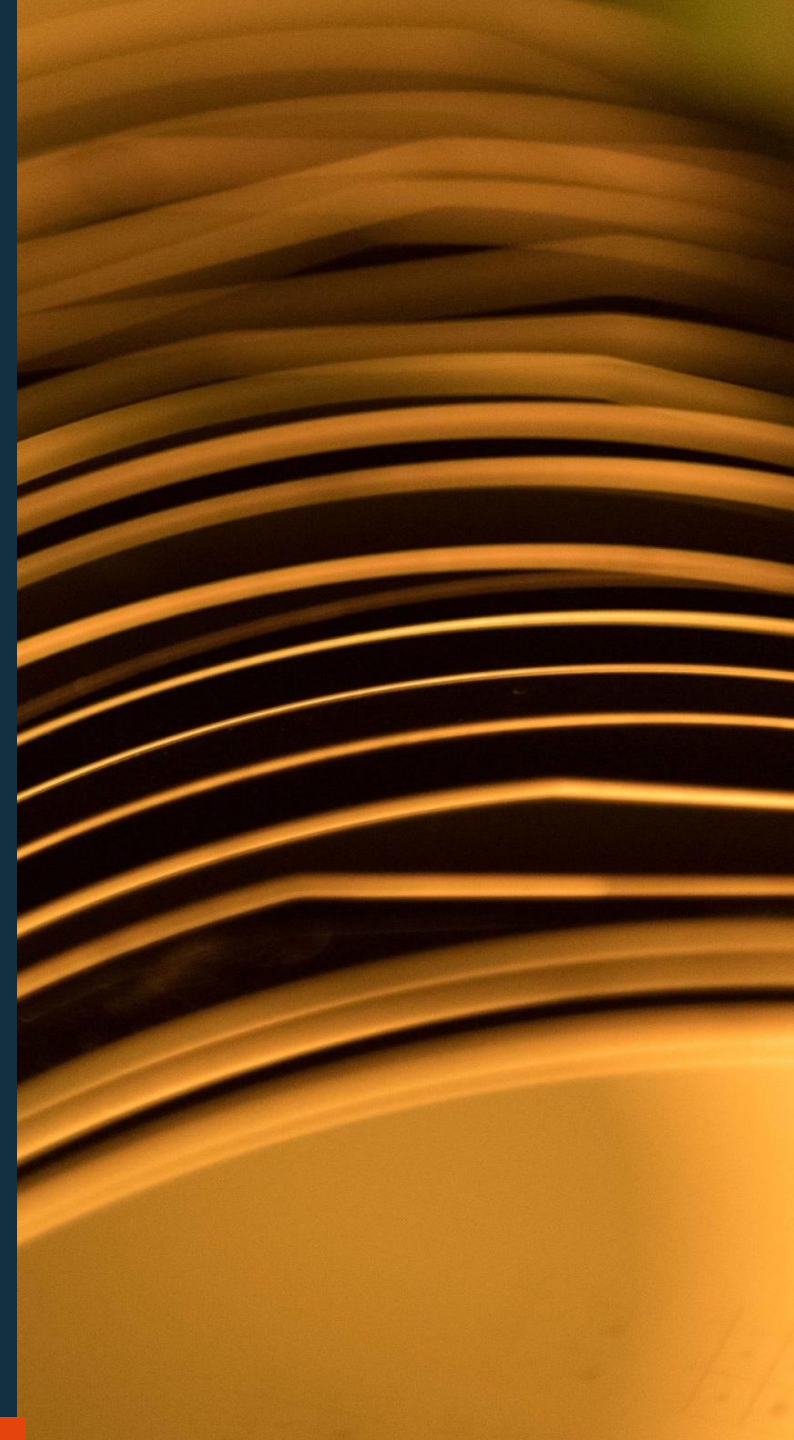




# Archer Materials

Semiconductor Conference 2025

7 May 2025



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# Agenda

1. Our Technology
2. Biochip
3. Quantum Computing
4. TMR Sensor
5. Questions





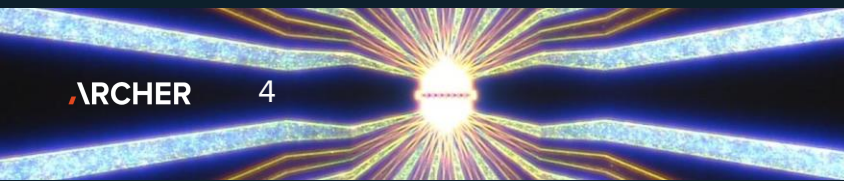
# Our Technology

Archer Materials is building on its foundation of carbon-based technologies to develop products that will help solve critical problems.

## Quantum

A carbon-based quantum device for applications primarily in computing and the possibility of integrating with other electronics.

Key milestone: Qubit demo 1H CY26



