



# Collaborating with Industry

## Case Study: ELAROS and Umbria Bioengineering Technologies

Development of a digital companion app to MammoWave:  
An innovative medical device for breast cancer detection,  
as part of an EU HORIZON 2020 project



**UBT**

## Background

ELAROS and Umbria Bioengineering Technologies collaborate as partners in the European Commission-funded MammoScreen project, set up with the aim of generating clinical evidence for the MammoWave device in the detection and prevention of breast cancer.

MammoWave, manufactured by UBT, offers an alternative to current breast screening methods.



## Breast cancer is the most common cancer in the UK with an average of 56,900 women diagnosed per year (1)

In England, women are invited to attend a mammogram through the NHS breast screening programme every three years from the age of 50 to 71. Approximately two million women are screened per year.

Women with a higher risk of breast cancer, such as those with a strong family history, may be eligible for screening before the age of 50 or for more frequent screening, including by MRI scans.

Mammograms can help to find breast cancer early when tumours are too small to see or feel and give women assurance about the health of their breasts.

Mammograms use x-rays and the procedure itself can be painful owing to the need to compress the breast.

In the NHS screening programme, women with very dense breasts (10% of those screened) are four times more likely to develop breast cancer than women with low breast density as dense breasts can mask tumours on mammograms (2, 3)

Alternative methods to the use of x-rays are being investigated, one of which is the use of microwaves, currently being investigated by the MammoScreen project.

This project, funded by the European Commission's Horizon 2020 programme, seeks to provide scientific evidence on a novel medical device, MammoWave, which could improve screening for breast cancer.

The project includes a clinical trial involving up to 10,000 women in 10 study sites across Europe.



## The Origin of the Collaboration

ELAROS and UBT first met as partners in the Horizon 2020 funded ROVER project in 2020. ROVER aimed to tackle global challenges in the optimisation of wireless technology for healthcare.

Having connected through ROVER, ELAROS and UBT subsequently became partners in MammoScreen.

ELAROS and UBT bring complimentary expertise to the collaboration. ELAROS brings skills in the development of digital platforms, apps and PPIE. UBT brings expertise in the development of new screening devices that use Artificial Intelligence (AI) algorithms that drive the interpretation of the images generated by their proprietary MammoWave devices.

**Patient undergoing a mammogram using the MammoWave device**



"This approach really changes the way we approach prevention, especially in younger women and allows us to use resources in a targeted, safe and effective manner"

**Clinicians' view of MammoWave**

"Technology such as MammoWave, if applied on a large scale, could really reduce waiting lists"

## About the MammoWave Device

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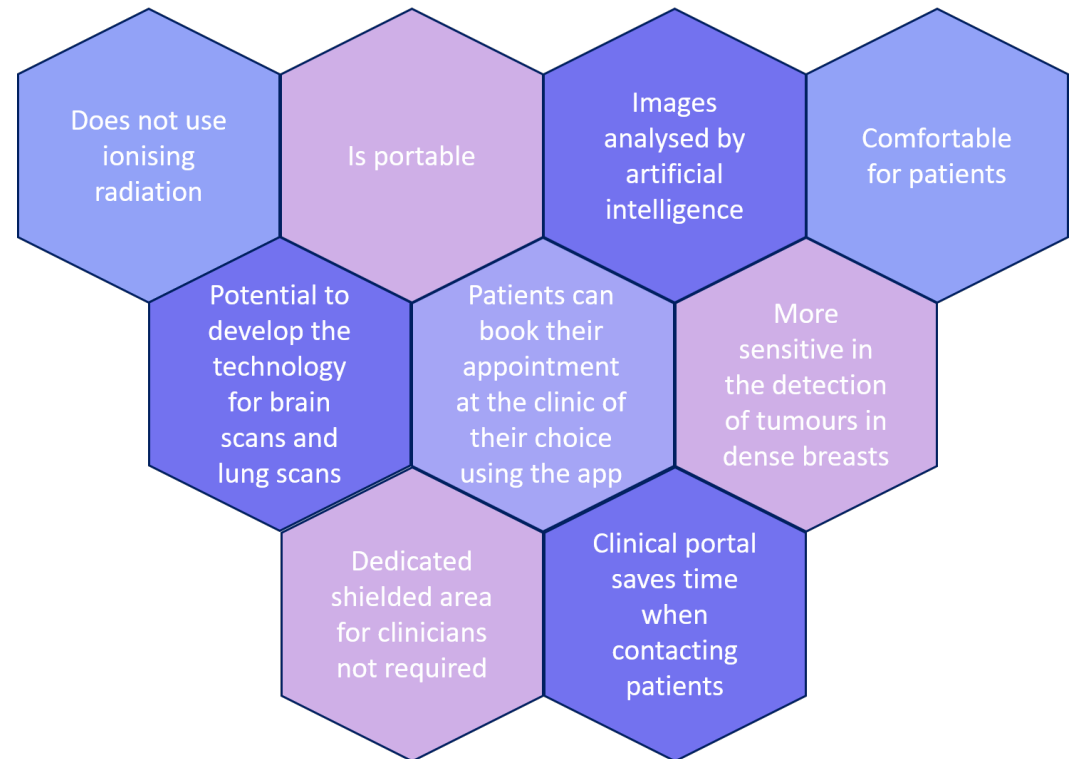
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The MammoScreen Consortium



