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# A Whirlwind Tour of the Quantum Computing Market

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**Bob Sorensen**  
**Chief Analyst for Quantum Computing**

# QC Research, Development, and Commercial Activity Occurring on a Global Scale

- **Quantum computing is considered by most major nations to be critical to both national defense and economic security, and they have acted on that realization with technical and financial support**
- **Different programs stress different priorities on the military-civil spectrum**
  - Most, however, see the need to secure a domestic QC supply chain
- **The commercial quantum computer sector is large, diverse, and growing**
  - Aspiring developers range from large players such as IBM and Quantinuum to small start ups with zero revenues to date

# QC Market Study Summary

*Continued strong growth seen for global QC sector*

- **Based on a study of 112 QC suppliers from around the world, the estimated global QC market was worth about US \$490 Million in 2021**
  - The anticipated CAGR for the sector between 2021 and 2024 is 21.9%
  - The global QC market in 2024 is estimated to be approximately US \$900 Million
- **Current QC supplier base dominated by a few players**
  - 49% of companies < US \$500K, 7% > US \$10 Million
- **Cloud access model dominates for next three years**
  - All cloud (43%) + hybrid (21%) = 64%
- **Most Promising Market Segments**
  - QC, Cybersecurity, Financial, Academic, and Chemical/Chemistry

# QC Market Landscape 2022 Project

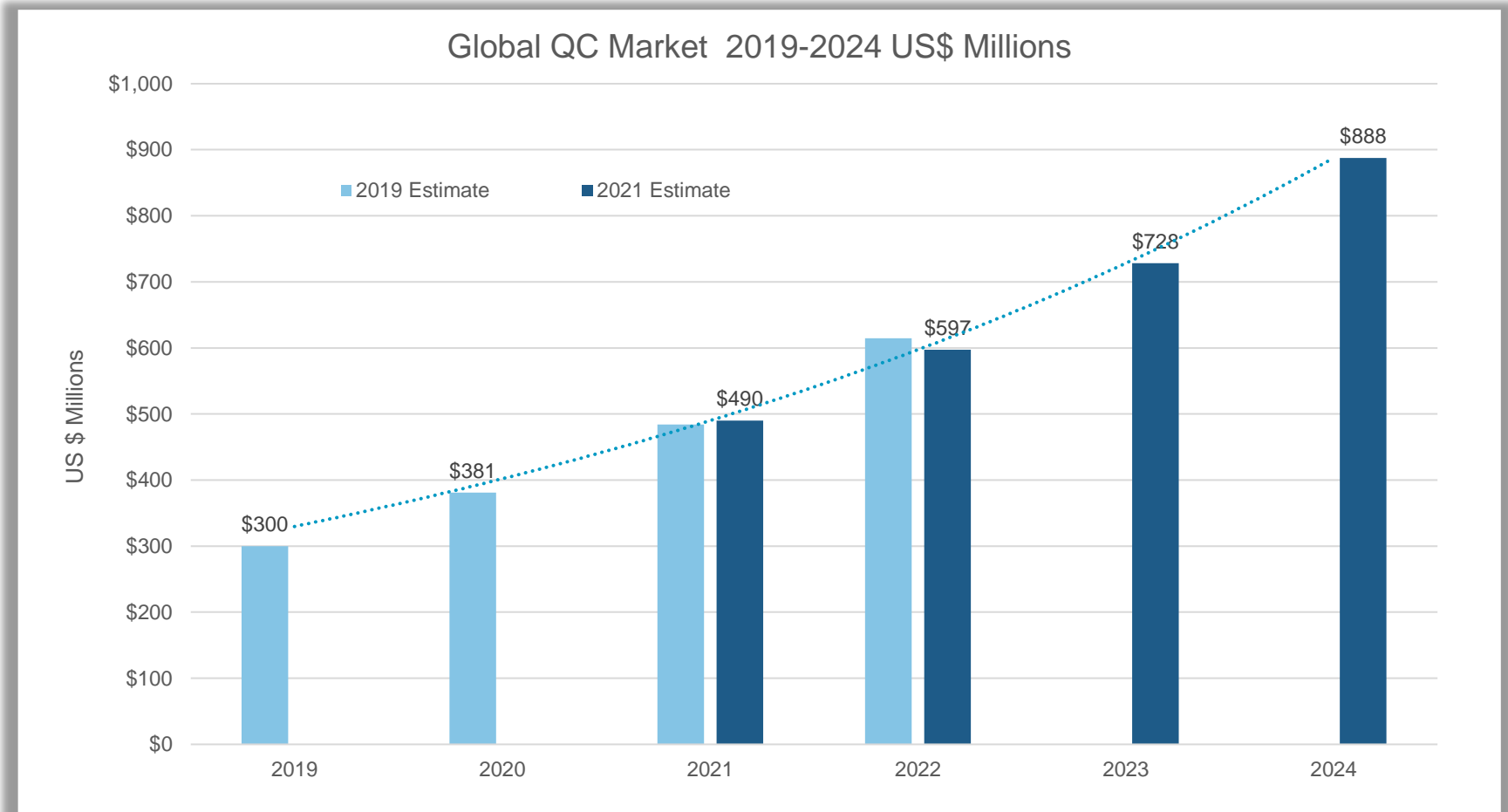
*Annual effort to capture global QC market dynamics*

