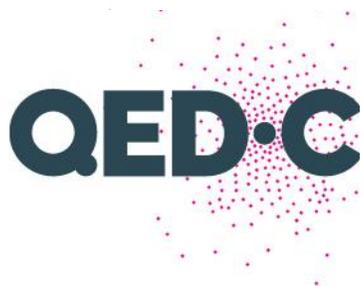




HYPERION RESEARCH



4th Annual Global QC Market: Robust and on the Rise



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Hyperion Research, LLC

QC Market Executive Summary/Highlights

Continued strong and steady progress for the global QC sector

- **The global quantum computing (QC) market is estimated to be worth US\$848 million in 2023**
 - A projected annual growth rate of 22.1% brings the global QC market to US\$1.5 billion in 2026
- **Supply-side growth driven by a collection of factors:**
 - Continued revenue growth by traditional QC suppliers
 - First revenue appearances by new-to-market players
 - Expanding base of domestic suppliers in nascent markets
 - Increasing sophistication and specialization of QC stack
- **Demand-side interest on the rise:**
 - Widespread interest in accelerating critical compute jobs
 - More end use case exploration within the overall HPC community
 - Sustained government programs, and related government procurements, fostering sales and increasing credibility to potential end users

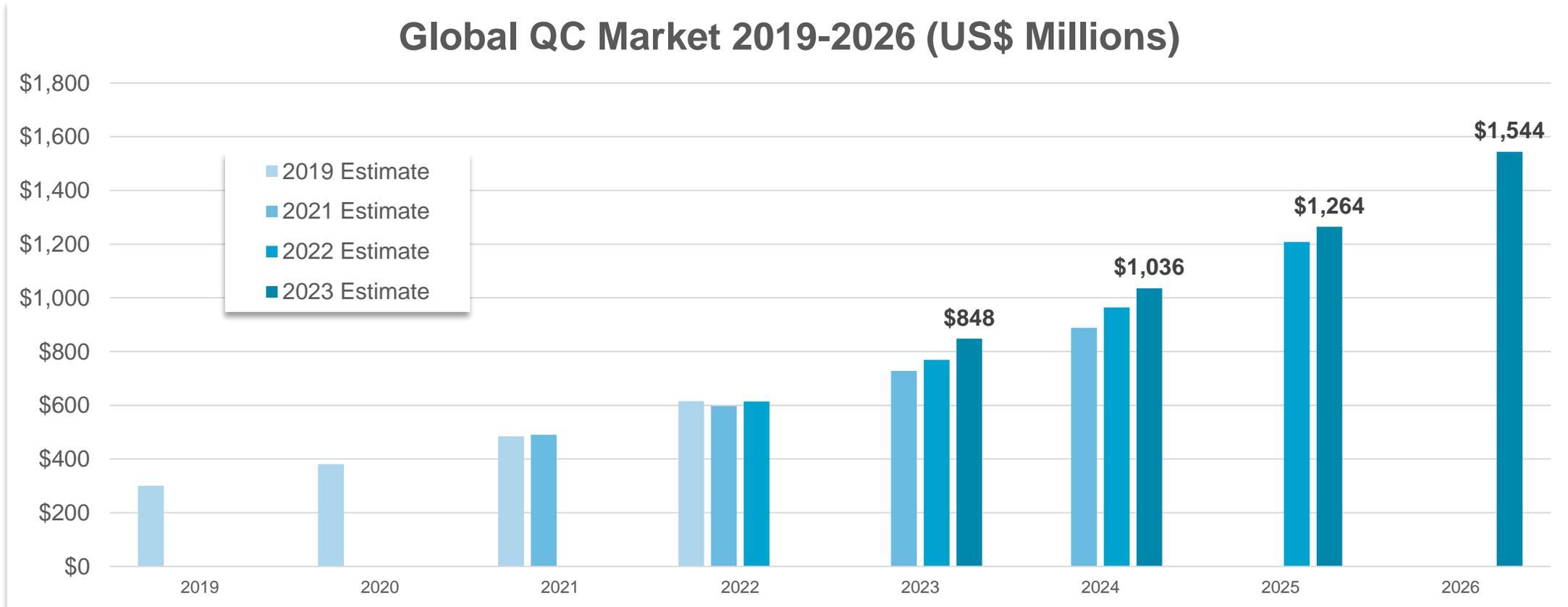
QC Market Executive Summary/Highlights

Based on a survey of 133 respondents representing 108 different QC commercial organizations