## Features and benefits of MammoWave



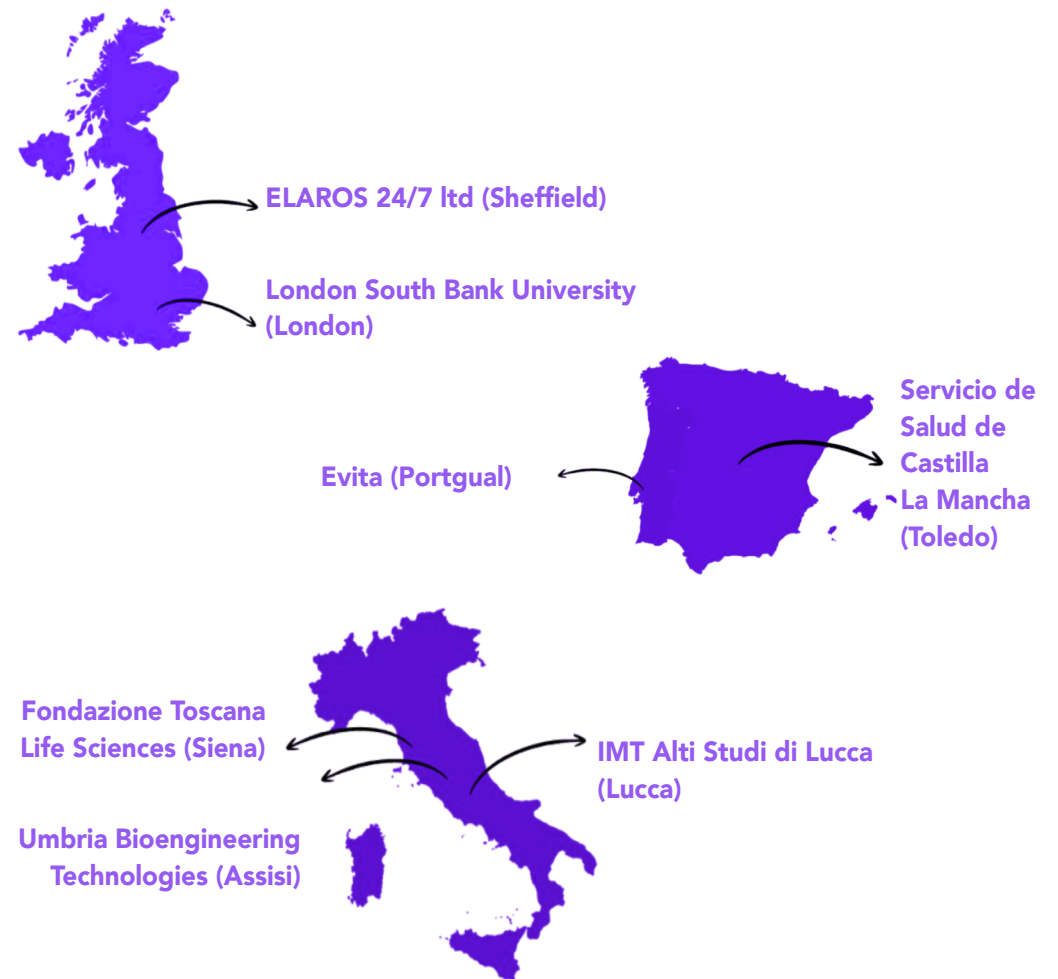
## ELAROS' role in the MammoScreen Project

Together with Evita, a Portuguese-based non-profit breast cancer patient association, ELAROS is the co-leader of a work package focused on patient and public involvement and engagement (PPIE). In this work package ELAROS will develop a clinical web portal and patient-facing app to streamline the entire breast screening process and importantly, will provide a complete digital experience for the patient.

The app enables patients to book appointments on-line at a clinic of their choice, to manage their appointments, access information about the breast screening scan/process, and have their results delivered to their app.

For the clinicians at the private clinics, the clinical portal is a useful method for sending patient reminders about booking an appointment, rather than making phone calls thereby saving clinician time.

Development of the clinical portal and app was driven by patient and clinician involvement, with ELAROS collaborating closely with Evita.



# The benefit of the collaboration for ELAROS

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## The future of the collaboration

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**Professor Paul O'Brien, CEO, ELAROS**

"ELAROS' relationship with UBT is built upon friendship, trust and respect, and a clear sense that both parties know that they complement each other. ELAROS and UBT are planning to develop future technology, BrainWave and LungWave"



**Dr Gianluigi Tiberi, Co-founder, UBT**

"UBT and ELAROS have been working together for seven years through two EU Horizon 2020 projects. We have found clear non-competing synergies that enable us to work as partners on a range of projects and expect to work together over the next decade"

Development of international networks

Expansion of expertise into new clinical areas

Acceleration of scientific work

Development of transformational new technology

**Jennifer Green, Project Manager ELAROS and MammoScreen**



"Our PPIE work highlighted the importance of gathering direct feedback from the end users of the products throughout the development process. Their invaluable feedback will ensure that the vision of the clinical portal and patient-facing app is realised, leading to a better product"

"This approach really changes the way we approach prevention, especially in younger women and allows us to use resources in a targeted, safe and effective"

## About ELAROS

ELAROS is a globally connected digital health SME based in Sheffield, UK, that was incorporated in 2010, backed by private investors and with four NHS organisations as shareholders.

ELAROS is a health company rather than a technology company. Its work is collaboration driven and unmet needs led, rather than technology push.

The company is agile, small enough to respond quickly but big enough and connected enough to be able to deliver nationally and internationally.

"Ideas and opportunities come from everywhere and nowhere in particular. It's all about being proactive" Professor Paul O'Brien, CEO ELAROS.

## About UBT

UBT was founded in 2015 as a spin-out of the Department of Physics and Geology at the University of Perugia, Italy.

UBT is a biomedical company which develops and commercialises a portfolio of innovative medical imaging devices based on cutting-edge microwave technology.

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