- **Target Audience**

- Quantum computing developers interested in market dynamics and opportunities
- National-level policymakers tasked with QC-related R&D support, procurements, and related policies on education, workforce development, trade, and national security considerations
- New and potential QC users in both advanced computing and enterprise spaces looking to gauge the pace and progress of the sector
- Commercial funding sources -- both in the corporate and venture capital space -- looking to understand the technology and market potential of the QC hardware and software developers

# Global QC Market 2019-2024

*Global QC market reaches ~US \$900 Million in 2024*



# QC Supplier QC-related Revenues 2021

45% < \$500K, 7% > \$10 million

## Organizations' Estimated 2021 QC-related Revenues

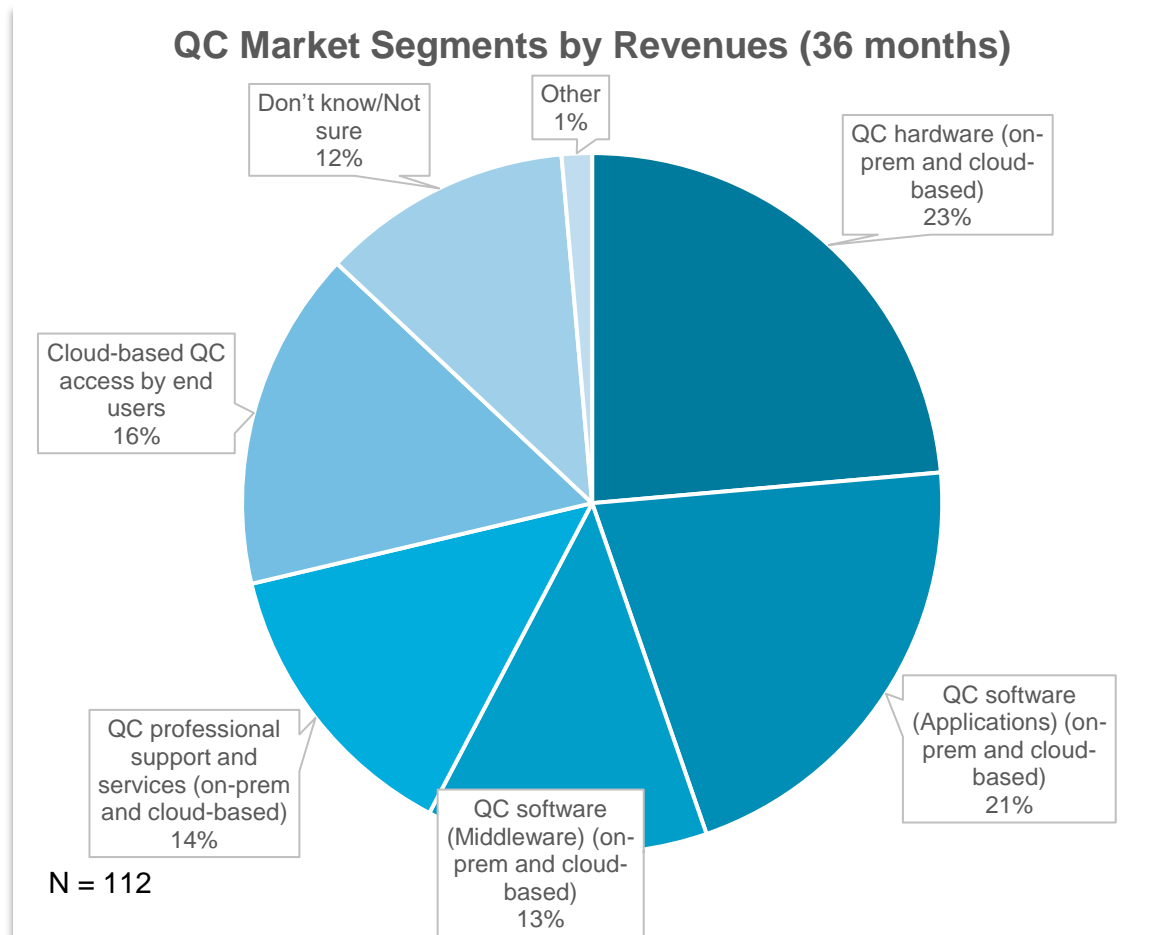


N = 112

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# QC Market Segments by Revenue

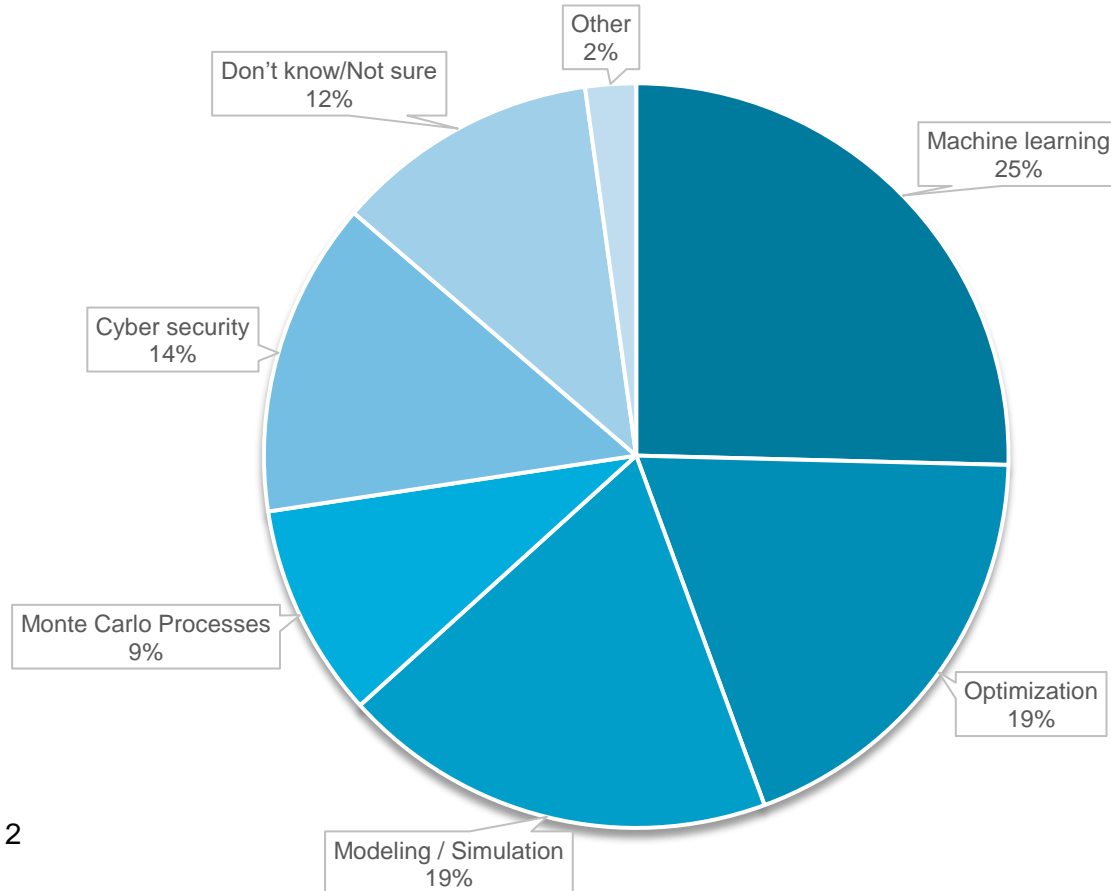
*In next 36 months, QC hardware/software near parity*