- **The QC supplier sector is taking on a more traditional revenue-based financial profile**
 - In 2021: 49% of survey respondents had \$500K revenues or less, 32% had no revenues
 - In 2023: 27% of survey respondents had \$500K revenues or less, 11% had no revenues
- **Approximately one-third of surveyed organizations expect at least a 25% increase in revenue in 2024**
 - No surveyed organization anticipates a decline in revenue
- **The QC hardware market for on-premises and cloud-based demands will account for about 30% of the overall QC market in 2026**
 - Equating to a US\$469 million global QC hardware market that year
- **End user sectors seen as most attractive for QC suppliers in 2026**
 - R&D for quantum technology chosen by about half of the survey respondents as most attractive
 - From last year, Chemical/Chemistry moves from #4 to #2, while Financial drops from #1 to #3
 - Cybersecurity continues as a perennial favorite
 - N.b. Nearly every sector (of the 21 different options offered) was deemed important by some
- **The trend towards less concern about a potential quantum winter continues**
 - But LLMs are seen as a potential distraction

QC Market Estimate: US\$848 Million in 2023

22.1% annual growth rate drives QC global market to US\$1.5 billion in 2026



- **Dangerous to project out too far: too many unknowns**
 - But is this the first stages of an exponential curve?

QC Supplier Survey: Road Map and Key Demographics

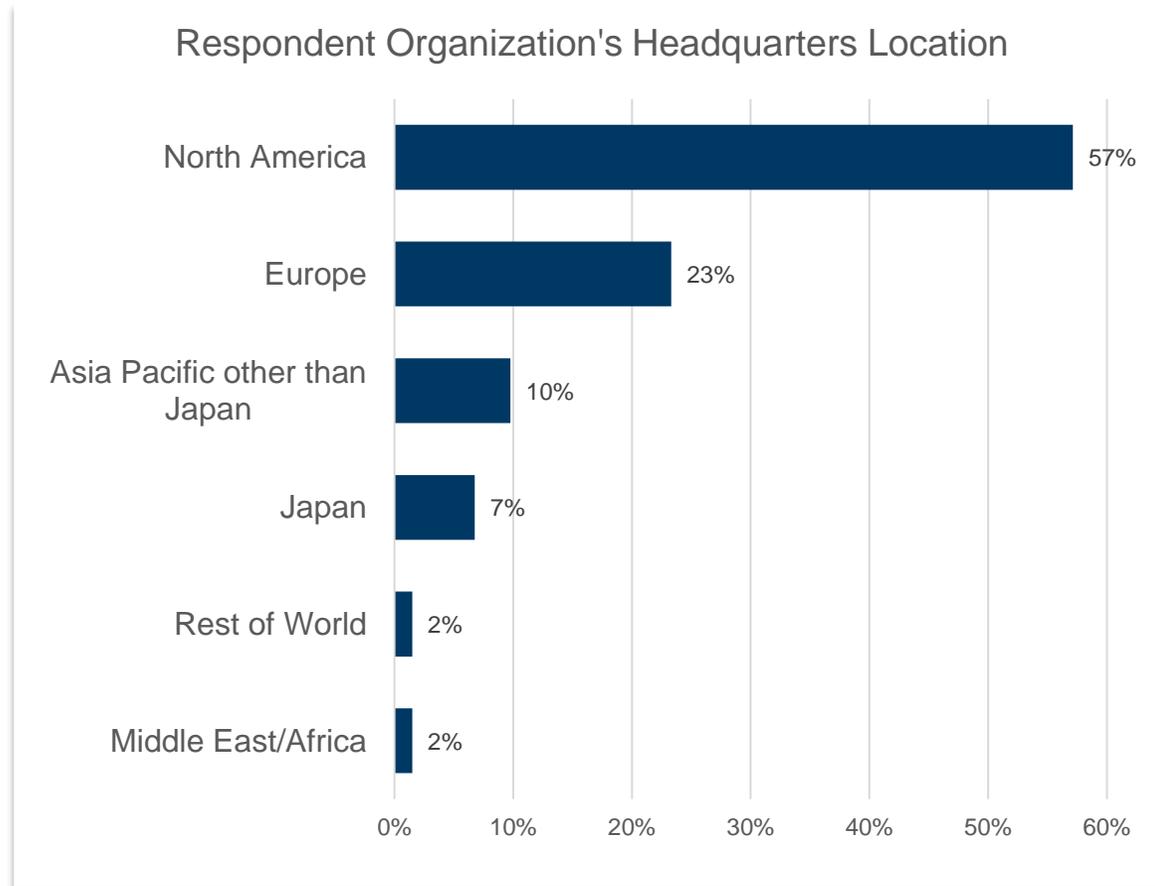
2023 QC Market Dynamics Study Roadmap

Formulate global status and prospects from a data-driven perspective

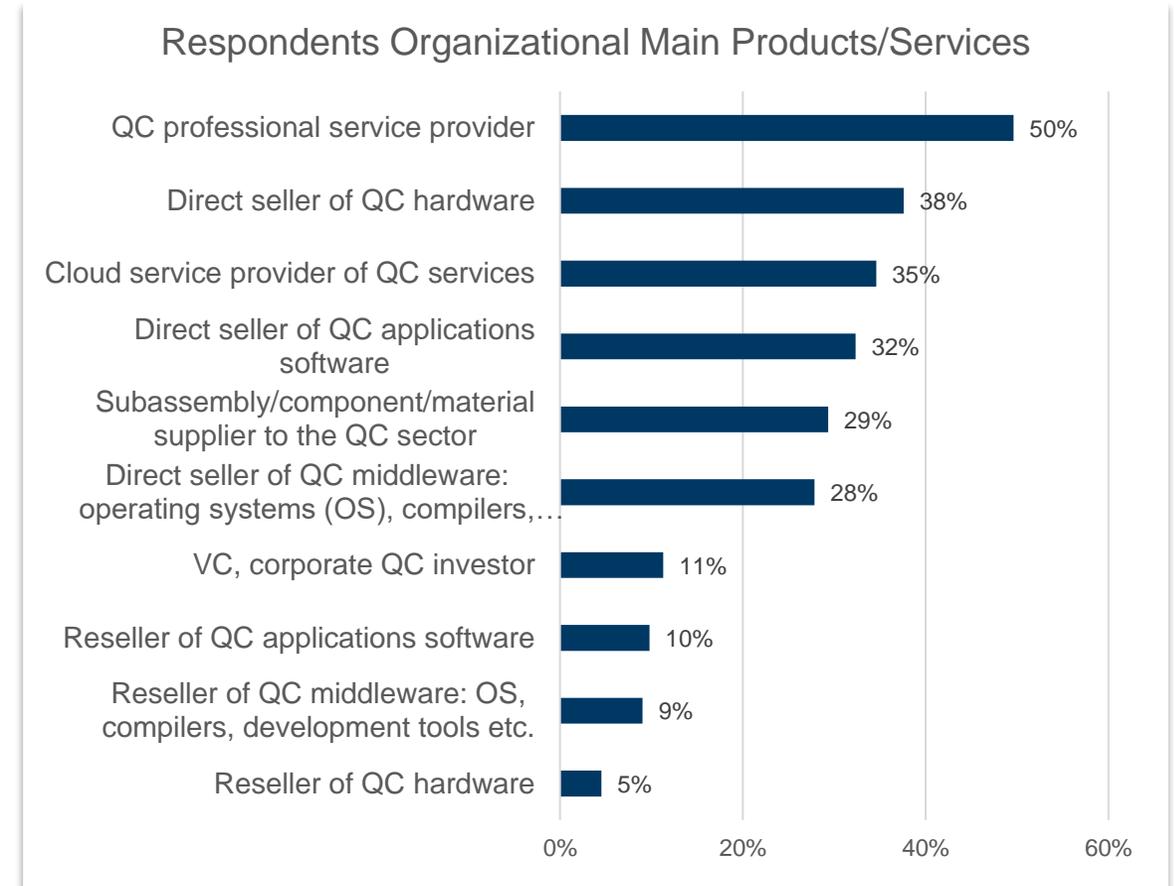
- **Conducted QC supplier survey to gather data and insights on QC market dynamics**
- **Many thanks for assistance from various QC consortia in reaching out to their respective membership base to encourage participation in this effort:**
 - Quantum Economic Development Consortium (QED-C)
 - European Quantum Industry Consortium (QuIC)
 - Quantum Industry Canada
 - Japan Quantum Strategic Industry Alliance for Revolution (Q-STAR)
 - Australian Quantum Alliance
 - UKQuantum
 - Korea Quantum Industry Association
- **Gathered results to span:**
 - Geographic variety, company size (total and QC-related revenues), market concentration, QC industry sentiment, and impressions on general trends in the sector
- **Analyzed results from 133 respondents representing 108 different companies**
 - Individual responses for industry-wide questions
 - Combined single response for organizations

