ARCHER

Shareholder and Investor Presentation
9 May 2022

Research & Prototype Foundry Archer operates in, Sydney, Australia.

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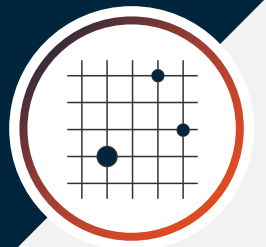
Archer is a pure-play deep tech that is long-term value driven…

… creating value by

Access to $1B+ of deep-tech infrastructure and facilities

Efficient use of funds with A$28.3M cash and no corporate debt*



Patents granted in the US, China, South Korea, Japan, and Europe – including UK and Germany

Technology development backed by world-class R&D

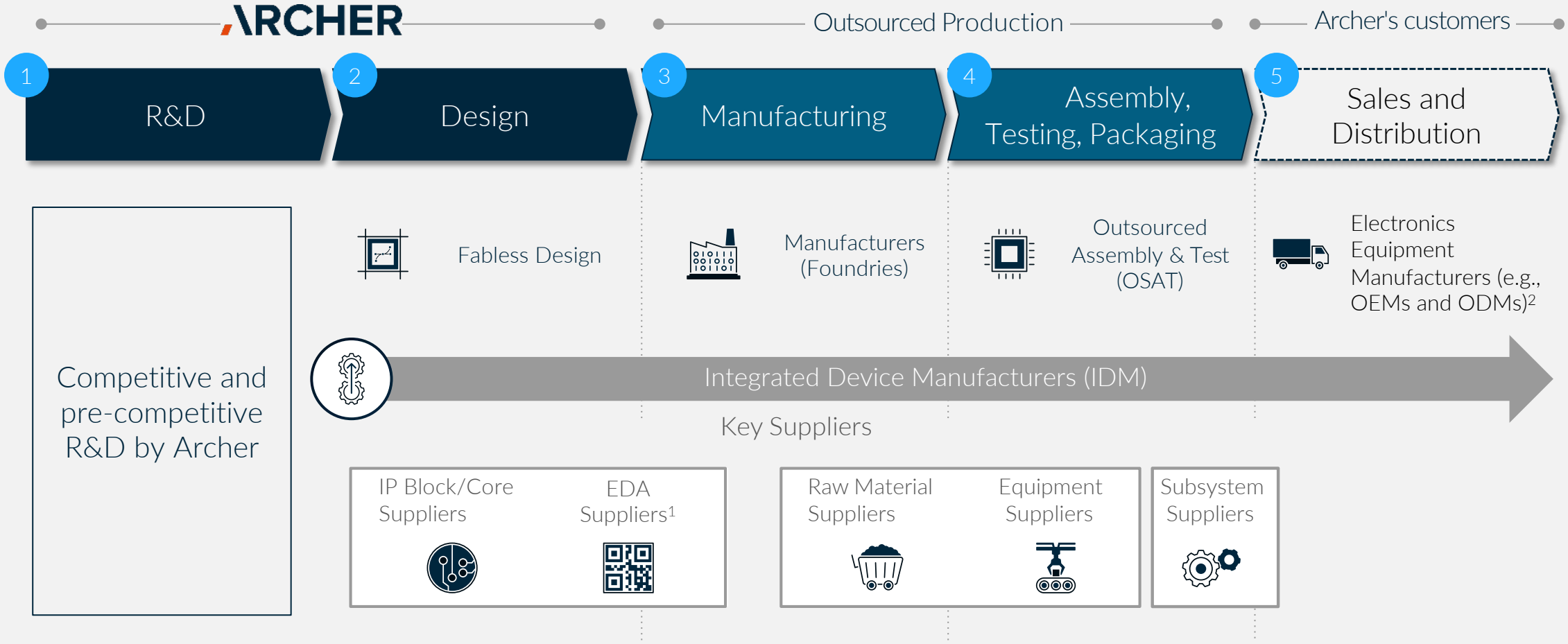
Working with leading international tech institutes and companies

Attracting and retaining pioneering innovators and technologists

Note: As of 26 April 2022.

