

MedTech R&D and Innovation in APAC: Singapore as a Key Node

Asia continues to be a major growth market for MedTech companies as interest increases from companies to establish both manufacturing and innovation hubs in the region, especially in Singapore. As a major driving force for technology innovation in areas such as artificial intelligence and machine learning, many companies are looking to Singapore for its position as a leader on the cutting edge of the next wave of innovation in MedTech, given its vibrant biomedical sciences and advanced manufacturing sectors.

Insights provided during a May 2024 DeviceTalks Boston live event panel on MedTech innovation

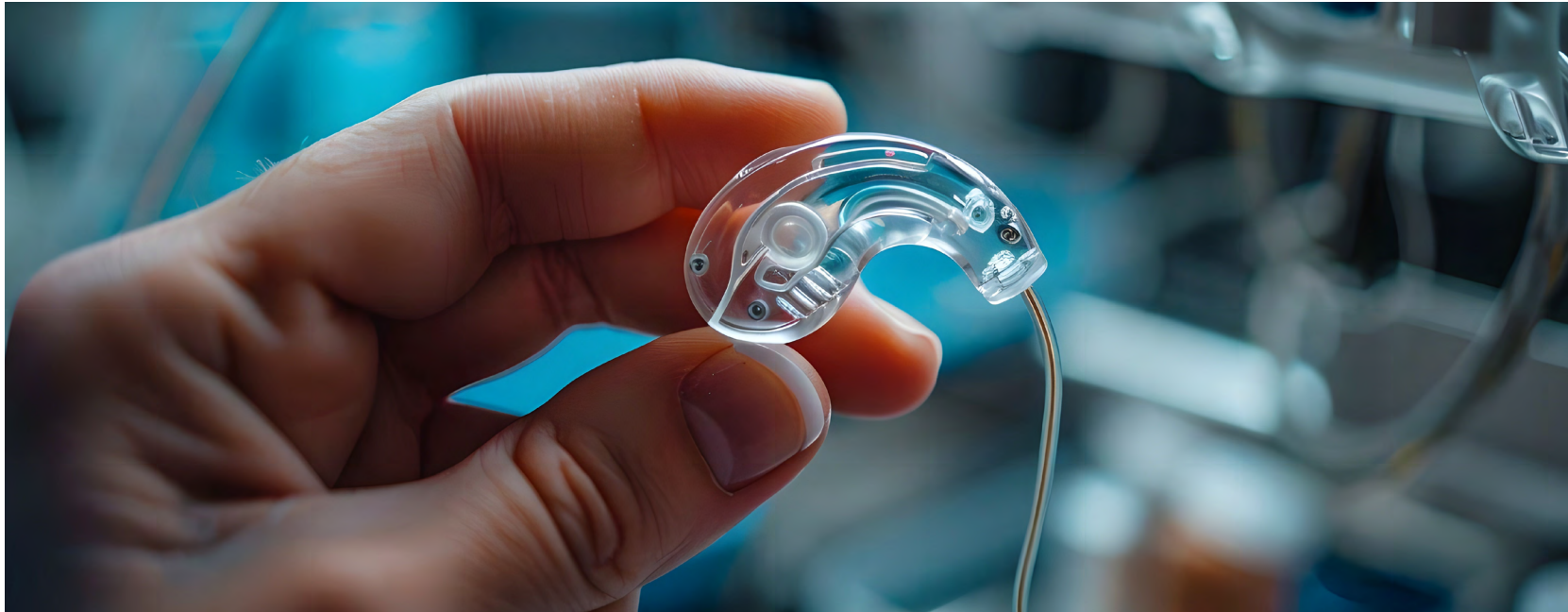
- **Jun Long Tay**, Regional Director, Americas, Singapore Economic Development Board (EDB)
- **Rodolphe Katra**, Global Vice President of Artificial Intelligence, Medtronic
- **Gurpreet Singh**, CEO and Founder, Respiree
- **Wan Yee Goh**, Senior Vice President and Head, Healthcare, Singapore EDB

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Innovation in Asia — MedTech R&D



Many technology and manufacturing leaders have recognized the benefits Singapore offers, with its intellectual property regime and business-friendly tax environment. Specific to MedTech, companies can access an Asian market that is expected to grow to US\$225 billion by 2030 at a compound annualized growth rate of 10.5%.

Major MedTech companies have taken note, with many now realizing Singapore as an innovation hub. In June, for example, global hearing aid industry leader WS Audiology announced the opening of an audiological research laboratory in

Singapore to serve as a research center dedicated to conducting audiological research for the Asian population. Becton Dickinson (BD), a Fortune 500 global MedTech company that is advancing the world of health by improving medical discovery, diagnostics and the delivery of care, has also continually expanded its manufacturing facility in Singapore since 2014.