QC Supplier Demographics: Location and Activity

Casting a wide regional and functional net



N = 133

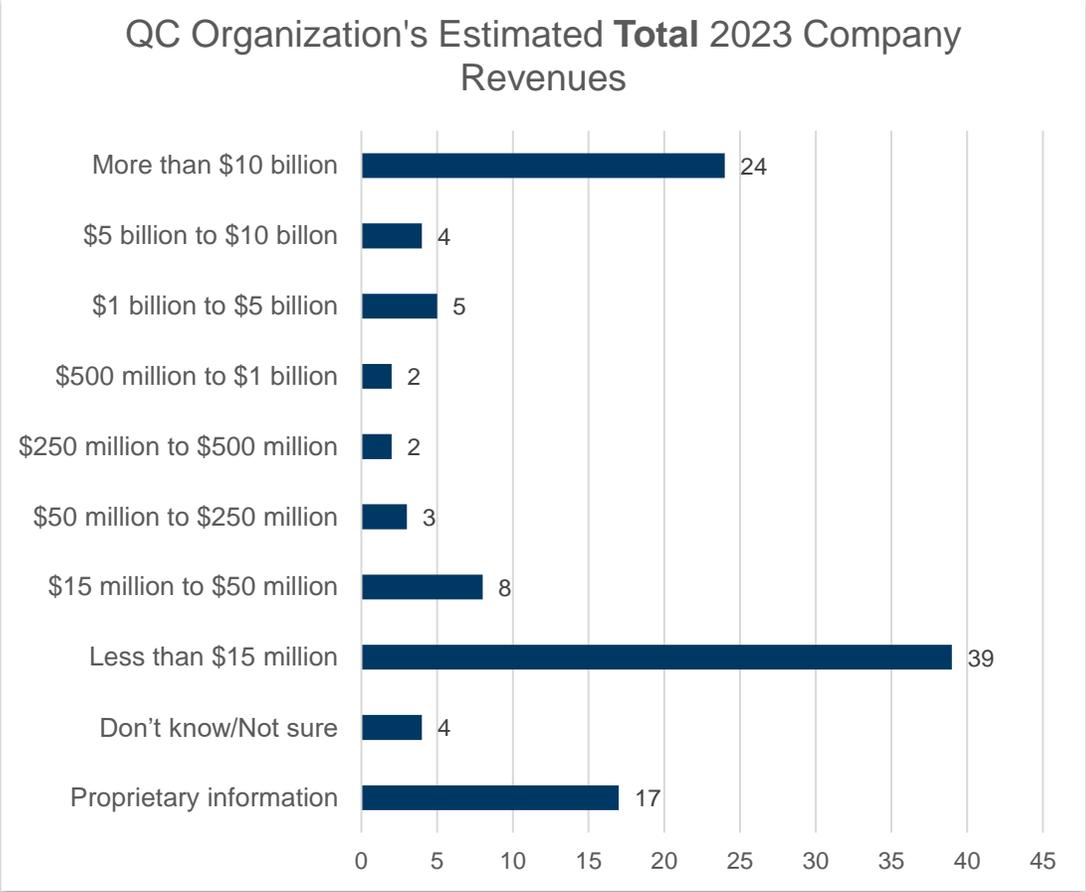