ARCHER IS ONE OF A FEW COMPANIES IN THE WORLD DEVELOPING A QUANTUM COMPUTING PROCESSOR

Archer is developing advanced semiconductor devices that are relevant to quantum computing technology



1. Electronic Design Automation; 2. Firms engaged in branding, marketing, designing, and manufacturing electronic equipment that incorporates semiconductor content into electronic products including Original Equipment Manufacturers (OEM) and Original Design Manufacturers (ODM); Source: Gartner; BCG Analysis

The Archer quantum team is led by pioneering nanotechnologists, physicists, chemists, and semiconductor engineers

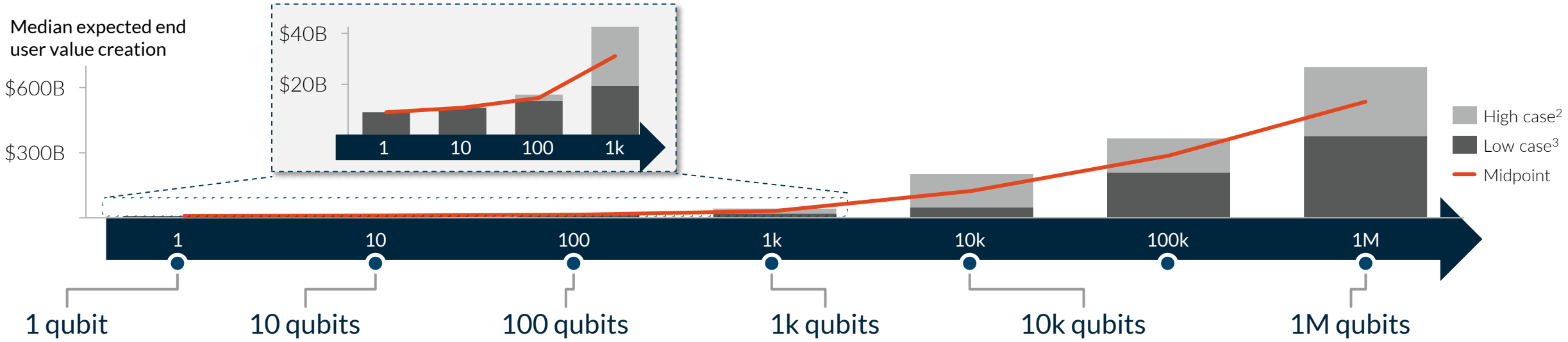
Dr Mohammad Choucair *FRACI FRSN GAICD*, CEO. RACI Cornforth Medallist for the most outstanding Chemistry PhD in Australia. Alumni of AGSM UNSW Business School. Former World Economic Forum Global Councillor. Inventor of the ^{12}CQ quantum computing technology. Honorary Fellow of the University of Sydney.

Dr Martin Fuechsle *MRSN*, Quantum Tech Manager. AIP Bragg Gold Medallist for the most outstanding Physics PhD in Australia. Inventor of the single-atom transistor heralding the limit of Moore's Law. Honorary Associate of the University of Sydney.

A/Prof. Dr Matthew Broome *MInP*, Quantum Tech Manager. Awarded the prestigious Marie Curie Fellowship. Fabricated and measured the world's first two-qubit device in a donor-based silicon quantum processor.

The potential of quantum computing increases with qubit volume, but even one qubit could bring incredible value to end users

End user value creation expected to reach between US$450B and US$820B at 1M qubits



Applications where quantum surpasses classical solutions based on number of qubits[1]

Quantum sensing

Quantum random number generation ('QRNG')

Improved sensing and QRNG

Classical-assisted Monte Carlo simulations

Non-quantum advantaged compute

Classical assisted quantum algorithms

(e.g. VQE)

Classical-assisted machine learning

Quantum network applications

(e.g. transmitting quantum information)

