

# Rigetti Computing

Cyber Alp Retreat  
21st June 2024

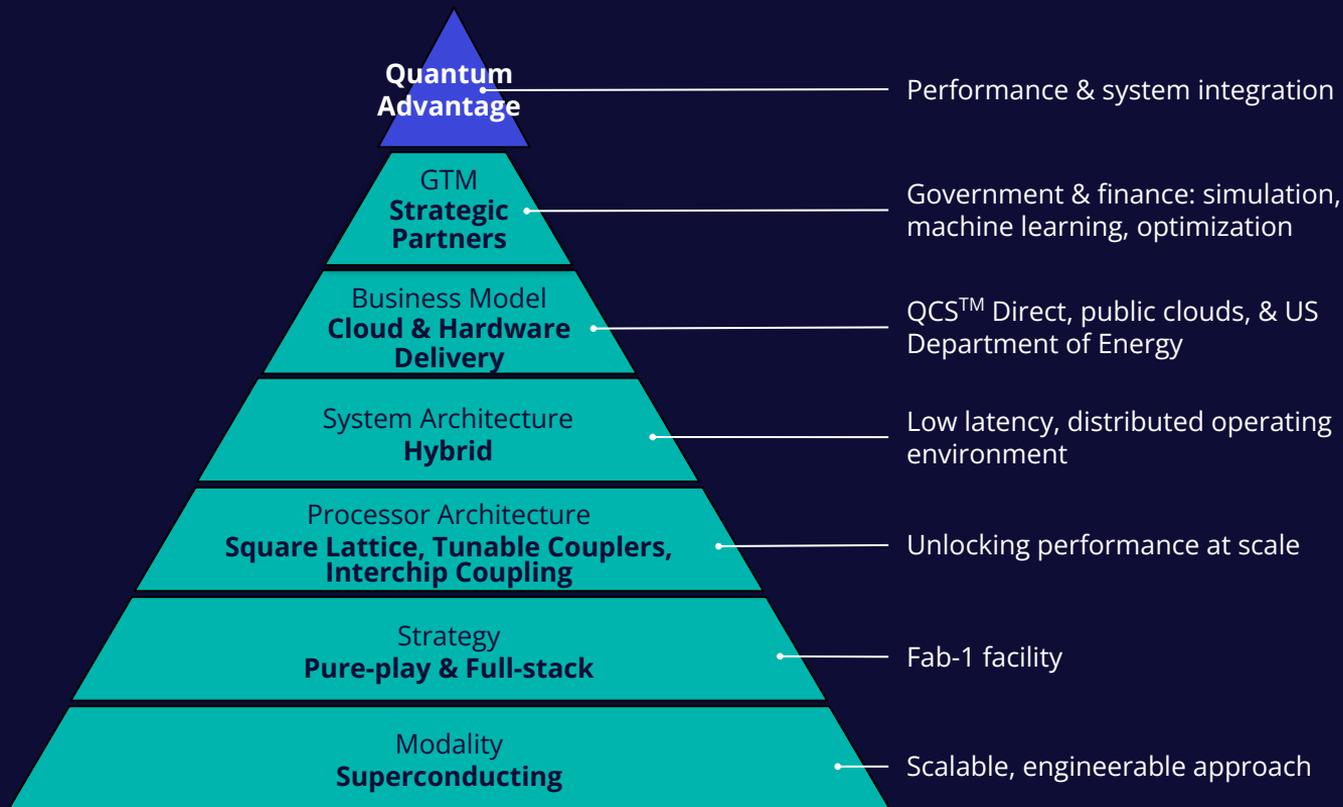


## Rigetti at-a-glance

- 130 employees worldwide
- 48 employees with a PhD
- Dedicated **quantum foundry**, Fab-1, located in Fremont, CA
- **Quantum computers** hosted in CA and UK
- Publicly traded (NASDAQ: RGTI)



