



Bridging the Early Diagnosis and Treatment Gaps of Brain Diseases



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101017558

Why ALAMEDA?

Digital transformation is a challenging necessity due to rapid ageing of population which will affect the demands placed on the health care system in the future, lead to labor-force shortages and shift the disease burden on the younger generations.

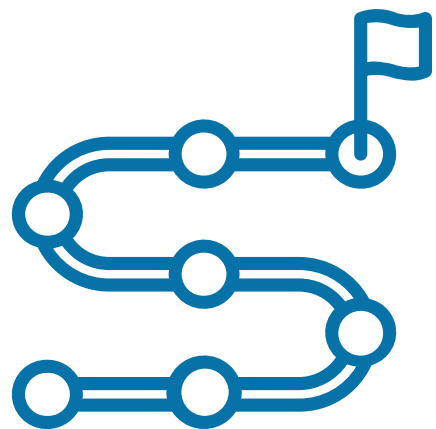
The growing incidence of life-altering brain disorders is likely to have devastating effects on individuals, families and communities and generate **increased expenditure on health and long-term care**.

New opportunities for **improved personalized healthcare and prevention** have been enabled by the recent advances in the **design** and **development** of innovative health risk prediction and intervention tools:

ALAMEDA's vision is to research and prototype the **next generation of personalized AI healthcare support systems** for people with brain diseases, specifically focusing on the needs of patients with **Parkinson's, Multiple Sclerosis and Stroke**.

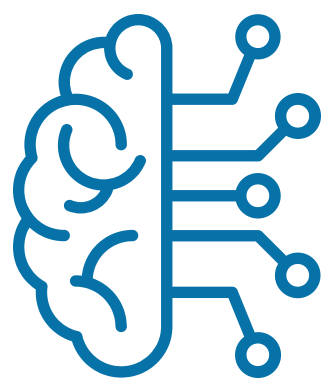


The project's goal



The primary objective of ALAMEDA project **is the better care for patients with brain disorders** through the development of **Big Data Analytics and Machine Learning** methods that can provide clinically actionable information to complement medical recommendations and foster better treatments.

The success of such applications will provide clinicians with the opportunity **to better monitor patients and modify interventions** (including both pharmacological and non-pharmacological treatment options) **based on personalised data recordings**. ALAMEDA's machine learning and AI methodology will ensure that the algorithms are interpretable and provide explanations for their outcomes.



The project's innovations will take advantage of new **AI models**, built upon lifestyle retrospective data as well as new streams of patient data that involve the monitoring of everyday activities, such as **sleep behaviour** and **emotional status**.

Use cases

ALAMEDA

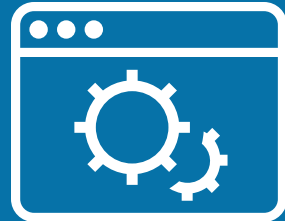
acknowledges that the care of patients with **brain disorders** is complex and manifestations of certain diseases could worsen over time and seriously impair the quality of life of patients and their caregivers: **regular rehabilitation treatment assessments are essential** to ensure that medical interventions are impactful and that the deterioration of state of health can be foreseen.

Digitally **enhance rehabilitation treatment monitoring for stroke patients** to provide continuous update on the patient recovery process.

Test a machine learning algorithm able to **predict the risk of developing a relapse in Multiple Sclerosis.**

Study the **use of sensors in advanced Parkinson's Disease to monitor motor and non-motor symptoms** with the aim to predict the worsening of the manifestations of the disease.

Services



ALAMEDA AI Toolkit

A **web-based hub** giving access to the ALAMEDA Augmented Intelligence.

The **ALAMEDA AI Toolkit** will materialize all **ALAMEDA models** and will make them readily available via the **ALAMEDA Digital Health Innovation Hub** to the wider international research and healthcare community with a special focus on the care of patients with brain disorders.

Digital healthcare stakeholders will be able to experiment with selected project real-time data feeds and historic data sources (e.g. patient cohorts) and also to develop new applications using the ALAMEDA algorithms and ML/AI methods that will be exposed through the ALAMEDA AI Toolkit.



ALAMEDA Companion App

A novel **conversational agent** responsible for collaborative, user-friendly data collection and user interaction.

Guided by ALAMEDA's AI core, the chat-bot will ask questions (tailored to the patient and her/his condition) to the patients in order to collect the appropriate data.

The frequency of the questions will also be adapted to the user preferences and the monitoring plan suitable for that patient according to the needs and recommendations of the clinician. Collaboration in the data collection process is enabled by using the same agent also to collect relevant information from the caregivers or relatives.

