents: International PCT application in November 2023. Italian Patent granted in 2024.

Capital raised: 100k € internal research funds



Requested investment

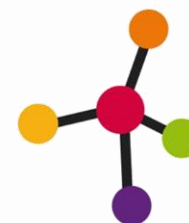
Pre-Seed Investment: 350k € for 2 years (personnel, software, sensors, etc.).

Target investor

Venture Capitalists, Business Angels, Pharma companies developing treatments for AD.



Personalized care solutions based on medical signal and image processing at UNIMIB



Proposer



Type of organization

University

Areas of specialization

Medicine and Surgery, Biomedical sciences and Engineering

Located in *Milan, Monza*

DESCRIPTION

Founded in 1998, the **University of Milano-Bicocca** has grown rapidly to become central in the higher education and research landscape. The University's modernity is reflected in its innovative approach to teaching and its commitment to fostering an inclusive and future-oriented academic environment. Scientific research is the driving force behind technological innovation, enabling the advancement of economic growth and human development when producing high-quality research. Specifically, the School of Medicine and Surgery at the University of Milano-Bicocca delivers world class medical education, research and knowledge transfer that benefit patients and society, healthcare practices and the healthcare education community. The Biomedical Hub of the School of Medicine and Surgery is located in Monza near to the IRCCS San Gerardo dei Tintori Foundation, the centre for healthcare and clinical research focused on personal health, hosting several internationally renowned Centers of Excellence across varied fields of medical specialization. In this context, University of Milano-Bicocca presents two projects in the medical signal and image processing field aiming at creating solutions to support clinicians in personalized care.

GBM treatment assistant tool for supramarginal resection and RT planning

DESCRIPTION

The aim of the project is to develop a tool able to map tumor infiltration and recurrence probability in glioblastoma (GBM) peritumoral zone. Probability maps will rely on basal multiparametric MRI sequences assessing diffusivity and pH level. Maps will be integrated into neuro-navigation and radiotherapy (RT) planning software to guide neurosurgeons in supramarginal resection and radiotherapists in personalized PTV definition.

Field of activity and technology - *Biomedical Engineering; Medical physics; Artificial intelligence; Medical image processing and analysis*

Development stage - *TRL: Current = TRL2; Target (with an industrial partner) = TRL 7*

The development process will consist of the following phases:

- 1. Dataset construction; MRI sequences optimization and validation through genomic peritumoral tissue characterization.*
- 2. Image analysis; algorithms development.*
- 3. Infiltration and recurrence maps validation.*
- 4. Definition of a clinical trial for maps adoption in supramarginal resection and PTV definition.*
- 5. Integration into neuro-navigation and RT planning software.*
- 6. Testing.*
- 7. Product launch.*