# The full stack



# Competitive Moat 10+ years in the Making

## Rigetti at a Glance

**2013**

*Founded*

**15**

*Deployed quantum systems to-date*

**70,000**

*Combined sq. ft. of facilities*

**132**

*Employees*

**49**

*PhDs*

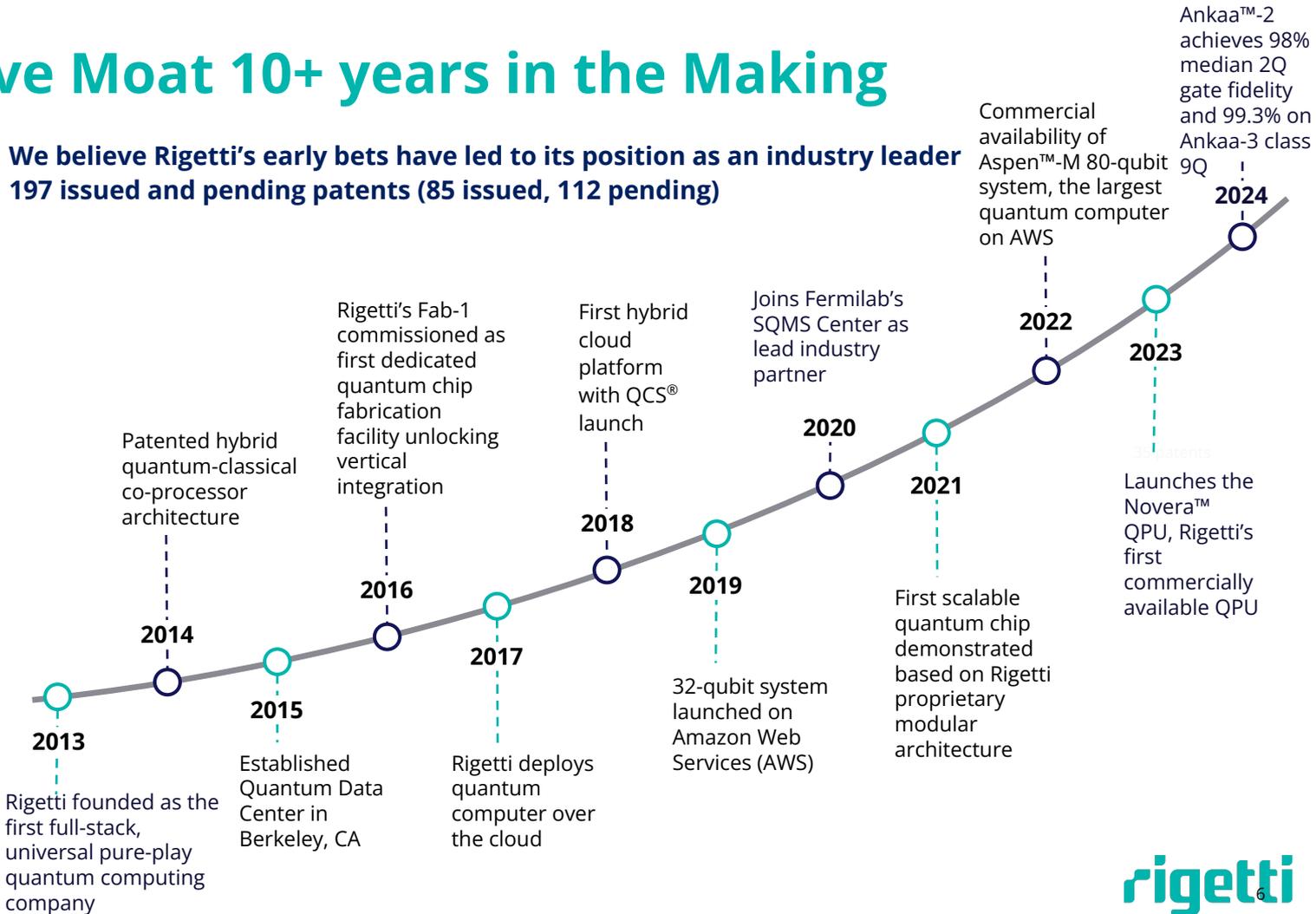
**95% - 99%+**

*2Q gate fidelity ramp 2022-2025E*

**16 - 336**

*Qubit count ramp 2018 - 2025E*

**We believe Rigetti's early bets have led to its position as an industry leader**  
**197 issued and pending patents (85 issued, 112 pending)**



