

MEDIA RELEASE

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GE Healthcare and A*STAR Co-Develop Medical Technologies for Next-Generation Imaging Diagnostics and Patient Monitoring

The collaboration taps on Singapore's strengths in research and development, and contributes to the growth of MedTech innovation in Asia and around the world

GE Healthcare and the Agency for Science, Technology and Research (A*STAR) today announced the co-development of innovative medical technologies that will aid healthcare providers worldwide to deliver faster and more accurate diagnoses, improve treatment strategies, and achieve greater productivity in workflow.

Leveraging GE Healthcare's expertise in medical and information technologies, and A*STAR's capabilities in data analytics and high-performance computing, both parties have developed technological advancements in imaging diagnostics and patient monitoring. These developments are the result of a five-year joint research and development collaboration that was initiated in 2014.

The new technologies have been built into GE Healthcare's products across a range of different patient care equipment and applications, with others in the process of being implemented into GE Healthcare's solutions globally. Some of these innovations are available in GE Healthcare equipment in Singapore, the United States, Europe, China and Japan.

Demand for quality healthcare in Asia is on the rise against the backdrop of an ageing population, a growing middle class, and the prevalence of chronic diseases. The MedTech market in Asia is expected to grow at a compound annual growth rate of 8 per cent, to become the second largest in the world by 2020¹. Medical innovations are therefore increasingly important to elevate the standards of healthcare and deliver greater value to patients.

Imaging technologies, such as Positron Emission Tomography (PET), Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) scans, are integral to healthcare systems. They help doctors detect, diagnose and monitor medical conditions, from neurological disorders, heart disease to cancer, at their early stages.

¹ Source: <https://www.edb.gov.sg/en/our-industries/medical-technology.html>

One of the new solutions jointly developed by A*STAR and GE Healthcare teams improves the PET scan procedure using high performance computing, enabling quicker scans and shorter waiting time for patients at hospitals and clinics. The feature involves a more streamlined digital PET image reconstruction which results in a reduction of approximately 15 minutes off the existing workflow which would typically take almost 40 minutes to complete. In August 2017, RadLink Asia, a wholly-owned subsidiary of Fullerton Health, invested in the GE Healthcare digital PET/CT scanner that features this improvement.

“After the new digital PET/CT scanner was installed at our flagship diagnostic center last year, we were able to increase our rate of scanning patients by 20 per cent². Technology innovations are key to addressing the rising demand for healthcare in Singapore and Southeast Asia. We are committed to continue investing in technology to deliver world class diagnostic services to our patients and physicians,” said Royston Lek, Country Managing Director of Fullerton Health Singapore.

Other innovations improve image reconstruction algorithms in CT scans which could bring less image distortion and higher quality of scanned images, and include a technological platform that supports decision-making for stroke treatment. The partnership also developed more robust wireless communication technologies to improve remote patient monitoring, which has become increasingly important in ambulatory patient care (See Annex A and B for details).

As part of the collaboration, GE Healthcare and A*STAR are developing a pipeline of digital solutions, including a diagnostic imaging system for Parkinson’s Disease and advanced capabilities for surgery motion tracking.

The expanding partnership is a testament to Singapore’s rich and robust MedTech ecosystem, and strength as a hub for high-tech innovation. From 2000 to 2015, Singapore’s MedTech manufacturing value-add grew from \$0.8 billion to \$3.5 billion.³ Singapore is also home to over 60 multinational MedTech companies which engage in activities such as manufacturing, and research and development.⁴

Michael Barber, President and CEO, Molecular Imaging and Computed Tomography at GE Healthcare, said, “Singapore is at the forefront of medical innovation and R&D, and we value the opportunity to work with Singaporean organisations like A*STAR to develop the next generation of healthcare technology. Leveraging both our strengths has not only resulted in new innovations to GE’s solutions, they are helping to address the fast-growing healthcare needs of Southeast Asia and the world.”