Advanced search

Optimisation

Machine learning and AI

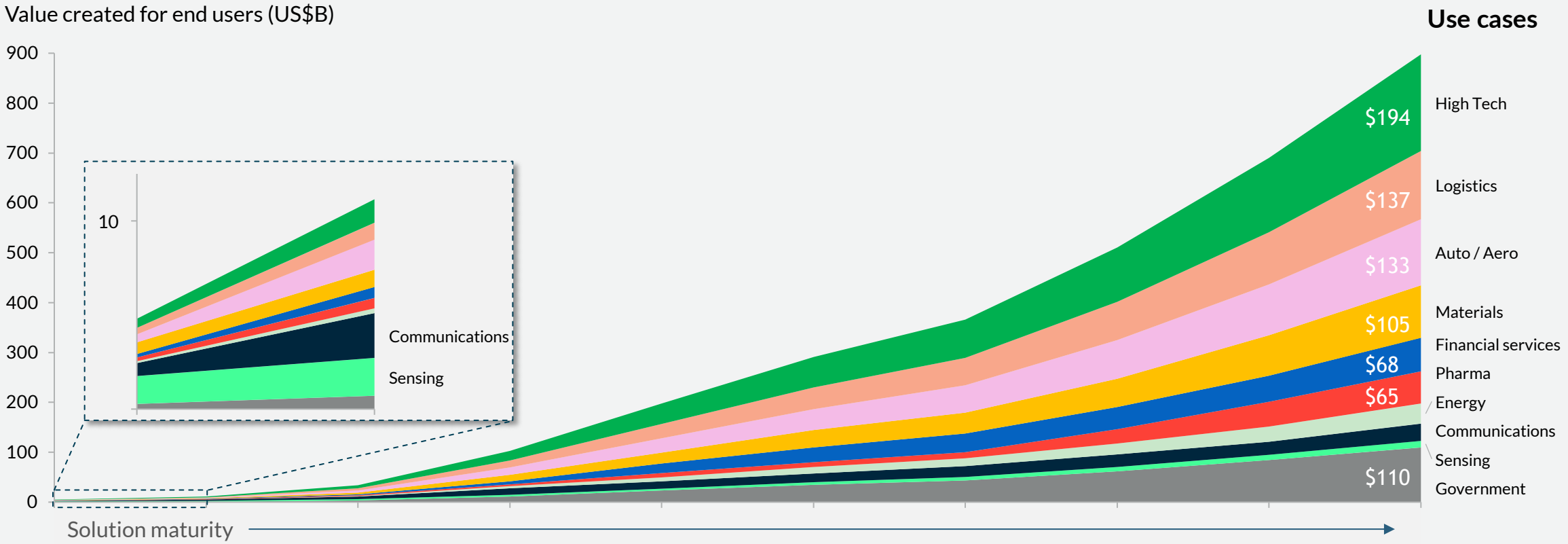
Materials research, chemical simulation

1. Physical qubits. 2. High case based on 100:1 ratio of physical to logical qubits. 3. Low case based on 1000:1 ratio of physical to logical qubits.
Source: Krelina, "Quantum technology for military applications" EPJ Quantum Technology (2021); Perdomo-Ortiz et al, Quantum Sci. Technol. (2018)

US$900B in value creation for end users as quantum computing reaches maturity

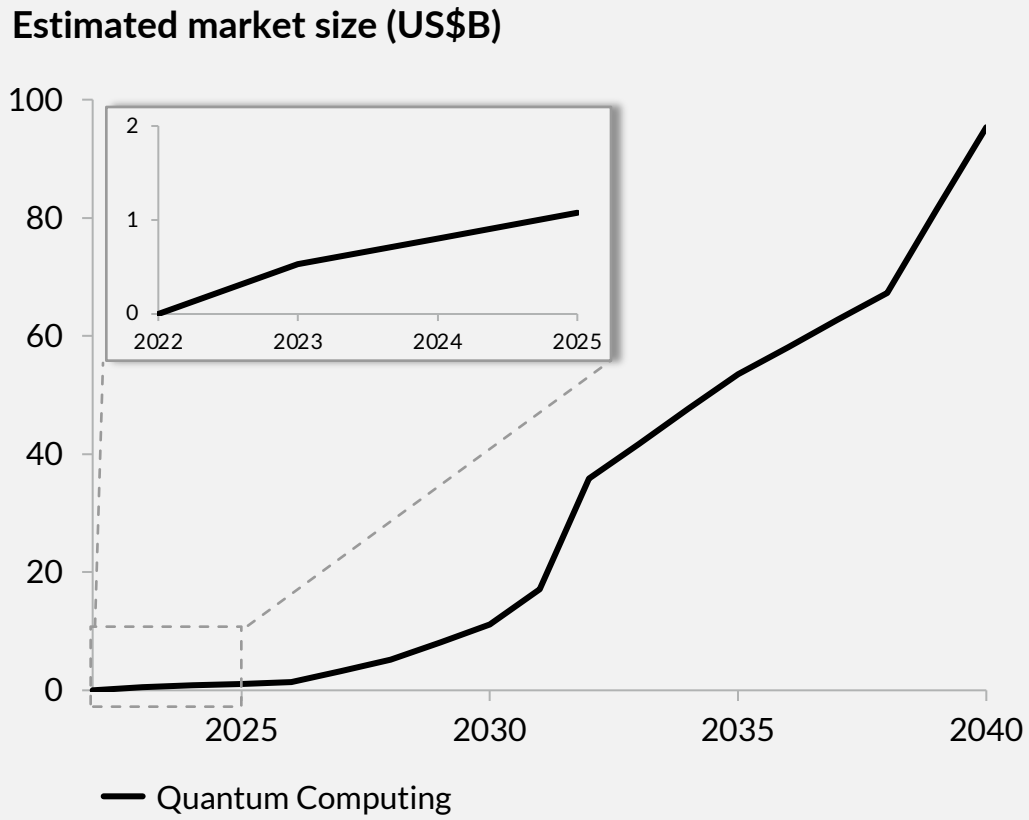
Current: Quantum Comms. and Sensing most mature markets