## Biochip

Highly sensitive, chip-based sensors for at-home management and treatment of chronic diseases.

Key milestone: Demo prototype end of 2025



## TMR Sensor

Highly sensitive magnetic sensors, with low power and high bandwidth operation. Wide range of applications.

Key milestone: Identification of application end of 2025



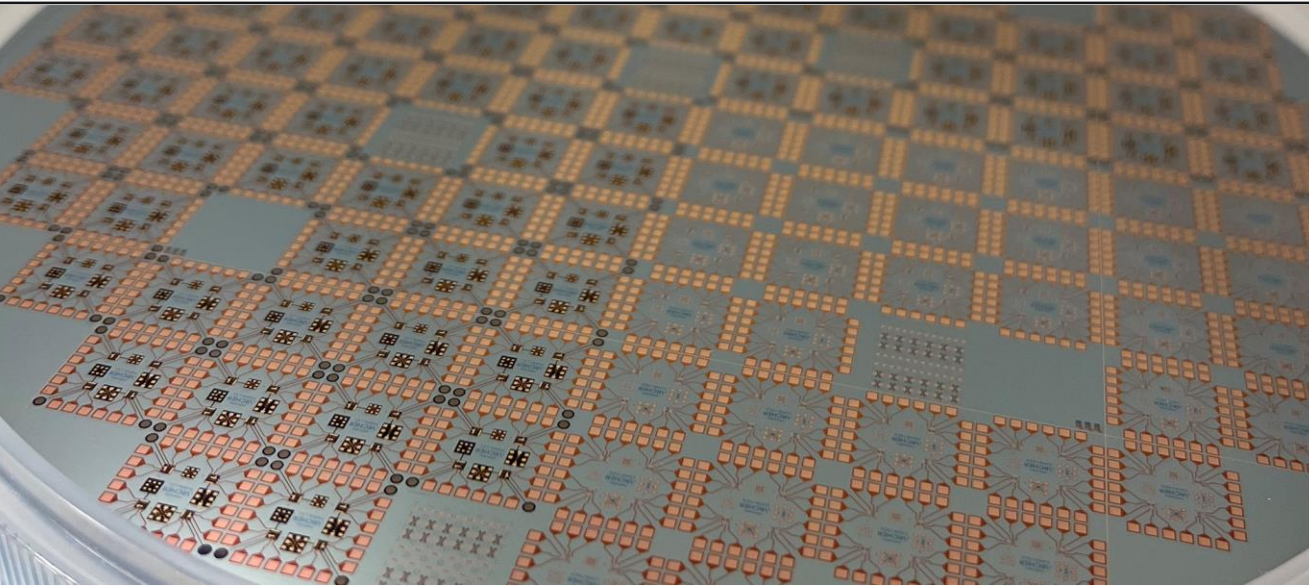
# Biochip



01

# High-Value Problem

Archer's biochip uses highly sensitive, high speed, low power sensors to detect ions in blood. The chip will be integrated into an **at-home testing system** that will analyse a finger prick of blood.