To support initiatives like these and many others, the Singapore Economic Development Board (EDB), a statutory board under the Ministry of Trade and Industry of the

Government of Singapore, plans and executes strategies to sustain the country as a global hub for business and investment, including health care innovation.

“On the healthcare system, Singapore only spends 4% of our GDP on healthcare, compared to the UK, which spends about 8%, and the U.S., which spends about 16%,” says Wan Yee Goh, Senior Vice President of Healthcare at EDB. “We are able to achieve similar healthcare outcomes with very little spending.”

The Asia-Pacific region, which counts 3.8 billion people, or more



Innovation in Asia — MedTech R&D · continued

than half the world's population, is the fastest growing worldwide and is expected to be the second-largest market for MedTech by the year 2030.

“Along with the growth of manufacturing, we have also seen Singapore becoming a trusted node for R&D activities in Asia for global companies,” says Jun Long Tay, Regional Director at Singapore EDB. “For example, leading medical supplies company BD undertakes both manufacturing and product development (including product R&D and process design) in Singapore. Resmed, a leader in respiratory devices and which opened a Singapore advanced manufacturing center in 2022, also conducts global product development for its key sleep apnea product lines out of its Singapore site today.”

Clinical Data



Singapore's clinical data is differentiated from most other countries' data assets through the country's robust and longitudinal biospecimens and multi-omics data, across cohorts from pre-birth to adulthood. Data assets are a lot more deeply phenotyped and multi-modal than most biobanks around the world, and Singapore is encouraging interested industry partners to embark on cutting-edge R&D collaborations.



Innovation in Asia — MedTech R&D · continued

“Singapore has embarked on a National Precision Medicine Strategy which aims to map the genomes of 100,000 healthy Singaporeans — with a longer term goal to expand this to one million,” says Tay. “Since Singapore contains more than 80% of Asia’s multi-ethnic diversity, this will form Asia’s leading and largest reference genome database.”

R&D Partnerships



Singapore continues to be an attractive location for companies to engage in R&D activities and partnerships. Its national research institutes have partnered with leading global players such as GE Healthcare and Johnson & Johnson to work on MedTech-specific problem statements across software and hardware product R&D and integration, as well as manufacturing process improvement. As of 2024, Singapore is home to more than 30 R&D centers in the biomedical sciences sector.

AI Expertise



As part of its National AI Strategy 2.0, Singapore has announced more than US \$750m to be invested in AI over the next five years in areas of AI compute, talent and industry development.

“We have more than 1,100 AI startups today. We have more than 150 AI R&D teams across notable

companies, whether it’s SAP, Salesforce, or American Express,” says Tay. “Supporting this is a base of more than 220,000 technology and media professionals. The likes of Google and Nvidia have also established signature programmes in Singapore to support companies in developing GenAI use cases. We welcome interested MedTech companies to plug into the Singapore ecosystem, form partnerships and build new products and services for the region and the world.”

In the healthcare sector, J&J has invested more than \$48 million to pioneer a new integrated eye health ecosystem in Singapore. This includes partnering with AI Singapore to investigate the use of AI to improve consumer experiences, and leveraging data for real-time insights to better support patient needs in eye health.

“Specifically for Singapore, our ambition is to become the leading

ecosystem in Asia for companies to develop and advance adoption of AI-enabled healthcare solutions,” says Tay. “To help us achieve this, the Government will continue to work on the creation and access to clinical data, fostering more public-private partnerships, leveraging digital industry expertise, and grooming MedTech R&D talent.”

MedTech R&D Talent



Singapore is home to a growing MedTech talent pool, bolstered by a strong pipeline of new graduates from its world-class institutes of higher learning and active industry training programmes. With more than 16,800 employees already in the MedTech sector and more in the pipeline, companies can build teams with industry-relevant talent. ●

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How Medtronic and Respiree are innovating from Singapore



Medtronic is a leading medical device company consisting of implantable and external medical devices, as well as interventional procedure solutions for ablations, robotic surgery, and other innovations in the MedTech space.

“We have had a very strong and long relationship in Singapore,” says Rodolphe Katra, Global Vice President of Artificial Intelligence at Medtronic. “We have over 1,000 people there in three different facilities. One is manufacturing, and two of them are regional headquarters for innovation partnership and educational activities in the area.”

Innovation process: According to Katra, global innovation includes working with countries that have a sophisticated ecosystem that includes the following:

- A national strategy that includes government-level support and drive for the country
- World-class institutions, where ample partnerships (academic institutions, healthcare institutions, as well as the A*STAR) can be sourced
- Local talent, which can be critical to finding rare skill sets, especially in the area of AI

- IP protection, including for multinationals that operate globally
- A healthy MedTech industry based on a thriving healthcare ecosystem

Respiree, a digital therapeutics company focused on providing personalized healthcare services across a spectrum of virtual care needs, is working on building continuous lung function monitoring within a small wearable pocket-sized device. It has applications broadly across not only pulmonary disease treatment but broadly applying to cardiovascular needs, as well.