N = 133, Select all that apply

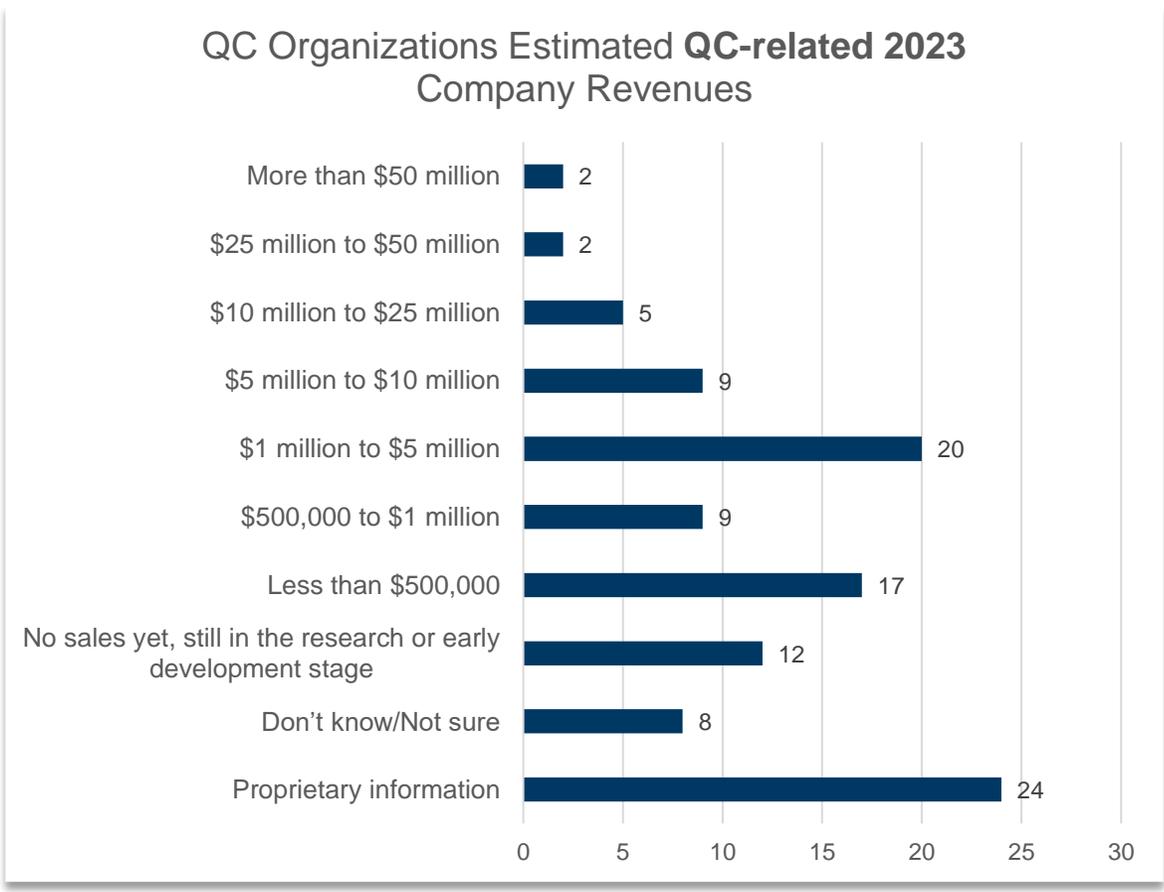
QC Supplier Survey: Current and Future Revenue