# Focus areas

Design and fabrication



On-premise hardware



QCaaS

```
check = @then('ready' when appropriate)
function() {
  //is the element hidden?
  if (!t.is({ 'visible' })) {
    //is element hidden?
    t.appeared = false;
    return;
  }

  //is the element inside the visible window?
  var a = w.scrollLeft();
  var b = w.scrollTop();
  var o = t.offset();
  var l = o.left;
  var t = o.top;

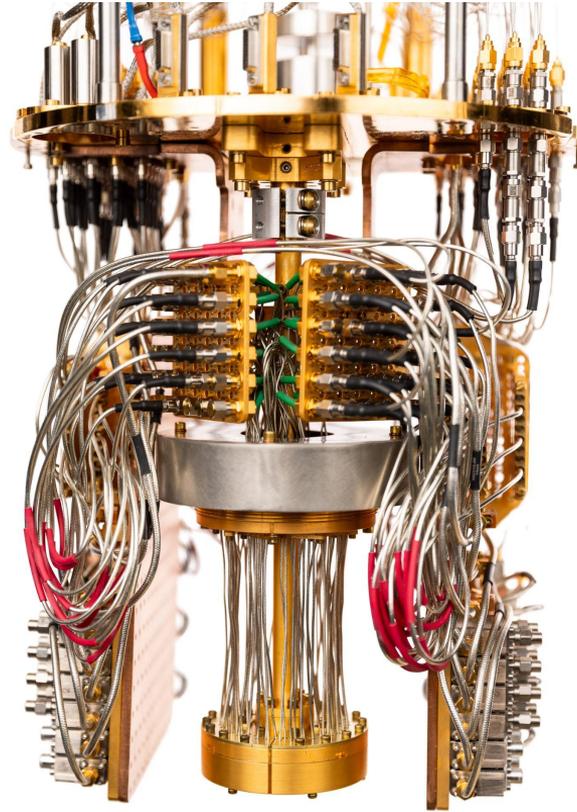
  var ax = settings.scroll;
  var ay = settings.scrollY;
  var th = t.height();
  var wh = w.width();
  var tw = t.width();
  var ww = w.width();

  if (ly + th + ay >= b &&
      y <= b + wh + ay &&
      x + tw + ax >= a &&
      x <= a + ww + ax) {
    //trigger the custom event
    if (!t.appeared) t.trigger('appear', settings.data);
  } else {
    //it scrolled out of view
    t.appeared = false;
  }
}
```

Software and application stack

# NOVERA

- 9 qubits, square lattice, tunable couples
- Suitable for institutions, research labs
- Third party integrations,
  - Cryogenics
  - Control system
  - Software
  - Installation



**Technical  
appendix**

**Technology and roadmap**



**Rigetti's Fab-1**  
Fremont, CA

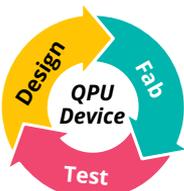
# Rigetti Fab-1

Rigetti Fab-1 accelerated Rigetti's innovation and provided a competitive advantage



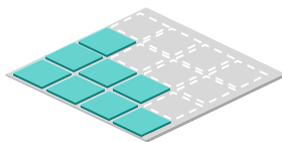
## Addresses Supply Chain Risk

Mitigates geopolitical disruption



## Accelerates Innovation Cycles

Rapid design-build-test flywheel drives innovation and compounds advantages faster



## Capital Efficiency

Essential for scaling large systems to quantum advantage and fault tolerance



## IP Generation

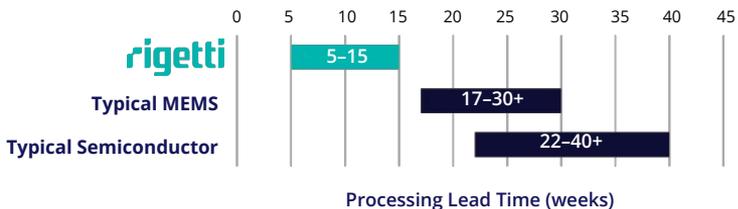
40 patents issued and pending (20 issued, 20 pending) covering processor chip design, fabrication and assembly, including multi-chip processors