Future: Quantum computing expected to drive transformative value across sectors



Note: End user value creation defined as incremental revenue/value generated for the end user in using quantum technology, including Quantum Computing, Quantum Communications and Quantum Sensing. Auxiliary revenue from quantum technology not included.
Source: BCG analysis

The quantum market is growing rapidly…



Note: Auxiliary revenue from quantum technology not included.
Source: BCG analysis

…expected large scale adoption after 2030

Adoption of quantum computing expected to increase with quantum hardware maturity

Quantum cloud providers have announced a goal of moderate to high quantum maturity by 2030

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

Era of Quantum Computing

Value for investors in the quantum computing economy is expected to increase as quantum hardware is developed:

+ The Australian Government's Blueprint and Action Plan for Critical Technologies sets a national vision & strategy for critical technologies, including quantum technology[‡].

+ The CSIRO[§] reported Australian quantum tech could create A$4 billion revenue and 16,000 new jobs by 2040.

+ The US National Quantum Initiative Act was signed into US law on Dec 21, 2018* with the US planning to invest US$170+ billion on advanced tech**.

+ The International Roadmap for Devices and Systems lists Quantum Computing a key tech in the 'post-Moore' era[ǂ].

[‡] https://www.pmc.gov.au/resource-centre/domestic-policy/blueprint-critical-technologies and https://www.pmc.gov.au/resource-centre/domestic-policy/action-plan-critical-technologies
[§] https://www.csiro.au/en/work-with-us/services/consultancy-strategic-advice-services/csiro-futures/futures-reports/quantum
* https://www.congress.gov/bill/115th-congress/house-bill/6227
** https://www.congress.gov/bill/117th-congress/senate-bill/1260
[ǂ] https://en.wikipedia.org/wiki/International_Roadmap_for_Devices_and_Systems

^{12}CQ has unique advantages over other quantum tech…

… with potential for

Room-temperature operation

Integration with common electronics

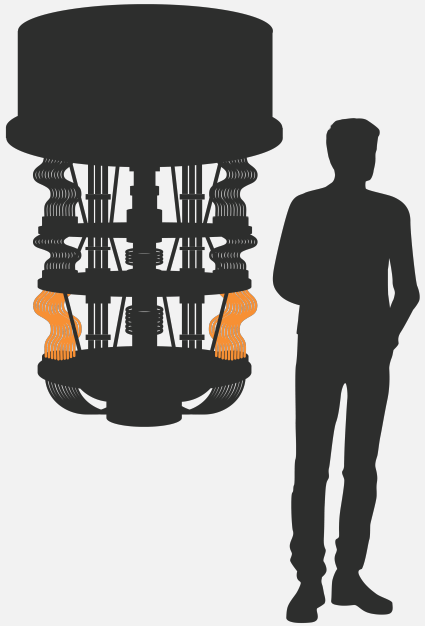
Compatibility with smaller form factors, e.g. mobile

Simplicity in operation and maintenance

Low-latency, on-premise integration inside data centres

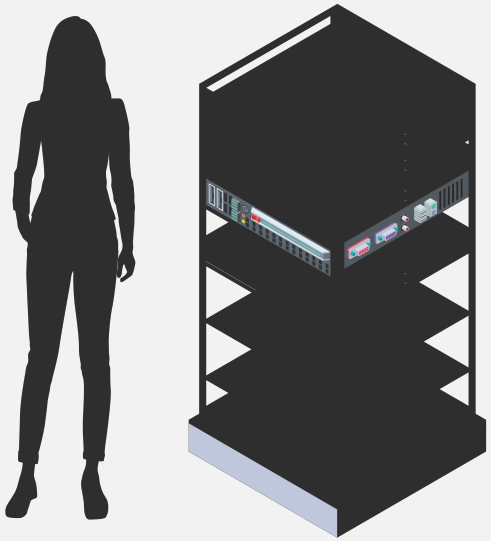
Highly sensitive mobile use cases with co-located encryption and compute

Potential solution to push quantum access and use beyond cloud and edge…



Cloud-based

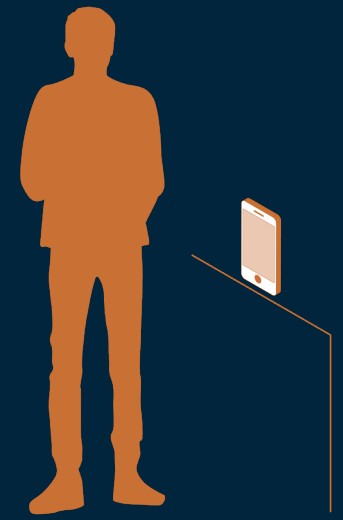
Require ultra-low temperatures and infrastructure to operate.
Accessed via the cloud.
e.g. Superconductor, silicon, topological.