² Based on a two-week comparison between GE’s digital PET/CT scanner and a non-digital PET/CT scanner at RadLink Paragon in Singapore

³ Source: <https://www.mti.gov.sg/NewsRoom/Pages/Speech-by-Minister-S-Iswaran-at-the-Joint-Opening-Ceremony-of-Medical-Manufacturing-Asia-2016-and-Medical-Fair-Asia-2016-.aspx>

⁴ Source: <https://www.edb.gov.sg/en/our-industries/medical-technology.html>

Dr Benjamin Seet, Executive Director, Biomedical Research Council (BMRC), A*STAR, said, “Digital technology will disrupt and transform healthcare. Our partnership with GE Healthcare is a clear demonstration of how open innovation can work to develop cutting-edge solutions that have already benefited patients. This not only brings value to our partners, but provides tangible benefits for Singapore’s research, innovation and enterprise (RIE) and healthcare systems.”

Enclosed:

ANNEX A – Implemented Technologies Developed under GE Healthcare-A*STAR Partnership

ANNEX B – Innovations with Implementation Ongoing

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About the Agency for Science, Technology and Research (A*STAR)

The Agency for Science, Technology and Research (A*STAR) is Singapore's lead public sector agency that spearheads economic oriented research to advance scientific discovery and develop innovative technology. Through open innovation, we collaborate with our partners in both the public and private sectors to benefit society.

As a Science and Technology Organisation, A*STAR bridges the gap between academia and industry. Our research creates economic growth and jobs for Singapore, and enhances lives by contributing to societal benefits such as improving outcomes in healthcare, urban living, and sustainability.

We play a key role in nurturing and developing a diversity of talent and leaders in our Agency and research entities, the wider research community and industry. A*STAR's R&D activities span biomedical sciences and physical sciences and

engineering, with research entities primarily located in Biopolis and Fusionopolis. For ongoing news, visit www.a-star.edu.sg.

About GE Healthcare

Harnessing data and analytics across hardware, software and biotech, GE Healthcare is the \$19 billion healthcare business of GE (NYSE: GE). As a leading provider of medical imaging equipment, with a track record of more than 100 years in the industry and more than 50,000 employees across 100 countries, we transform healthcare by delivering better outcomes for providers and patients. Follow us on [Facebook](#), [LinkedIn](#), [Twitter](#) and [The Pulse for latest news](#). Visit www.gehealthcare.com for more.

Implemented Technologies Developed Under GE Healthcare – A*STAR Partnership

- Streamlined digital PET image reconstruction which resulted in a reduction of 15 minutes off the existing workflow which would typically take almost 40 minutes to complete. This is an achievement considering the highly-intensive process of reconstructing digital scans in high-resolution. The improved workflow enables more efficient acquisition times, and shorter waiting times for patients at hospitals or clinics. The solution has since been implemented within GE Healthcare's digital PET/CT system which features high-resolution images acquired at a lower radiation dose, providing patients with peace of mind and enabling clinicians to diagnose and stage disease earlier, and more confidently plan treatment strategies.
- Optimised the image reconstruction algorithm in a current GE CT scanner that eliminates the possibility of image distortions caused by metal artifacts during CT scans.

Innovations with Implementation Ongoing

- A new technological platform for stroke treatment decision-making. The innovation behind the platform features the use of data analytics to analyse CT scans of stroke patients, alongside other data such as vital signs and cognitive tests. The insights derived will enable a holistic approach towards decision-making for treatments that improves stroke care and patient outcomes.
- Remote patient monitoring allows doctors to collect digital data, in the form of patients' medical and health information, outside of conventional healthcare settings like hospitals. Remote patient monitoring is becoming increasingly important in ambulatory patient care. GE Healthcare and A*STAR improved the adaptability of GE Healthcare's wireless docking systems to connect to a wide spectrum of portable electronic devices, and also strengthened the robustness of its devices to allow seamless and secure roaming of the wireless local area network.
- Inclusion of a feasibility study on automated graphical prescriptions for MRI scans. The innovative solution uses high performance computing to reduce the need for technologists with high levels of experience or in-depth anatomical knowledge, and as a result reduces the need for rescans while ensuring high quality data and a clear differentiation of diseased and healthy tissue, enabling doctors to diagnose with greater confidence.