QC Suppliers: 2023 Total and QC Revenues

Bimodal total revenues, for QC, 27% < US\$500K, 4% > US\$25 million



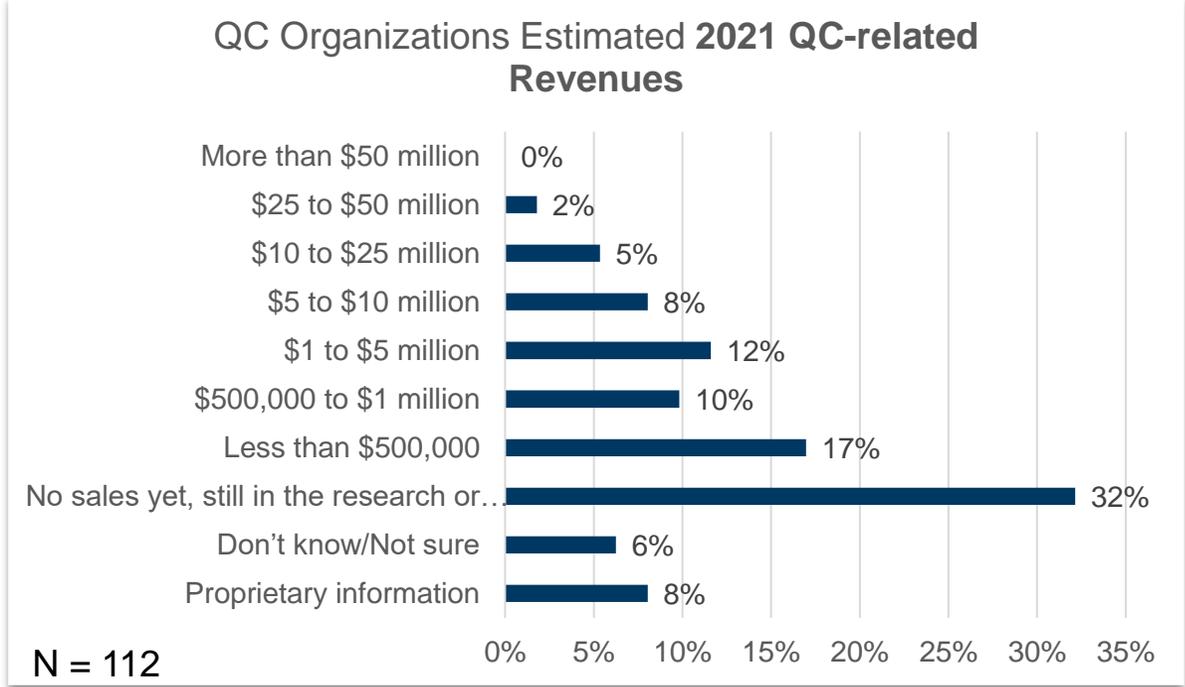
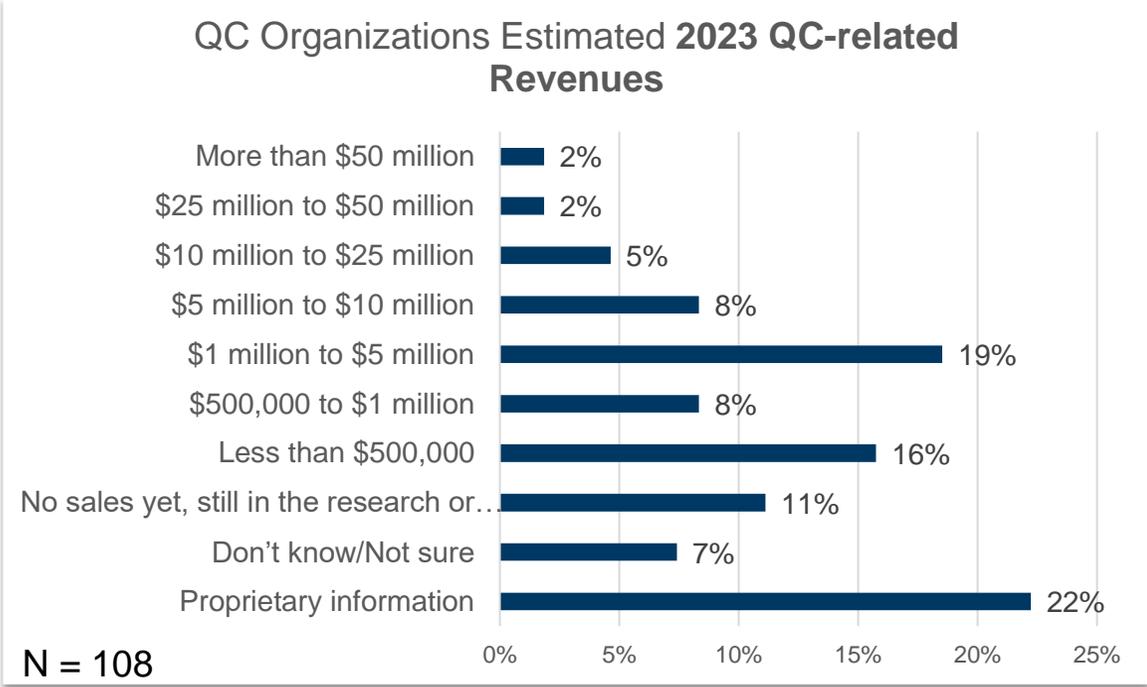
N = 108