# QC Algorithm by Revenues

*ML & optimization, M/S and cyber close behind*

QC Algorithm by Revenue (36 months)



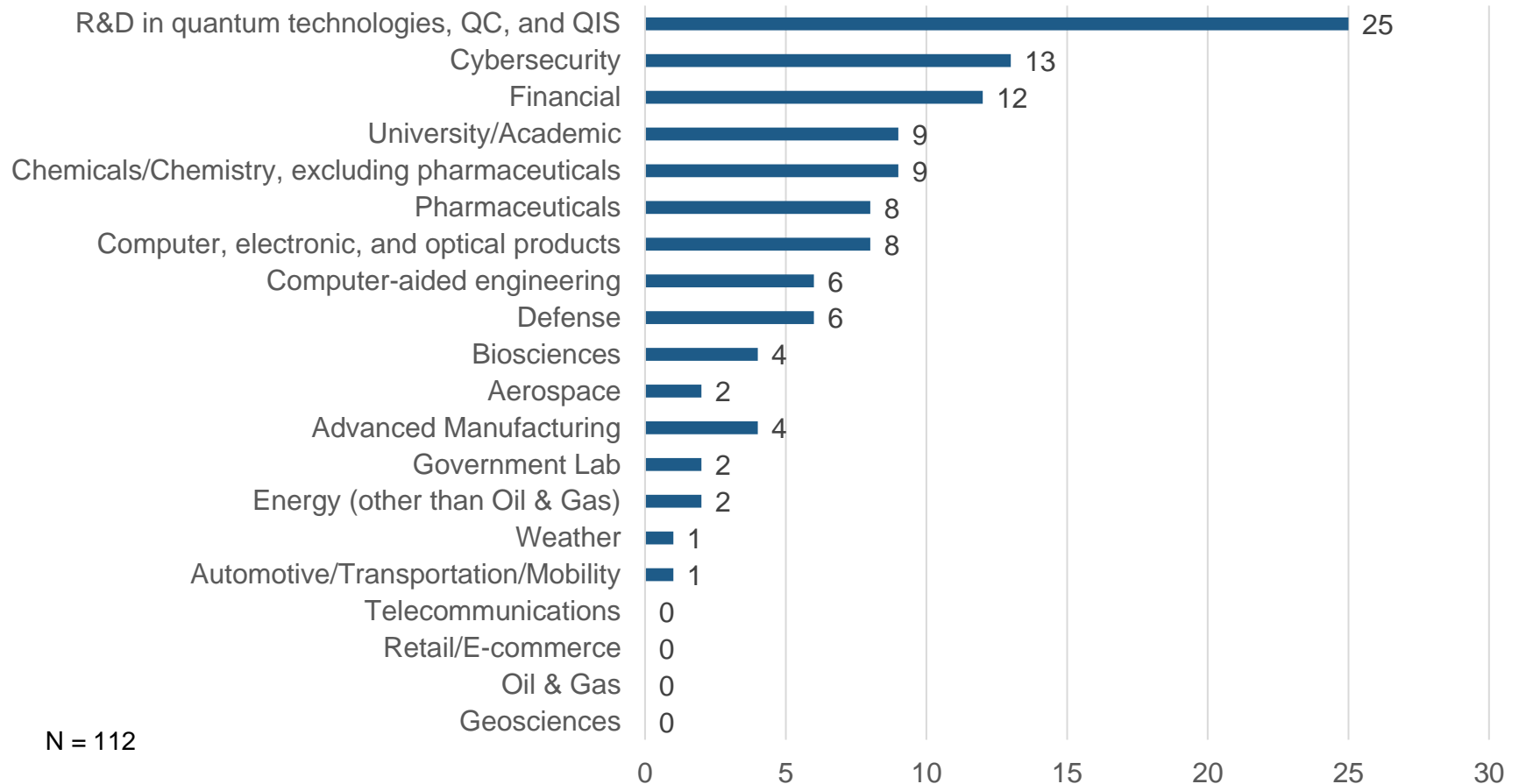
