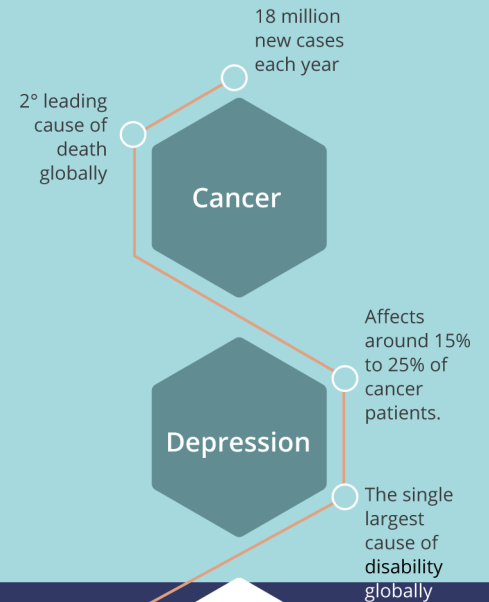


FAITH: a federated artificial Intelligence solution for monitoring mental health status after cancer treatment

FAITH is an EU-funded research project aiming to provide an Artificial Intelligence application that remotely identifies depression markers in people that have undergone cancer treatment.

Cancer patients face several challenges, which may affect their mental health and potentially lead to anxiety, depression, and therefore worsen their quality of life. Signs of depression can be identified by healthcare providers during patients' consultation period, but once the person recovers some autonomy and medical follow-up decreases, those signs may pass unnoticed.

FAITH aims to provide an Artificial Intelligence application that identifies depression markers in people that have undergone cancer treatment, providing intelligent post-cancer support. FAITH is collecting and monitoring a range of health indicators, allowing data gathering and analysis of patients' mental status in a non-intrusive way.



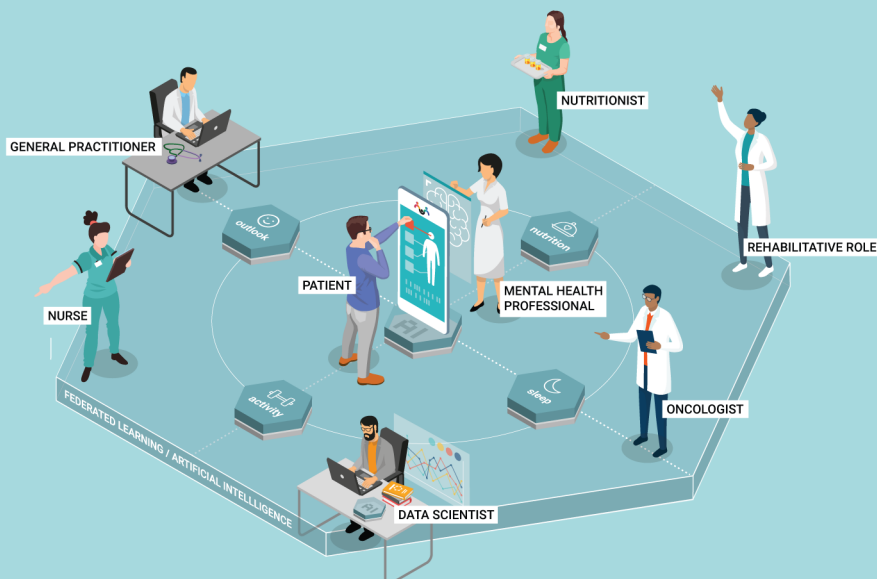
Supporting patients' quality of life

FAITH will provide a better model for mental health monitoring for cancer patients. By using federated learning to predict negative trends in mental health, FAITH will enhance patients' awareness of their own psychological status and present healthcare providers with advanced warnings to allow for timely intervention, thus fostering a better quality of life.



Sources:
World Health Organisation
U.S. Department of Health and Human Services

The FAITH ecosystem



The FAITH app, supported by an AI-based solution, collects and monitors data relating to a patient's activity, outlook, nutrition and sleep.

Local AI elaborates on the data collected, related to the patient's trends, and sends the resulting AI models to the FAITH central system. Patient's data never leaves their devices, to preserve privacy.

When a negative forecast on the patient's mental health is detected, an alert is sent to their healthcare provider.

The healthcare team analyses the nature of the alert and offers proper support to the patient. The patient can always monitor their personal trends.

Components

Mobile Application | Sleep Monitor | NLP Component | Advanced Analytics | Federated Learning

Which major challenges does FAITH tackle?



Identifying the right indicators

FAITH monitors activity, outlook, sleep, and nutrition as **early depression markers** to predict negative trends which could affect patients' quality of life.



Tackling privacy issues

To safeguard user's privacy, FAITH records and processes data **on the user's mobile phone** only, and nowhere else.



Supporting clinicians

FAITH does not make automatic diagnoses of depression. FAITH works to support clinicians, rather than to replace them.



AI trust

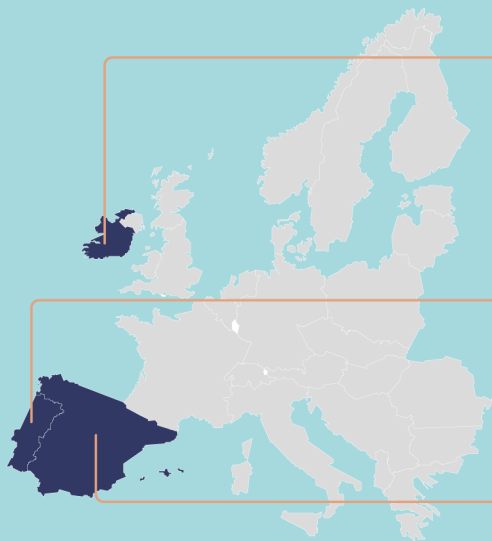
Explainable AI provides the healthcare team with a **reason for its output**, allowing results' interpretation and informed clinical decisions.



Engaging users

The FAITH App will formulate specific questions to engage the user as naturally as possible, using a **voice interface**.

How do we ensure that FAITH has an impact in real life?



UPMC Whitfield
Waterford, Ireland

FAITH has trial sites in three hospitals. These hospitals carry out trial pilots involving **real end users** (both clinicians and patients) to assess the usability and impact of the FAITH concept.

Champalimaud Centre for the Unknown
Lisbon, Portugal

The concept is prototyped to be trialled in a **real-life situation** at the hospital pilot sites. The trials, specifically related to each use case, allow **validation by healthcare professionals and patients**.

Hospital G.U. Gregorio Marañón
Madrid, Spain

Results and findings provide feedback for further requirements gathering and concept refinement.

Which results do we expect to achieve?



Developing an AI app that identifies and analyses depression markers



Validating the AI app with end users to ensure its usefulness.



Fostering awareness of their mental health status in cancer patients and their doctors.

Implementation phases (January 2020 - June 2023)

Pilot implementation



Coordinator
Waterford Institute of Technology (IE)

Consortium
UPM - LifeSTech (ES) | Hospital General Universitario Gregorio Marañón (ES) | UPMC (IE) | UNINOVA Institute (PT) | Champalimaud Foundation (PT) | Deep Blue (IT) | Suite5 (CY) | TFC (IE)



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