## Platform for R&D Partnerships

An asset, facilitating partnerships through our foundry services and product offerings

### Cycle Time<sup>1</sup>



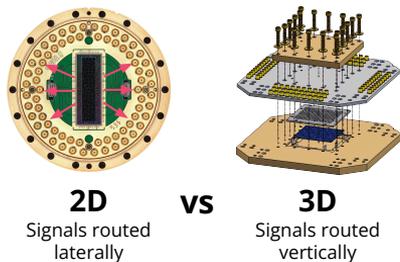
Fab-1 serves as a barrier to entry, putting Rigetti in an enviable position on the experience and capability curve.

[1] Cycle time chart based on internal estimates of development cycle time for chip design and manufacture.

# Proprietary scaling technology

From 6+ years of fab-driven innovation

## Vertical Signaling



3D signal delivery enables high density, modular processor I/O and removes the need to redesign each new generation to accommodate signal line routing

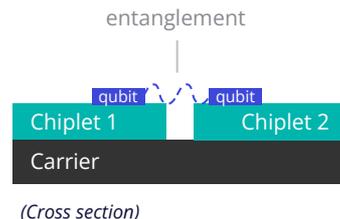
## Quantum Chiplet Technology



Modular assembly onto a carrier device enables:

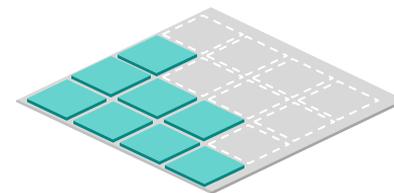
- High fabrication yield, improved processor performance
- Potential for heterogeneous integration (specialized chips for processing, memory and networking)

## Inter-Module Connectivity



Low-latency connections provide high-fidelity entanglement between modules

## Rigetti's Scalable Architecture



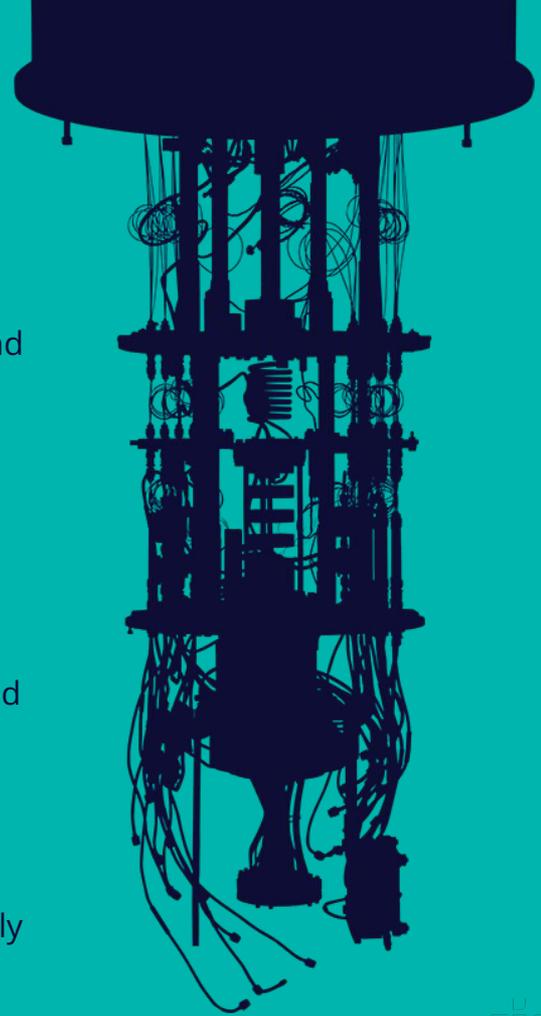
Large-scale processors built from identical tiles provide a directly scalable architecture



**The time for quantum is now.** Our mission is to build the world's most powerful quantum computers to help solve some of the most important and pressing problems in the world. In areas like climate simulation, fusion energy, drug discovery, logistics optimization, and quantitative finance, Rigetti is deeply collaborating with market leaders to help advance what's possible in their industries.