Edge and/or Cloud-based

Operate at room temperature but are difficult to integrate into modern devices. Installed on-site.
e.g. Photonic, ion-traps, diamond.

… to your mobile



Quantum Powered Mobile Devices

QPMDs will require practical qubit processors that integrate into modern devices.
e.g. ^{12}CQ chip development.

In-depth analysis: https://www.bcg.com/en-au/publications/2021/building-quantum-advantage
More information, by Dr M. Choucair, Mar 26 2021: https://www.ibm.com/blogs/ibm-anz/why-quantum-deserves-your-attention/

Archer expects ^{12}CQ quantum technology to enable industry-wide innovation

Autonomous Cars

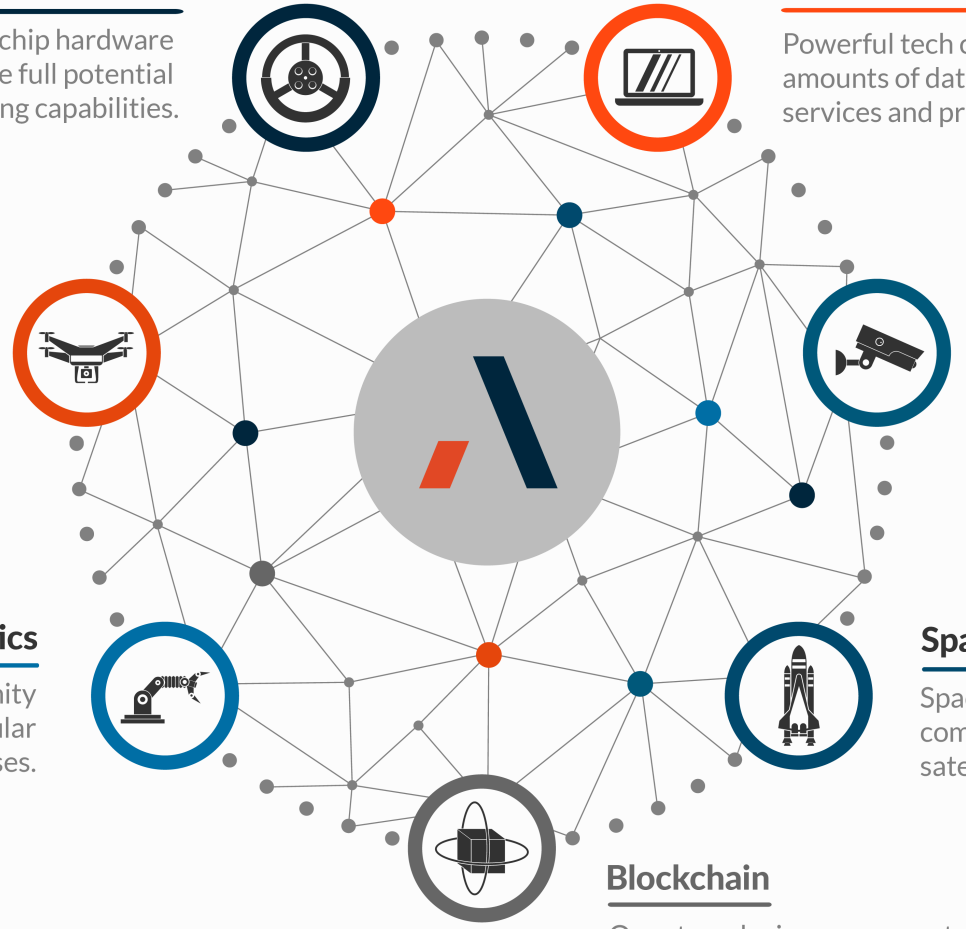
Quantum processor chip hardware could enable the full potential of self driving capabilities.

Mobile Devices

Powerful tech capable of processing huge amounts of data for individualised services and products.

Drones

Real-time coordination of drone swarms and impenetrable airborne quantum communication networks.



Cyber Security

Networks using quantum cryptography algorithms could provide an ultra-secure internet.

Robotics

The rise of e-commerce is an opportunity for autonomous, scalable, and modular robotic warehouses.

Space

Space travel demands powerful and complex computing on board satellites and spacecraft.

Blockchain

Quantum devices may eventually become so fast that they undermine crypto-transaction processes.