N = 112



# Most Promising Application Area

*QC R&D dominates, but cyber and financial trail closely*

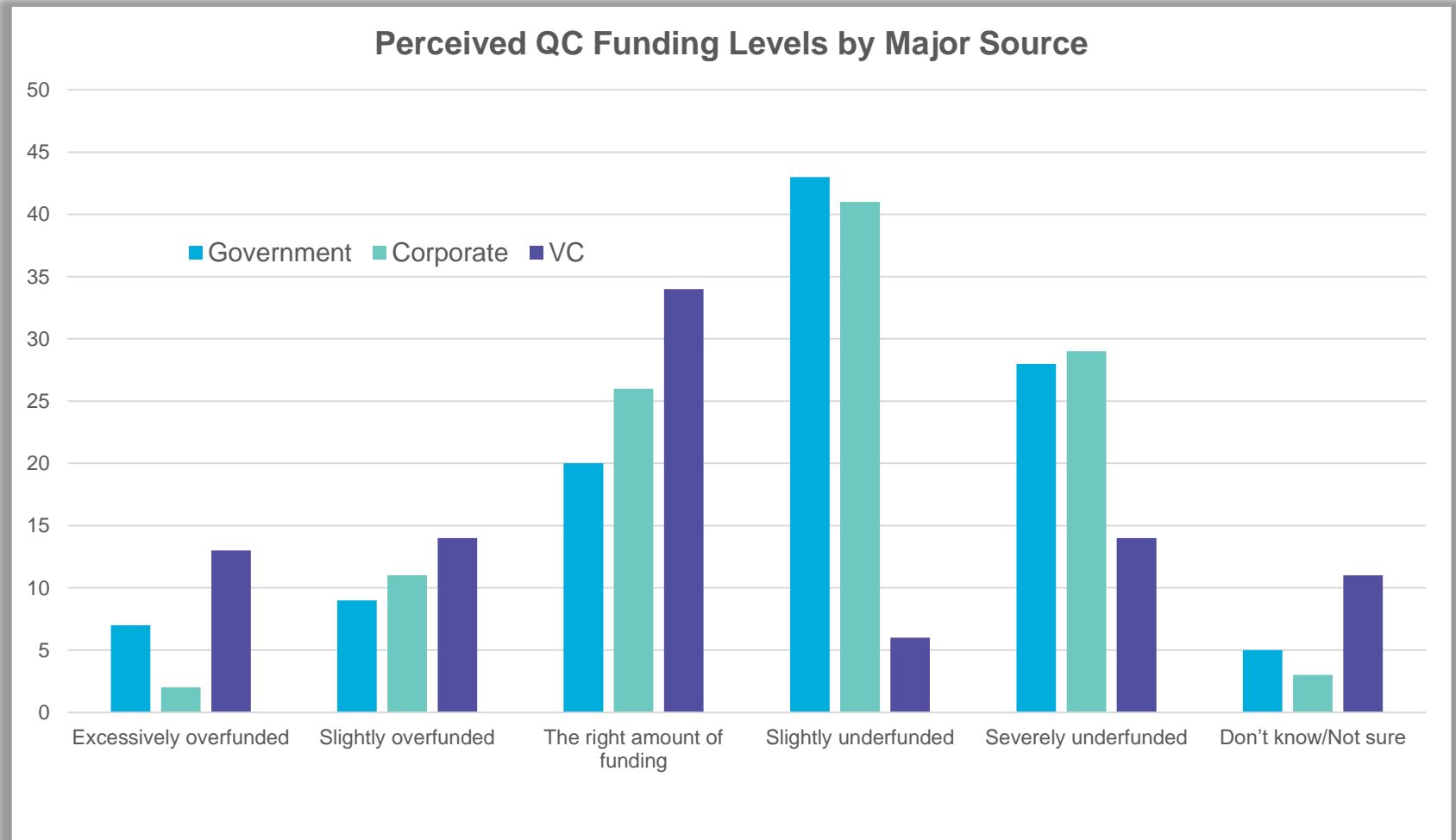