Building on years of pioneering work, Rigetti is poised to develop quantum computers that could scale to solve problems of staggering computational complexity at unprecedented speed. We have invented and patented core technology, owning critical IP for our breakthrough multi-chip processor and the hybrid quantum-classical approach that has become the predominant quantum computing architecture.

We believe our full-stack development approach – from chip design and manufacturing through cloud delivery – offers the fastest and lowest risk path to building quantum computers that could begin to unlock a potentially world changing opportunity.



## Working with us

- Global partnerships
- The role within UK's quantum technologies ecosystem
- The ADIA Lab collaboration

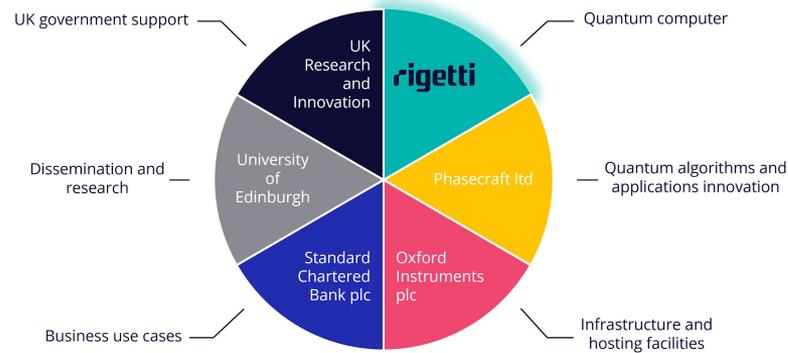
# Partnerships Help Accelerate our Path

<b>Applications</b>	        
<b>Access &amp; Production</b>	    
<b>Quantum Cloud Services (QCS®)</b>	 
<b>Quantum Processing Units</b>	    
<b>Chip Fabrication (Fab-1)</b>	   

# Rigetti spearheading the development of the UK's quantum technologies ecosystem



Financial Times – London, 2 September 2020



Sep 2020 – Dec 2023 – The Rigetti-led consortium included Oxford Instruments, the University of Edinburgh, Phasecraft and Standard Chartered Bank.



## Rigetti Computing Wins Innovate UK Competition to Deliver a 24-qubit Quantum Computing System to the National Quantum Computing Centre

The proposed 24-qubit quantum computing system will be based on Rigetti's fourth generation Ankaa™-class architecture and will be made available to NQCC researchers for testing, benchmarking, and exploratory applications development.

**5 February 2024** – The UK government announced an investment of a total of £45 million in the UK's quantum sector. £30 million of the investment will go to developing and delivering world-leading prototype quantum computers. Rigetti Computing is among the recipients of the funding and is set to provide a state-of-the-art 24-qubit quantum computer to the UK's National Quantum Computing Centre.

# Collaboration between Rigetti and ADIA Lab

## Rigetti and ADIA Lab Partner to Develop Quantum Machine Learning Solution for Probability Distribution Classification

July 26, 2023

BERKELEY, Calif., July 26, 2023 — [Rigetti Computing, Inc.](#), a pioneer in full-stack quantum-classical computing, today announced that it has signed a collaboration agreement with [ADIA Lab](#), an independent Abu-Dhabi-based institute dedicated to basic and applied research in data and computational sciences.

Together, Rigetti and ADIA Lab will collaborate to design, build, execute, and optimize a quantum computing solution intended to address the probability distribution classification problem, one of the greatest challenges of quantitative finance, with many direct applications to practical use cases in the investment industry.

The logo for Rigetti, featuring the word "rigetti" in a lowercase, teal-colored, sans-serif font.

ADIA Lab

### The collaboration has resulted in two patent applications

- Quantum algorithm for symmetric encryption
- Quantum two-sample test