Sources of potential application end-uses:
PitchBook, BCG, PwC, McKinsey, Deloitte, NSW Government

ARCHER IS DEVELOPING A GRAPHENE-BASED BIOCHIP

The potential for lab-on-a-chip technology goes beyond simple detection by miniaturising and integrating a number of medical diagnostic lab tests

Performance
Linked to materials' optical, electrical, magnetic, and/or chemical properties

Graphene Biosensors
Could provide rapid, highly sensitive and low-cost testing for IVDs

Limited Materials
Few materials available to directly read out molecular-level based bioactivity

Ultrasensitivity
Graphene is electronically active & biocompatible, distrupting non-portable optical IVDs

Biochip Design
Subset of Sensors/MEMS chip devices functioning in biological settings

Miniaturisation
Scaling single or multiple lab processes down to mm-size chip-formats

Integration
Several lab functions on a single chip, while eliminating some functions

Platform Technology
Digitising simultaneous biochemical reactions to achieve automation & high throughput

*More information on Australian regulations related to In-vitro Diagnostics (IVDs): https://www.tga.gov.au/medical-devices-ivds
Learn more about Lab-on-a-Chip technology developments: https://www.rsc.org/journals-books-databases/about-journals/lab-on-a-chip/

Archer is fabricating atom-thin biochip components…

… for next-gen medical diagnostic devices

Room-temperature operation eliminates cold-logistics

Sensing pathways developed in-house to detect genetic information

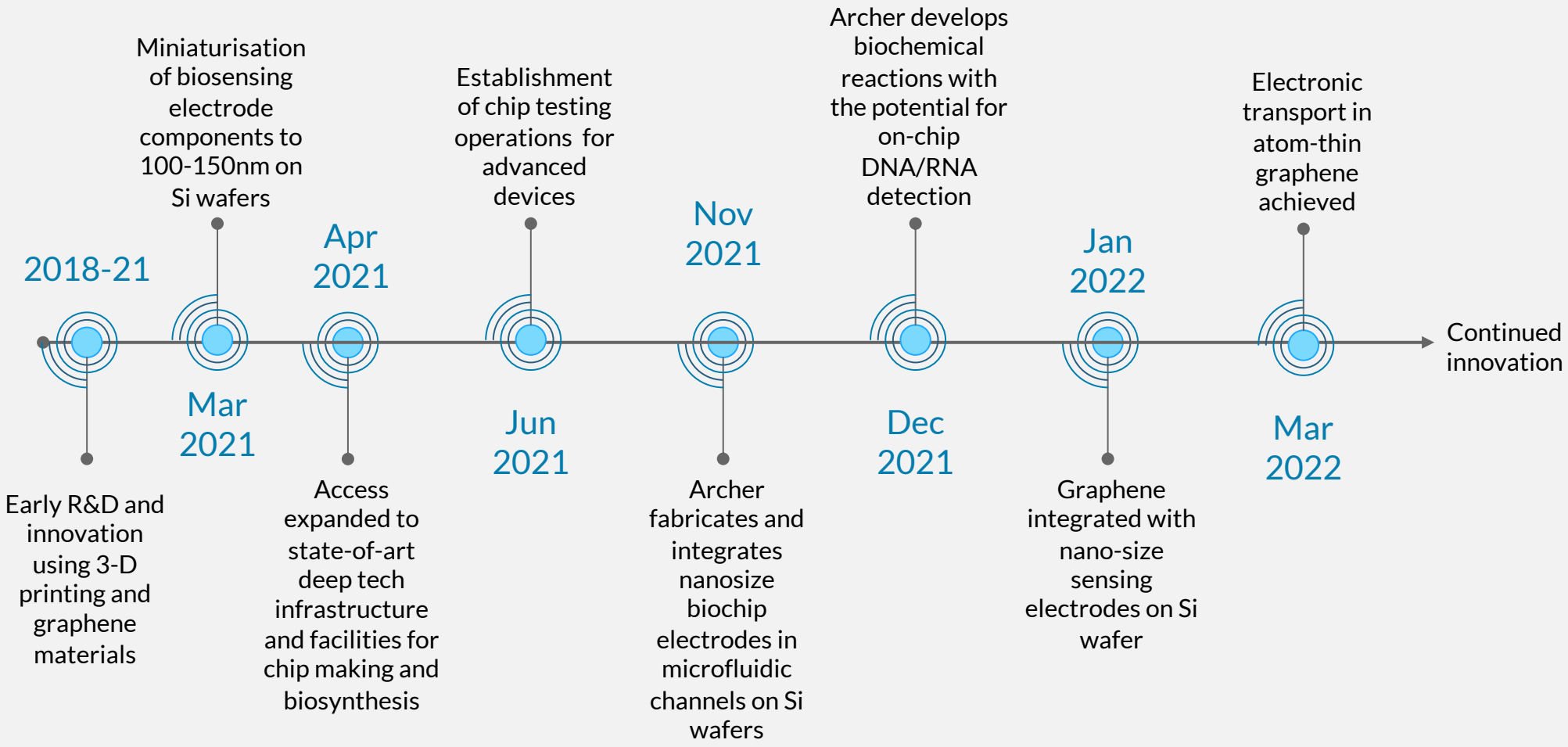
100% owned IP with patent applications pending in Australia and the US