1. Kidney Health Australia (<https://kidney.org.au/kidney-check-heart-diabetes-blood-pressure>)
2. Yole "Biosensors Marketing Report 2024-32", Market Research Future "Renal Disease Market Report". Bottom-up estimate using refs above

- ▶ Over 850M **people** (>10% of global population) suffer from chronic kidney disease.
- ▶ More than **US\$3B** total addressable market within the US\$80B+ renal disease space.
- ▶ Kidney disease patients are at high risk of lethal **potassium imbalances** (kidneys regulate electrolytes).
- ▶ Potassium testing is lab-based, monthly, and too infrequent for timely intervention.
- ▶ Extendable to heart disease and treatment.
- ▶ Extendable to other ion sensing applications in medicine and agriculture.

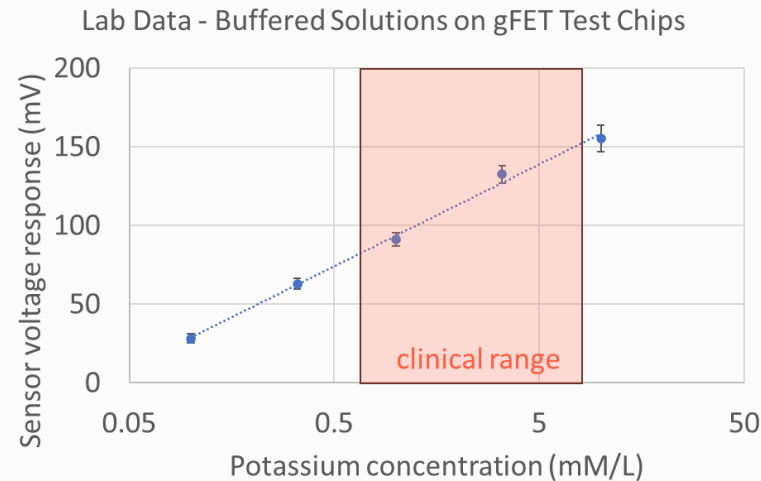


# At-home Potassium Sensor - Roadmap

Phase gate development process for a diagnostic medical device regulated under ISO13485