How Medtronic and Respiree are innovating from Singapore · continued

“Talent is extremely scarce, but extremely important and pivotal,” says Gurpreet Singh, CEO and founder of Respiree. “It’s [the partnership] definitely going to give us an opportunity to get access to talent and expertise that will really drive better value across the global footprint.”

Singapore: Distinguishing Qualities

Companies coming to Singapore can depend on industry-leading expertise combined with an environment that is welcoming to both business and innovation. In short, they can expect:

- A strong health care system - where there is room to innovate, manufacture, and commercialize products and solutions for healthcare in the world
- Access to a very unique data set in Asia - typically not found in home locations
- A confluence of medical research, scientific engineering, and digital talent

“When you come to Singapore, you will be able to work with renowned key opinion leaders who have a view of Asia, and also are well-represented in the global forums,” says Goh. ●

CLICK HERE

Contact the Singapore Economic Development Board to learn more about Product R&D Centres, MedTech talent development partnerships or collaborations with local research institutions, startups or the clinic ecosystem.



Contributors

Jun Long Tay, Regional Director, Americas, Singapore Economic Development Board



Jun Long is currently Regional Director, Americas for the Singapore Economic Development Board (EDB) based in Chicago. The EDB is the lead government agency responsible for industry promotion and development in Singapore. In his role, Jun Long is involved in engaging key partners and businesses across various sectors including Healthcare, Agrifood, Manufacturing, Consumer, which are headquartered in the Midwest and the East Coast.

Prior to this appointment, he was involved in shaping and executing new Human Capital initiatives for Singapore. He also engaged multi-nationals and attracted key manufacturing and R&D investments into Singapore in the Clean Technology sector.

Jun Long graduated from Singapore Management University in 2013 with a double degree in Economics and Business, *summa cum laude*.

Dr. Rodolphe Katra, Global Vice President of AI, Medtronic



Dr. Katra is the Global Vice President of Artificial Intelligence (AI) and a Technical Fellow at Medtronic.

An innovative and strategic leader focused on engineering the future of medical technologies, Dr. Katra leads the enterprise AI Center of Excellence. With more than 20 years of engineering expertise, he specializes in leading large complex, global R&D programs, managing cross-functional teams, strategic management, competitive analysis, and positioning, he works with world-class teams globally, leveraging AI/ML, digital signal processing (DSP), predictive analytics, and technology platforms to advance a new era of personalized and precision healthcare.

Dr. Katra holds a doctorate in biomedical engineering and an MBA. He is internationally recognized as a thought leader and innovator and is co-inventor on more than 75+ patents granted, published, or pending. He is the author of numerous MedTech peer-reviewed manuscripts, book chapters, and reports.

Dr. Gurpreet Singh, CEO and Founder, Respiree



Dr. Singh is the CEO and founder of digital therapeutics company Respiree, which focuses on providing personalized healthcare services across a spectrum of virtual care needs including hospital-in-the-home and chronic disease management, using a combination of FDA-cleared, US-patented breath-cardio sensors, AI and enterprise integrated UI/UX.

Respiree was founded in 2019, having been incubated in A*STAR which is Singapore's national research agency with 16 research institutes and more than 5,000 employees. Since 2020, they have spun off, joining JLABS in 2023 as a portfolio company, with incubation in the U.S. They have also raised US\$3.5m in its last round and have since received regulatory clearances from the FDA, CE and Therapeutics Goods Administration (Australia).

Gurpreet holds a PhD in electrical engineering, completed under an A*STAR scholarship and a postdoctorate fellowship at Massachusetts Institute of Technology (MIT). He holds a Master of Business Administration (MBA) from the Singapore Management University.

Wan Yee Goh, Senior VP and Head, Healthcare, Singapore Economic Development Board



Wan Yee is the Senior Vice President and Head for Healthcare in the Singapore Economic Development Board. She oversees the Health & Wellness industry development strategies and engagement of international companies to facilitate investments in Singapore.

Prior to this, Wan Yee led EDB's Human Capital team and was responsible for working closely with companies, industry associations, unions and Singapore's manpower agencies to attract and develop talent for our wide range of industries.

She also spent time in EDB Human Resources and has a depth of knowledge across various HR functions. Wan Yee started her EDB career in the then nascent Biomedical Sciences cluster and was part of the team that spearheaded the growth of this industry. This included a stint in Bio*One Capital, a venture capital arm of EDB that invests in biotechnology and medical technology start-ups.

She is trained as a Chemical Engineer and worked as a Process Engineer in ExxonMobil before joining EDB.

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The Economic Development Board is a statutory board under the Ministry of Trade and Industry of the Government of Singapore that plans and executes strategies to sustain Singapore as a leading global hub for business and investment.



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