In-house capability spanning biochemistry and chip device nanofabrication

Access to state-of-the-art bio facilities and advanced chip prototyping, testing and development

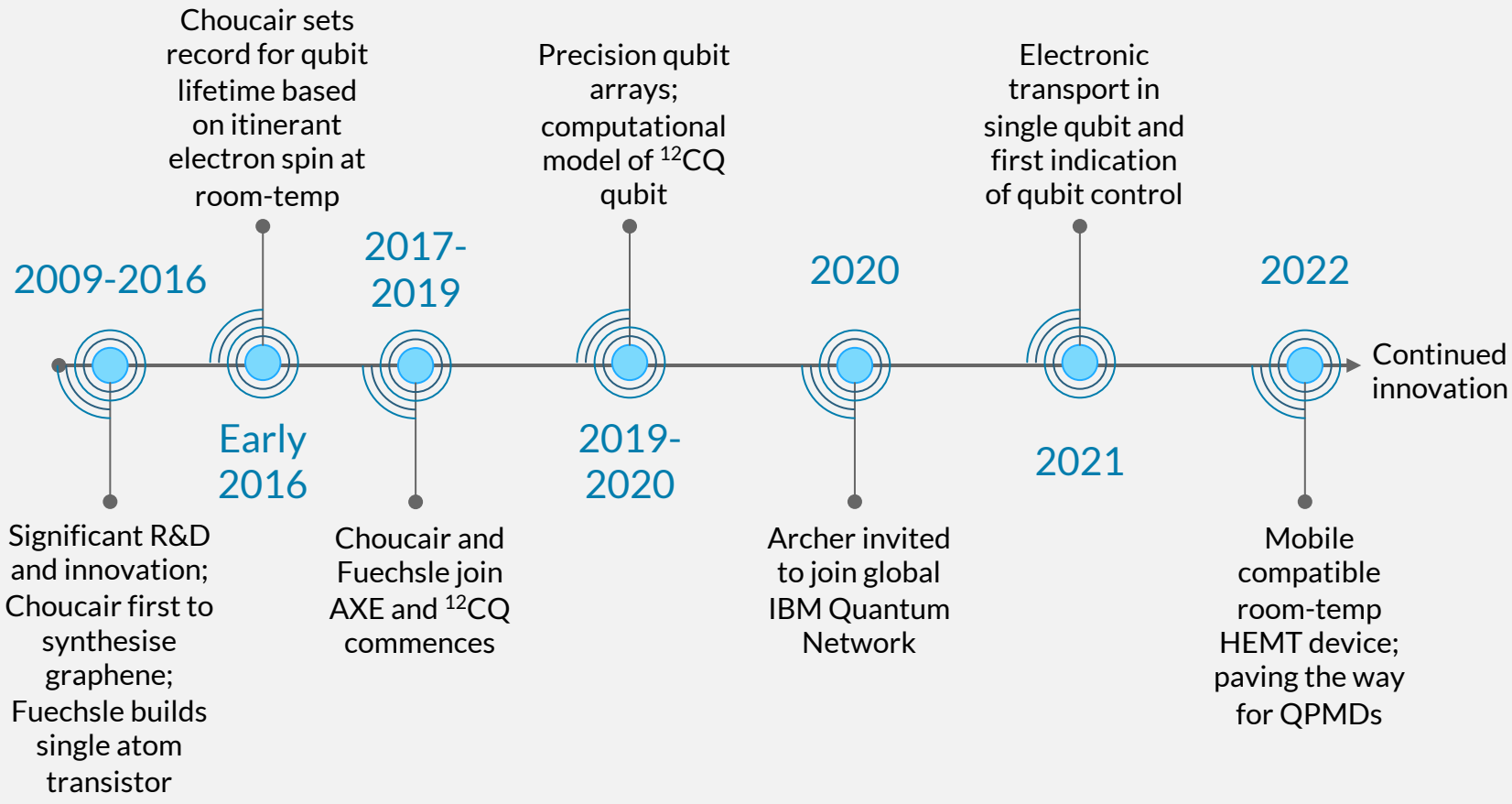
Potential for on-chip detection of pathogens without the need for PCR

Archer intends to use tiny graphene sensors integrated on a chip to enable ultrasensitive detection and analysis of diseases