N = 108

QC Suppliers' Revenues: Now and Then

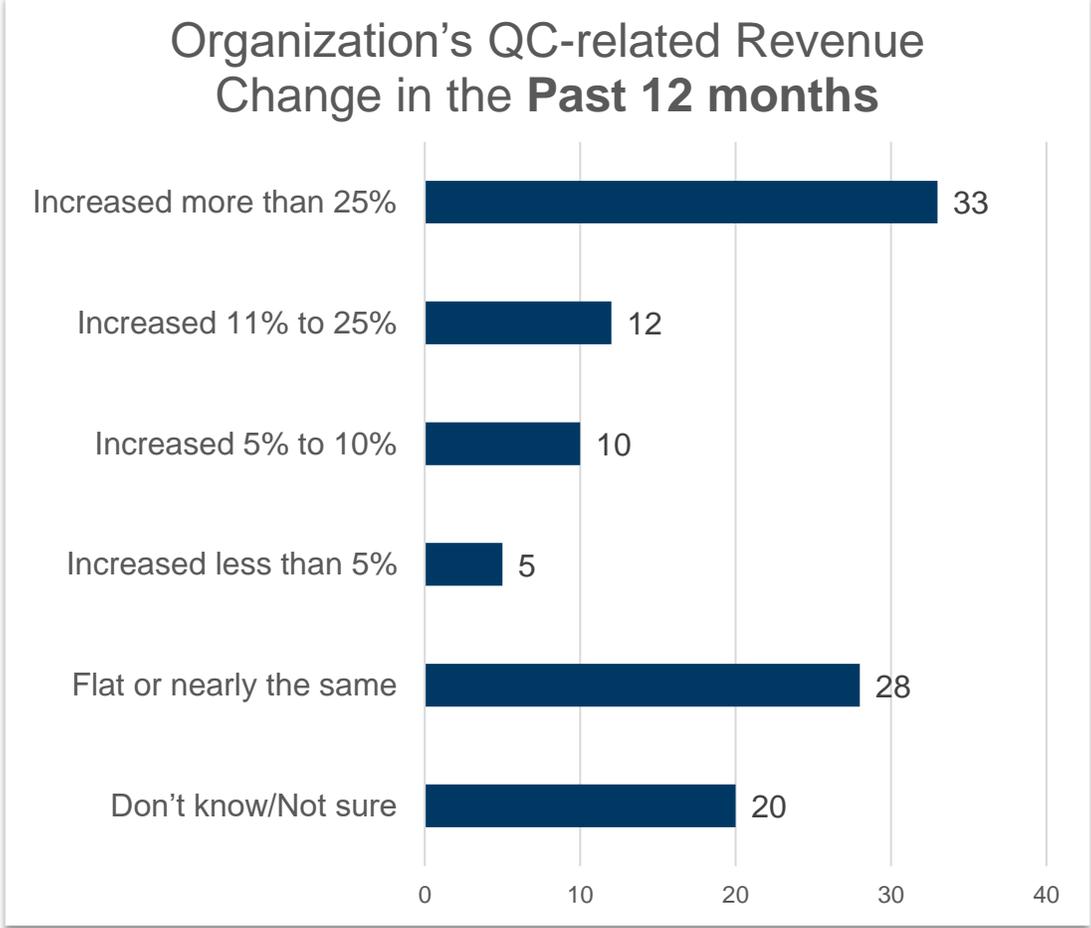
Comparing 2023 with 2021: Quantifying QC supplier base revenue profiles