Proposer

University of Milano Bicocca

GBM treatment assistant tool for supramarginal resection and RT planning

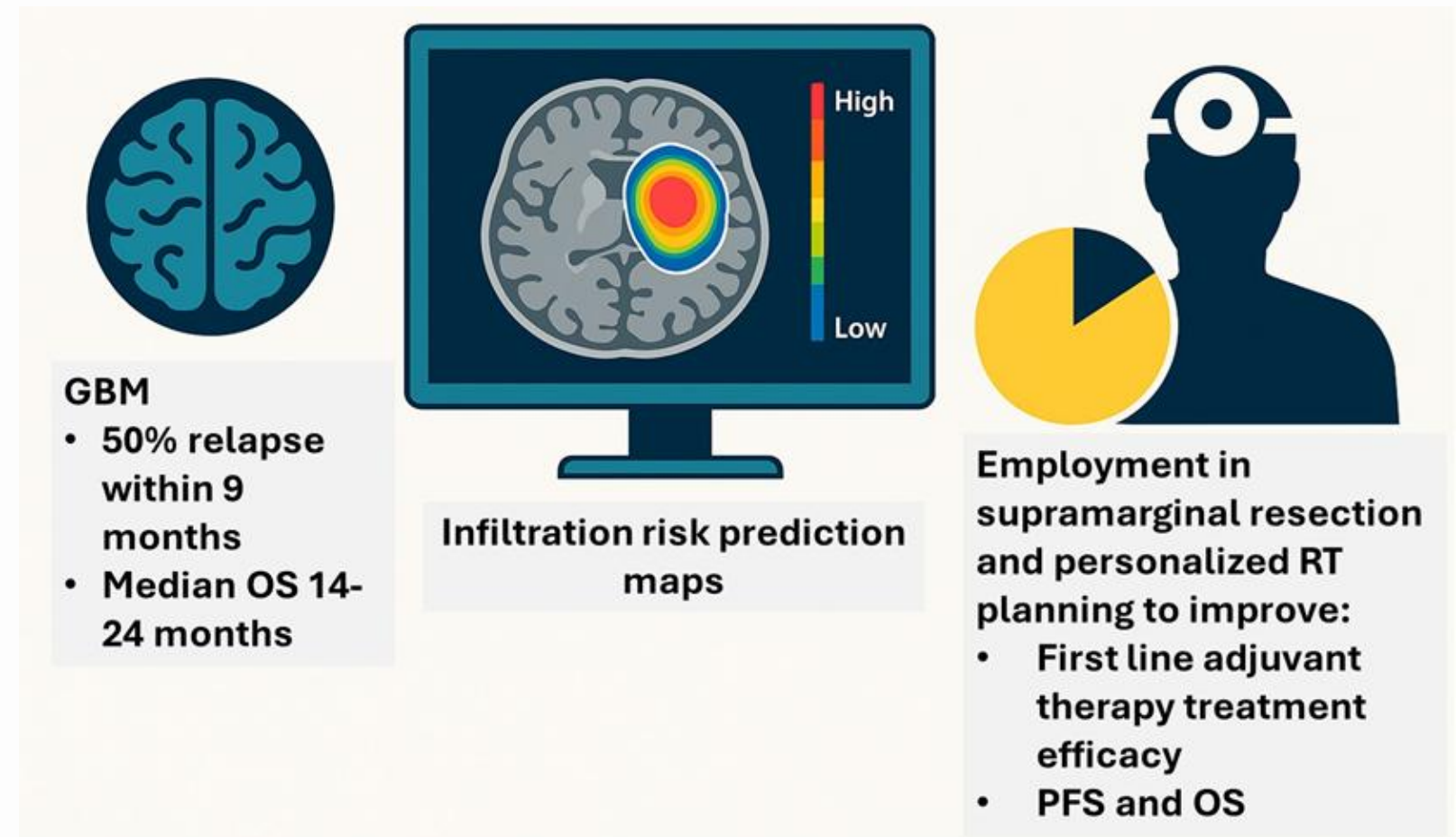
BUSINESS PROPOSAL

Summary: *The project aims to develop a tool to guide neurosurgeons on GBM supramarginal resection and radiotherapists in GBM treatment planning*

Market opportunity: *GBM is one of the most challenging cancers to treat, with no cure currently available. 50% of GBM patients relapse within 9 months, and median OS is 14–24 months. The infiltrative nature of GBM in peritumoral zone (PTZ) remains a challenge for both surgery and RT. PTZ infiltration/recurrence probability maps have the potential to transform GBM treatment with patient-specific approaches that could lead to better precision, reduced adverse effects, and improved outcomes.*

Target market: *Hospitals, Cancer Centers, Research Institutions; Medical Device and Software Companies*

Revenue model: *Licensing fees, Training and support; Research Collaborations*



Target investor

Medical Device and Software Companies

AI-driven assistant tool for continuous monitoring in bipolar disorder

DESCRIPTION

The aim of the project is an AI-driven assistant tool capable of monitoring phase switch in bipolar disorder (BD) through advanced natural language and audio signal processing. To detect and map subtle changes associated with mood fluctuations, the tool will rely on vocal biomarkers and visual representations embedded in speech spectrograms. Individualized mood trajectory maps will be integrated into digital mental health platforms supporting clinicians in the early identification of manic or depressive episodes. The tool is intended for scalable, non-invasive monitoring to inform personalized treatment planning.

Field of activity and technology - *Digital mental health; Speech; Artificial intelligence; Natural language processing; Audio signal processing; Medical image processing and analysis*

Development stage - *TRL: Current = TRL2; Target (with an industrial partner) = TRL7*

The development process will consist of the following phases:

- 1. Data gathering; vocal biomarkers characterization.*
- 2. Speech patterns: combined linguistic and acoustic biomarkers; algorithms development.*
- 3. Speech spectrograms and mood trajectories maps validation.*
- 4. Definition of a clinical trial for individualized maps adoption.*
- 5. Integration into digital mental health platform.*
- 6. Testing.*
- 7. Product launch.*



Proposer

University of Milano Bicocca

AI-driven assistant tool for continuous monitoring in bipolar disorder

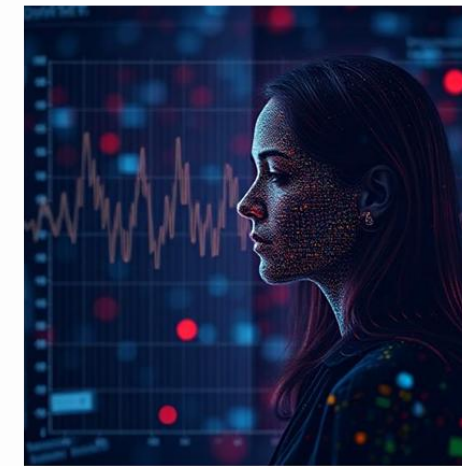
BUSINESS PROPOSAL

Summary: *The project aims to develop a tool to support psychiatrists on mood fluctuations assessment in bipolar disorder (BD) monitoring.*

Market opportunity: *Affecting around 2% of the general population and characterized by mood recurrences, BD is a lifelong severe mental illness with reduced functioning, cognitive impairment and decreased quality of life. The most common age of onset is between 15 and 19 years old. Language disturbances are among the core symptoms of BD. Individualized mood trajectory maps based on speech processing have the potential to monitor mood fluctuations and personalize pathways of care in the assessment of an individual's current experiences, emotions, thought patterns, and symptoms, resulting in better mental health outcomes.*

Target market: *Hospitals, Community Mental Health Centers, Research Institutions; Early Intervention programs; Medical Device and Software Companies*

Revenue model: *Licensing fees, Training and support; Research Collaborations*

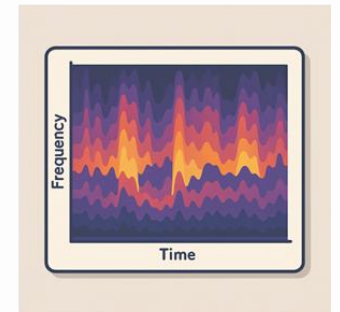


BD

- age of onset is between 15 and 19 years old
- mood recurrences
- manic or hypomanic episodes alternate to depressive episodes



Individualized mood trajectories relying on speech processing



Target investor

Medical Device and Software Companies



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