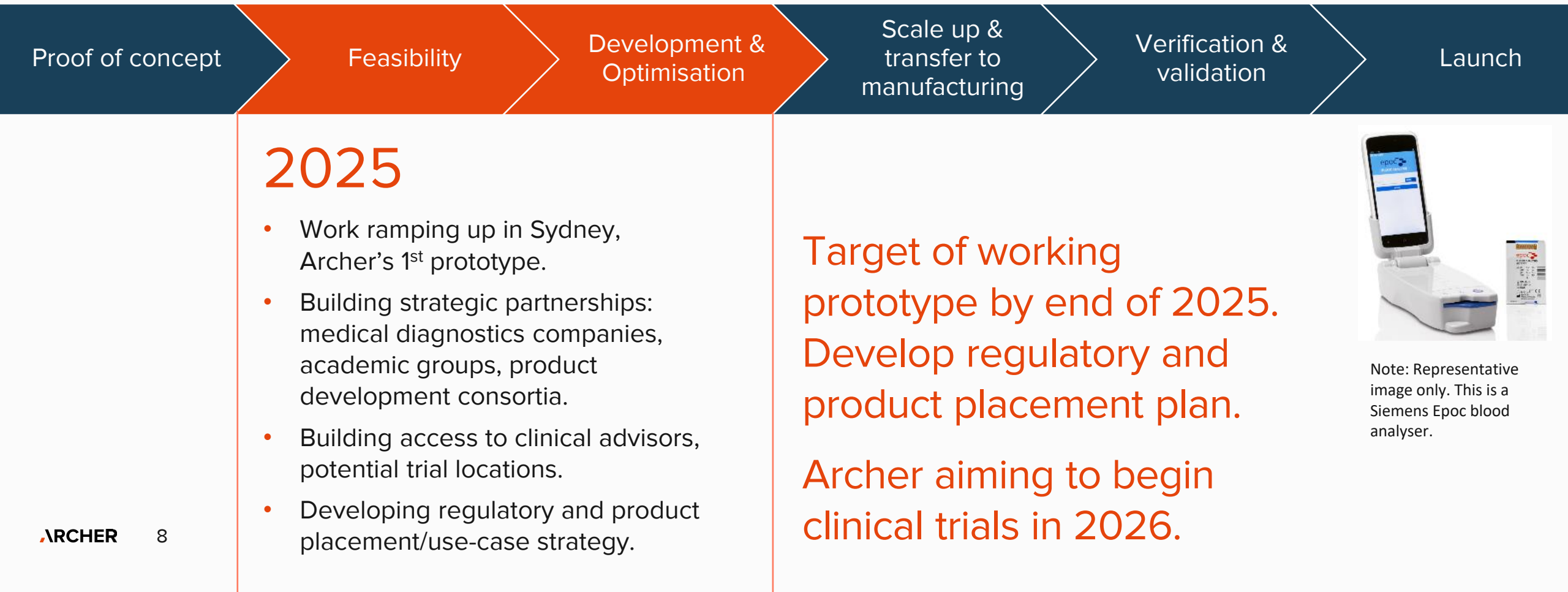


- Initial data.
- Foundry supplier sourced.
- Academic support.



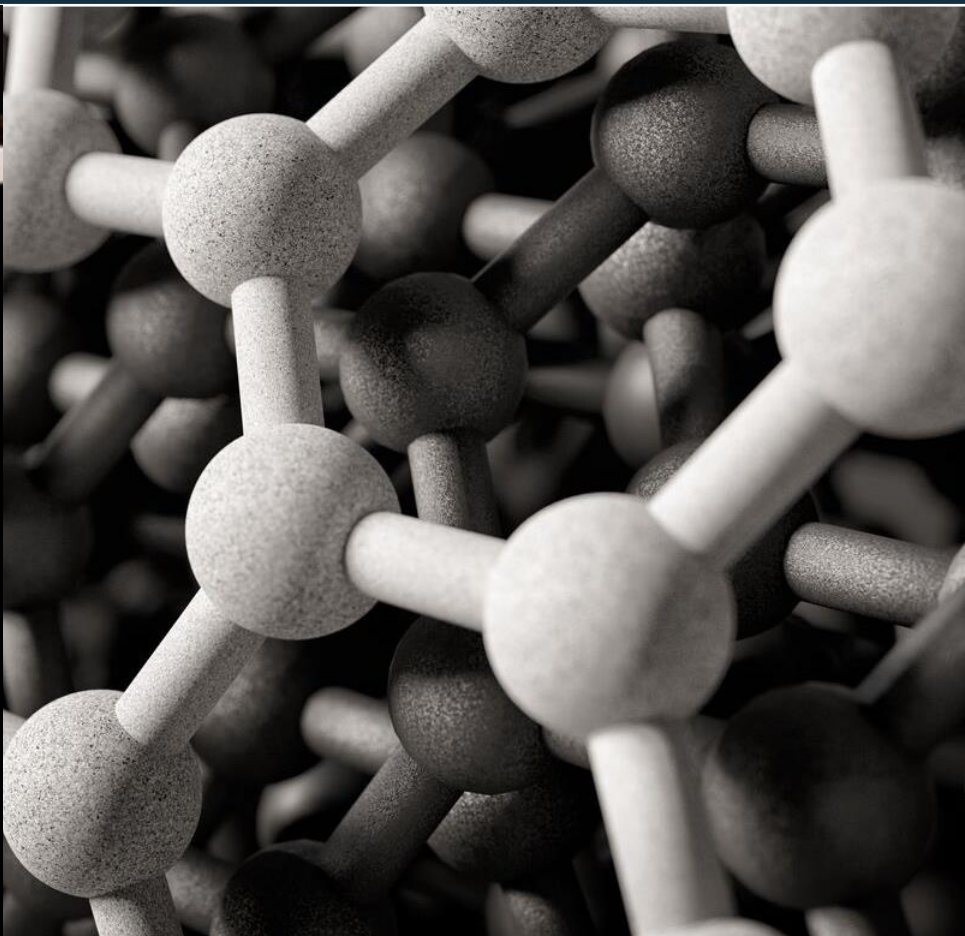
# At-home Potassium Sensor - Roadmap

Phase gate development process for a diagnostic medical device regulated under ISO13485





