Most estimates suggest we are looking at a billion euro market in the long-term.» Niessen suggests.

The potential of this approach has been known for quite some time, but the challenge was to develop robust software that can be used in hospitals and clinics. “It’s one thing to test this approach in a laboratory, but each hospital will have different MRI scanners, different imaging processes and different software. We have to make sure our software works in all these different settings and still produce accurate results,” says Niessen.

Taking research out of the laboratory

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The success of the project was down to the collaboration between the different partners. “We have a lot of expertise at Quantib,” says Niessen, “but we are primarily interested in volume and shape of the hippocampus while Biomediq has expertise on the texture of brain matter. In the end, it is a combination of features that provide the most information.”

Using case studies from the Erasmus University Medical Centre, the artificial intelligence system was trained to ensure an accuracy that was comparable to human beings.

A billion Euro market in the making

“We already see enormous interest in using artificial intelligence to improve the diagnosis and prognosis of dementia. It is difficult to predict how large this market will be, but most estimates suggest we may be looking at a market as large as a billion euro in the long-term,” Niessen suggests.

“Eurostars funding has been instrumental in helping us develop the software,” says Niessen, “without which we wouldn’t be in a position to transform how dementia is diagnosed and treated in the future.”

Through pioneering algorithmic analysis, the Eurostars project BRAINIQ has developed software that uses artificial intelligence to detect the signs and progression of dementia in a patient’s MRI scans.

The innovation was developed through successful collaboration between Quantib and the Erasmus University Medical Centre in the Netherlands, and Biomediq in Denmark.

“Our technical challenge was to get as much information as possible out of non-invasive imaging methods such as MRI scans,” explains project coordinator Professor Wiro Niessen, Scientific Director of Quantib. “And it’s not the information that you can get from a single scan but also how the brain changes over time is important.”

One of the hallmarks of Alzheimer’s disease is shrinkage of brain tissue, especially around the hippocampus, an area of the brain associated with the consolidation of short and long-term memory. “If we can understand how the volume of the hippocampus and also how the total volume and texture of brain tissue changes as the disease advances, it can help with detection and prognosis,” explains Niessen.

Taking research out of the laboratory

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