Application Area with the Most Promise



N = 112

# Perceived QC Funding Levels

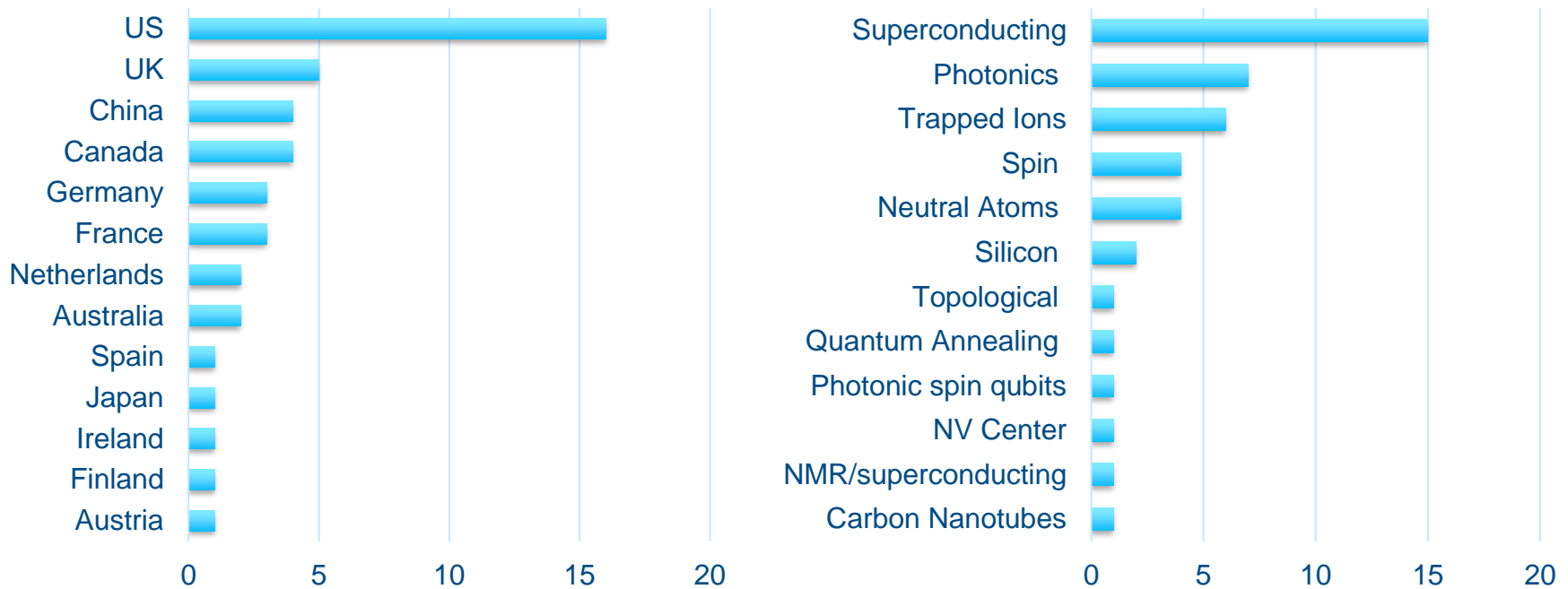
*More government funding, less VC funding?*