Partners

Research organisations



UNIC | Artificial Intelligence Lab



NTNU



CERTH

CENTRE FOR RESEARCH & TECHNOLOGY HELLAS



Information Technologies Institute

Healthcare organisations



HELLENIC REPUBLIC
**National and Kapodistrian
University of Athens**

EST. 1837

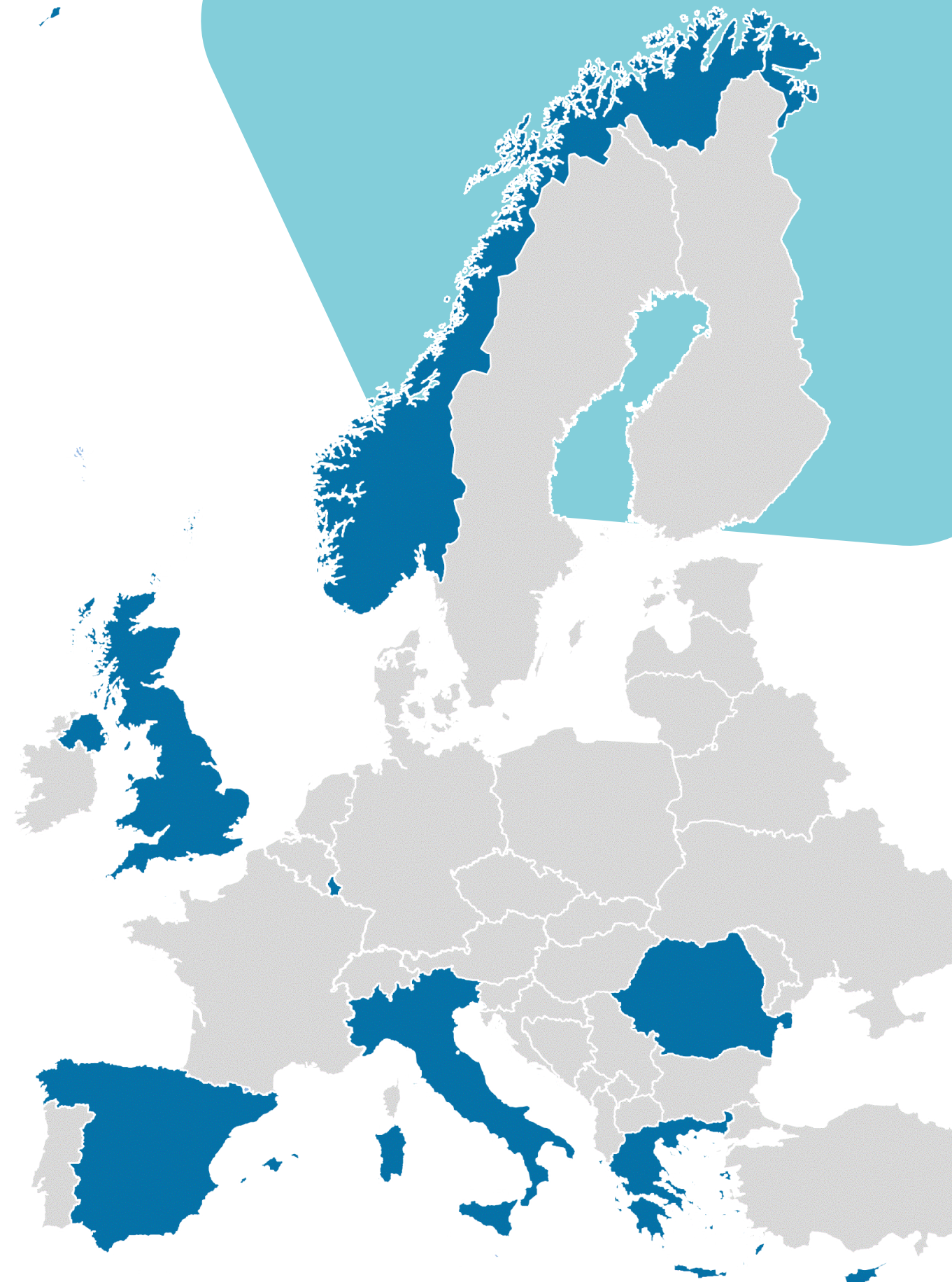
SMEs and corporates



Pluribus One
seeing one in many



uni.systems





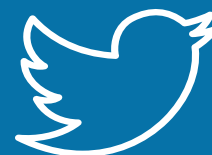
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