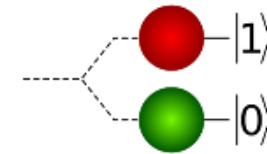
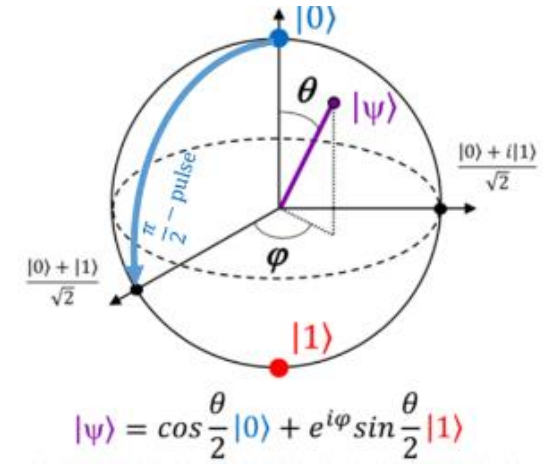
# Quantum



02

# Quantum Computing

Quantum computing via qubits made in Archer's novel carbon



1010  
1010

Classical, Digital bit  
Either 0 or 1

Computers solve problems  
in a sequential fashion



Quantum Qubit  
0 and 1 at the same time

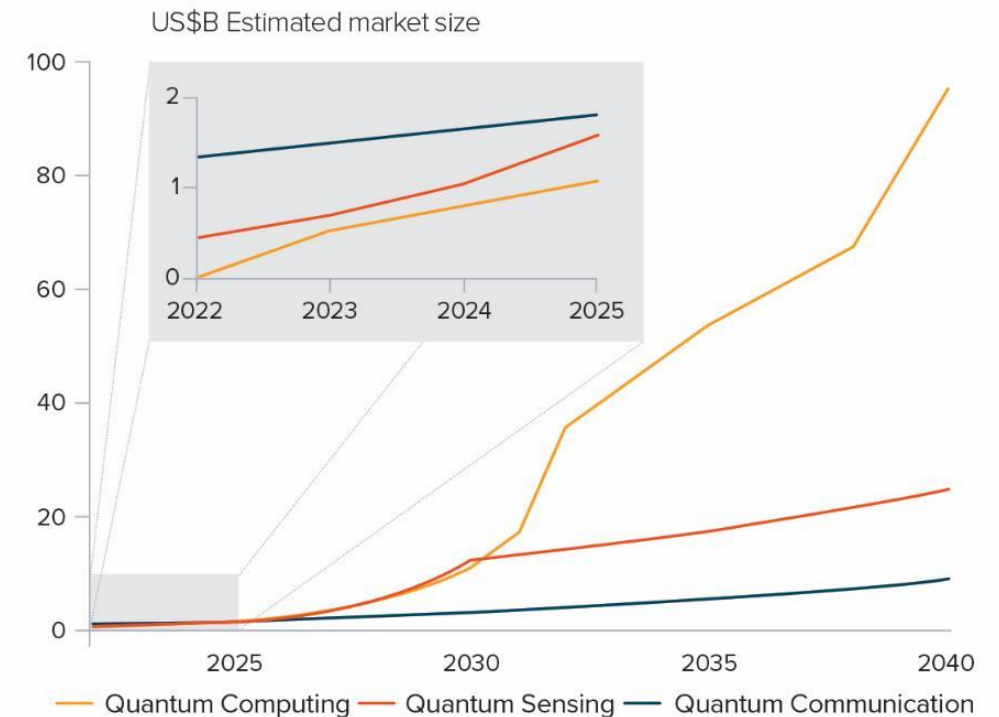
Computers solve  
problems by evaluating  
solutions simultaneously

# Quantum Technology: The Next Frontier

Archer considers quantum technology to be the next great technological advance.

