

Singapore to invest about S\$300m in quantum tech research and talent

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SINGAPORE will invest close to S\$300 million over the next five years to boost quantum technology research and talent – including efforts to build processors for quantum computers locally.

Called the National Quantum Strategy (NQS), the initiative builds on the over S\$400 million that Singapore has already invested into quantum research over the past two decades.

There are around 200 quantum researchers and 150 PhD candidates in the field here.

Singapore is part of a global race to build quantum computers, a new class of computers far more

powerful than today's supercomputers.

Quantum technology holds promise as the next tech wave after artificial intelligence, said Deputy Prime Minister Heng Swee Keat as he announced the NQS at the Asia Tech x Singapore conference on Thursday (May 30).

"Quantum computing, for instance, can have far higher processing capabilities, which can be used in many areas, from simulating complex molecules for drug discovery, to optimising investment portfolios (and) cryptography," said Heng, who was speaking at Capella Singapore hotel.

The NQS includes a programme for Singapore to design and build its own quantum processors – de-

vices that are the "brains" of quantum computers.

Called the National Quantum Processor Initiative, the programme will focus on two specific technologies: neutral atom arrays and trapped ions.

It will also launch a targeted grant call for another quantum processor technology, photonics and control electronics.

Photonics-based quantum processors are compatible with Singapore's existing infrastructure and manufacturing processes for semiconductors. This gives Singapore a "strategic advantage", said the country's National Quantum Office and National Research Foundation on Thursday.

Besides quantum processors,

the NQS will also focus on developing quantum sensors – devices that can detect miniscule changes in the environment that conventional sensors cannot.

Under the National Quantum Sensor Programme, research efforts will focus on technologies in position, navigation and timing – such as GPS-free navigation tools and next-generation optical clocks.

The programme will also explore biomedical and medtech applications, and remote sensing devices. Such devices could include quantum gravimeters that can detect geothermal energy sources underground.

Beyond specific technologies, the NQS will include a new scholarship to nurture local talent in



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quantum technology.

The National Quantum Scholarships Scheme aims to develop up to 100 graduates at the masters level, and another 100 at the PhD level, over the next five years.

"Even as we grow our own timber, Singapore will continue to remain open to external talent," said Heng, adding that existing talent schemes ONEPass and Tech Pass can be tapped.

Separately, the Centre for Quantum Technologies, an existing quantum research centre at the National University of Singapore, will be elevated to a flagship national research centre. It will work with local universities and the Agency for Science, Technology and Research.

While quantum technology is promising, there are still many challenges for quantum computers to become a reality, Heng noted in his speech. These include a high error rate and high energy requirements, given the need for cryogenic cooling.

With the NQS, Singapore will address these challenges and "continue to pursue the promises of quantum technology", he said.