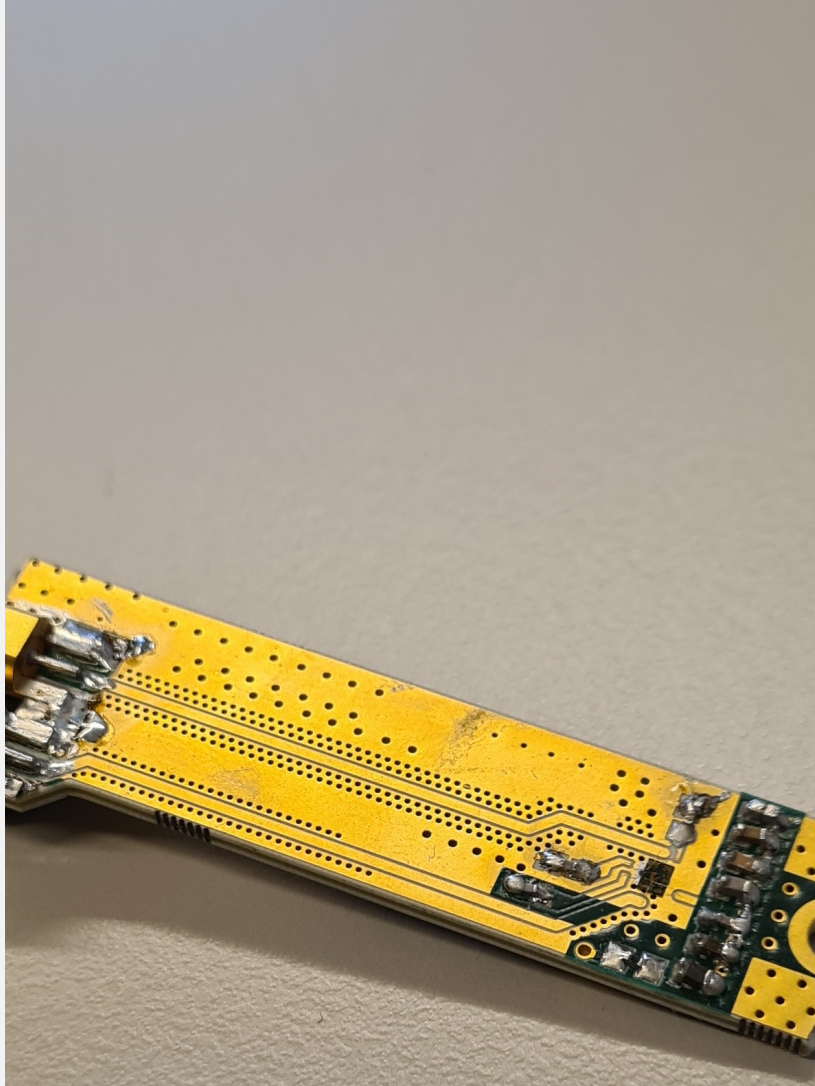


ARCHER IS DEVELOPING REVOLUTIONARY DEEP-TECH

Archer's record setting innovation is at the forefront of international quantum development



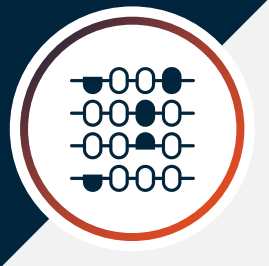
† References: https://www.nature.com/articles/nnano.2008.365; https://www.nature.com/articles/nnano.2012.21; https://www.nature.com/articles/ncomms12232; https://pubs.acs.org/doi/10.1021/nl202866q; https://doi.org/10.1016/j.carbon.2014.03.046
https://patentscope.wipo.int/search/en/detail.jsf?docId=WO2017091870
*HEMT (High Electron Mobility Transistor) *QPMD (Quantum Powered Mobile Device)



Mobile compatible HEMT device developed to detect quantum information in Archer's 12CQ qubit material.

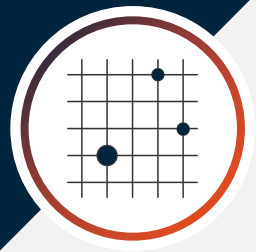
The deep-tech journey requires Archer to break through barriers...

...by systematically pushing each limit



World-first tech development towards **1 qubit** with mobile compatibility

Advance biochip fabrication steps that link to potential future operation



Patent prosecution and IP portfolio growth

Establishing and strengthening strategic commercial partnerships

Growing the Archer team and expanding access to world-class tech development infrastructure in Australia and abroad

ASX Code: AXE
ACN: 123 993 233
The Board of Archer authorised this announcement to be given to ASX.

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