- ▶ Archer is the only ASX-listed quantum company.
- ▶ Adoption of quantum tech expected to increase with quantum hardware maturity.
- ▶ Quantum computing and sensing is expected to rapidly increase in share of total quantum value.

## Quantum Technology Market Growth Projections 2025-2040



Sources:

BCG analysis

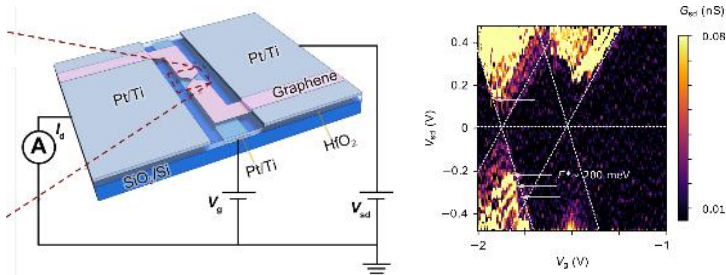
Krelina, "Quantum technology for military applications" EPJ Quantum Technology (2021); IBM quantum roadmap; IonQ quantum roadmap

# Status of Archer Qubit Development

01



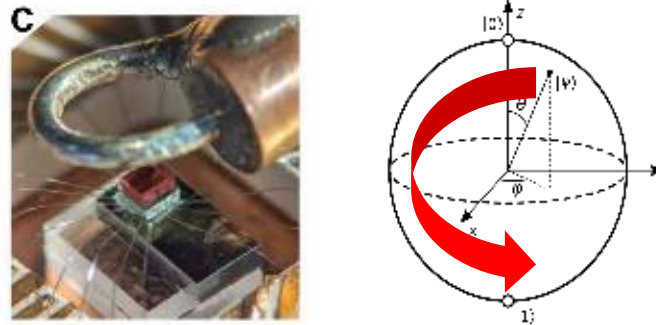
Confinement i.e. isolation of a single electron (spin)



02



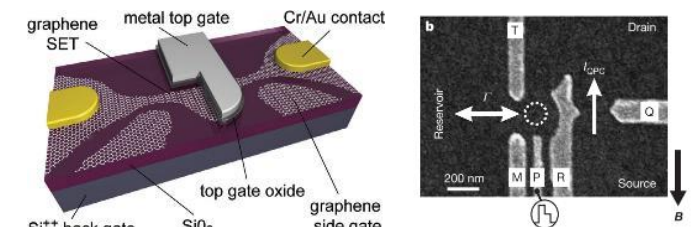
Control (Global/Local)



03



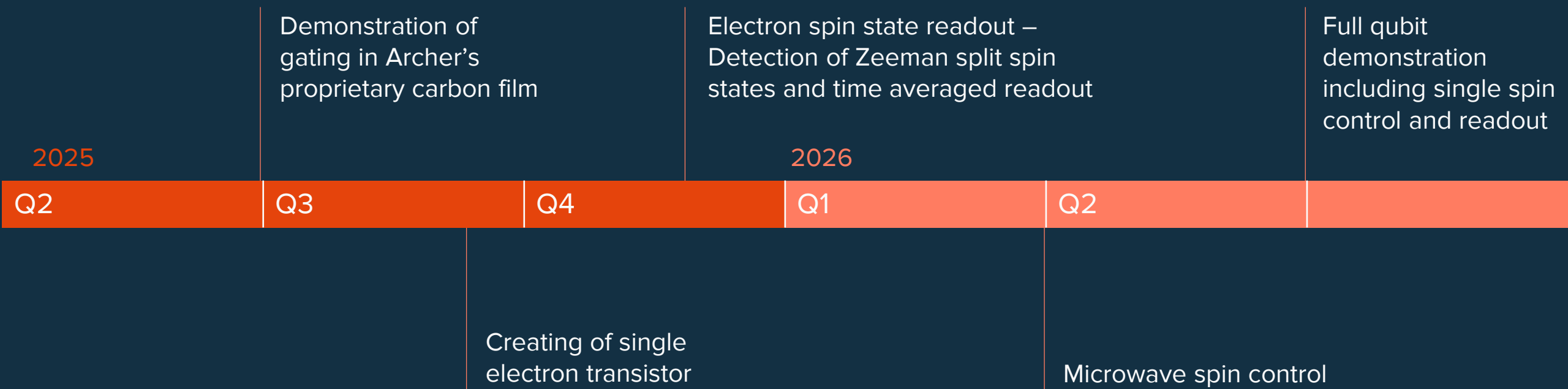
Readout (device built around graphene single electron transistor)



