Delivering MRI scans to medical staff in a fraction of a second could significantly boost the effectiveness of various treatments, reduce patient risk and lower costs through shorter hospital stays and higher throughput.

In this way, the new imaging technology, delivered through the SoRTS (System of Real-Time Systems) project, will help the health sector in its transition from invasive, open surgery to minimally invasive, image-guided interventions. The technology is currently on trial at 16 university hospitals around the world, and a roadmap towards commercialisation is in operation. “First orders are already in,” says SoRTS project coordinator Dr Frank van der Linden, Senior Project Leader at Philips in the Netherlands. “We have gained market approval and are ready to hit the market in 2019.”

Healthy collaboration
The SoRTS project brought together a team of technology firms and medical specialists to demonstrate how this could be done. The solution they came up with combines Philips’ MRI imaging systems with therapy systems such as linear accelerators (Linac) and high intensity focused ultrasound (HIFU), capable of destroying malignant tissue via minimal or non-invasive methods. New software was also introduced. These systems were provided and trialled by project partners Nucletron, Elekta, Philips Finland and UMC Utrecht. Procedures were validated in several radiotherapy applications.

“A key advantage of this Eureka ITEA3 cluster project was that it provided the basis for bringing together this diverse team, all working towards a single goal,” says van der Linden. “Collaboration between large and small companies and academia was made much easier because there was a framework in place. Without this, issues such as IP protection and funding would have been far more complicated.”

University Medical Center Utrecht, which has been an integral partner in the project, has been instrumental in trialling the technology and spreading word of the clinical advantages. “The more the precision increases, the greater the potential for the system to be used on all patients who require treatment, and for more patients to be treated,” notes van der Linden. Other facilities to have installed the new technology include the Netherlands Cancer Institute, the University of Texas MD Anderson Cancer Center and the Institute of Cancer Research, working with its clinical partner The Royal Marsden NHS Foundation Trust in London.

The present MRI market has been valued at around EUR 4.5 billion, and the potential cost savings made possible by faster imaging presents a clear market opportunity. Furthermore, the high-speed integration of machines has relevance not only for medical applications but for other image-guided feedback systems, for example in the security sector.