# Current Field of Commercial QC Hardware Suppliers

*Tracking the visible players from a global perspective*

- **44 identified QC hardware developers**
- **12 quantum modalities under consideration**



# QC End User Study Key Takeaways

*Commercial end users' interest in QC is high*

- **Almost 70% of 415 companies surveyed worldwide have some in-house QC program**
  - Additional 20% plan to do so in the next few years
- **QC technology is seen as offering a range of corporate-level benefits including improved research capabilities and increased revenue**
- **End users are looking for solutions in optimization, factory processes, scheduling, etc.**
- **Every vertical surveyed had a significant number of organizations currently involved in some level of QC activity**
- **Most interested companies already involved in data analysis, ML/DL, optimization, mod/sim, material science—some of the most promising areas of QC today**

# QC End User Perspectives

*Many exploring options, looking at use cases, and have proof of concept programs underway*

Current state of quantum computing activity in your organization

Option (Select All That Apply)	% Selected	# Responses
Exploring options and monitoring technology development	48%	199
Quantum use case analysis and prioritization are being used	35%	146
Proof of concept research programs underway	33%	137
Fully funded research efforts are being used	28%	115
Limited in-house pilot programs underway	23%	97
No current activity but planning to start up activity within the next few years	20%	85
No activity and no plans to have any activity in the next few years	8%	32
Don't know/Not sure	3%	11

n = 415

# The QC Sector Matures

*Transitioning from an R&D to market sector*



## Rigetti Computing, Inc. (RGTI)

NasdaqCM - NasdaqCM Real Time Price. Currency in USD

★ Add to watchlist

**4.2100** -0.3200 (-7.06%)

As of 12:32PM EDT. Market open.

[Summary](#) [Company Outlook](#) [Chart](#) [Conversations](#) [Statistics](#)

Market Summary > IONQ Inc

**5.19** USD

+0.070 (1.37%) ↑ today

Jul 21, 12:32 PM EDT • Disclaimer

[1D](#) [5D](#) [1M](#) [6M](#) [YTD](#) [1Y](#) [5Y](#) [Max](#)



## Investing in Quantum Computing Stocks

An in-depth look at the best quantum computing stocks in the U.S stock market this year.

# QC Five Years Out

*The sector is in transition and there is considerable uncertainty across a broad spectrum of issues*

- **Some demonstration of quantum advantage soon, but no one knows exactly where and when**
- **At least 12 different QC modalities now**
  - Only a few may still be around in five years
- **The QC sector will seek to transition from emphasis on quantum processors to quantum computers**
  - Will require a host of new technologies for quantum networking, quantum memory, quantum/classical interfaces, etc.
- **National level policy will increasingly impinge**
  - Supply chain concerns, funding commitments, export control issues, varying national security and economic agendas
- **Whither the VC community: are they in it for the long term?**

# QUESTIONS?



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Insufficient facts always invite danger.

- Spock, *Stardate: 3141.9.*