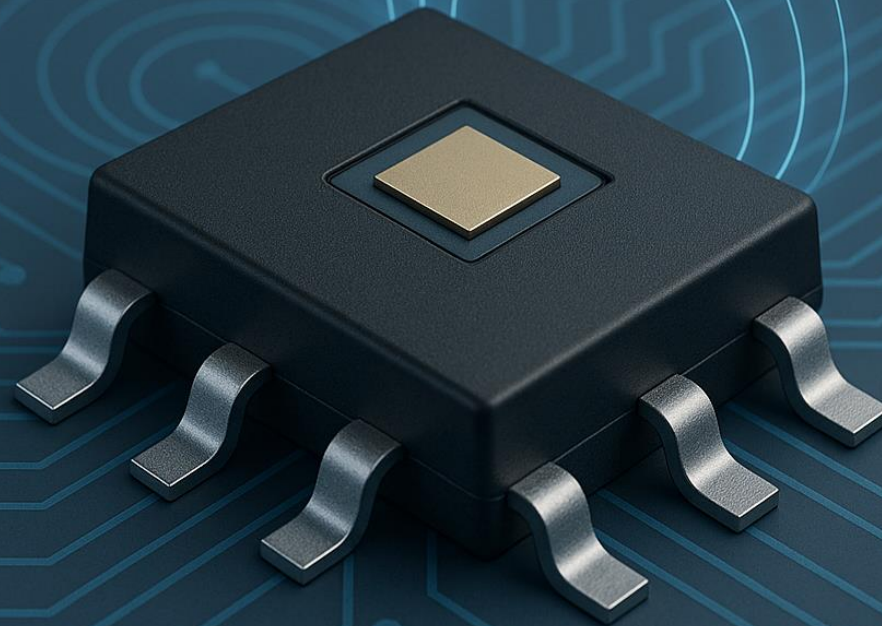


# Qubit Roadmap

Work will be extended on devices built around nanodots of carbon. Targeting an Elzerman qubit architecture demonstration in 2026.



# TMR Sensor



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# Tapping into TMR Sensor Market Growth

- ▶ Overseas foundry developing TMR sensor with Archer for industrial applications.
- ▶ TMR sensors have potential applications for AI, data centers, automotive, and IoT implementation.
- ▶ TMR leverages quantum phenomena to provide a performance edge over classical incumbents.
- ▶ Part of Archer's  $^{12}\text{CQ}$  project, leveraging expertise in quantum mechanics to design advanced TMR sensors.
- ▶ We have been investigating potential applications, partners, and potential customers.
- ▶ 2025: is to identify a lead application and build product development strategy.
- ▶ 2026: launch pilot products and begin commercialization.

# Our Foundations

Archer has the foundations in place to advance its technology towards commercialisation in global markets.

## Future technologies

Archer's devices look to solve high value problems

## Strong partnerships

Strong industry partnerships and links with leading research institutes.

## Growing markets

Archer's technologies have a range of applications across growing markets such as medical diagnostics, computing, sensing, and massive data like AI.

## IP portfolio

A growing IP portfolio of granted and pending patents across key markets such as North America, APAC, and Europe.



# Thank you

## ASX Code: AXE

The Board of Archer authorised this announcement to be given to ASX.

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