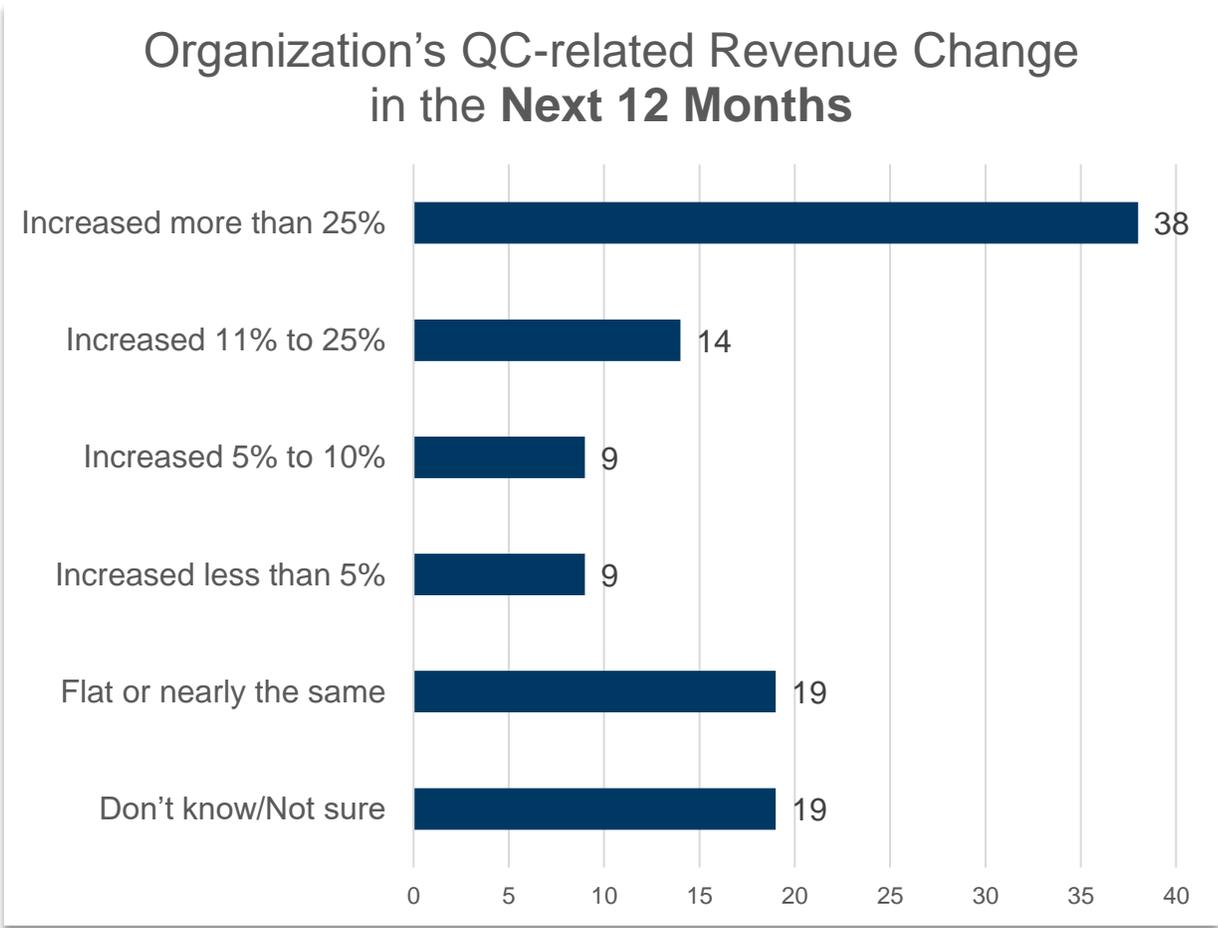
- **In 2021: 49% of respondents had \$500K revenues or less, 32% had no revenues**
- **In 2023: 27% of respondents had \$500K revenues or less, 11% had no revenues**
 - **Propriety information on the rise?**
- **In 2023, four companies above the \$25 million line, double two years earlier**

QC Suppliers: Accelerating Revenue

~One-third expect more than 25% growth, no expected decreases



N = 108



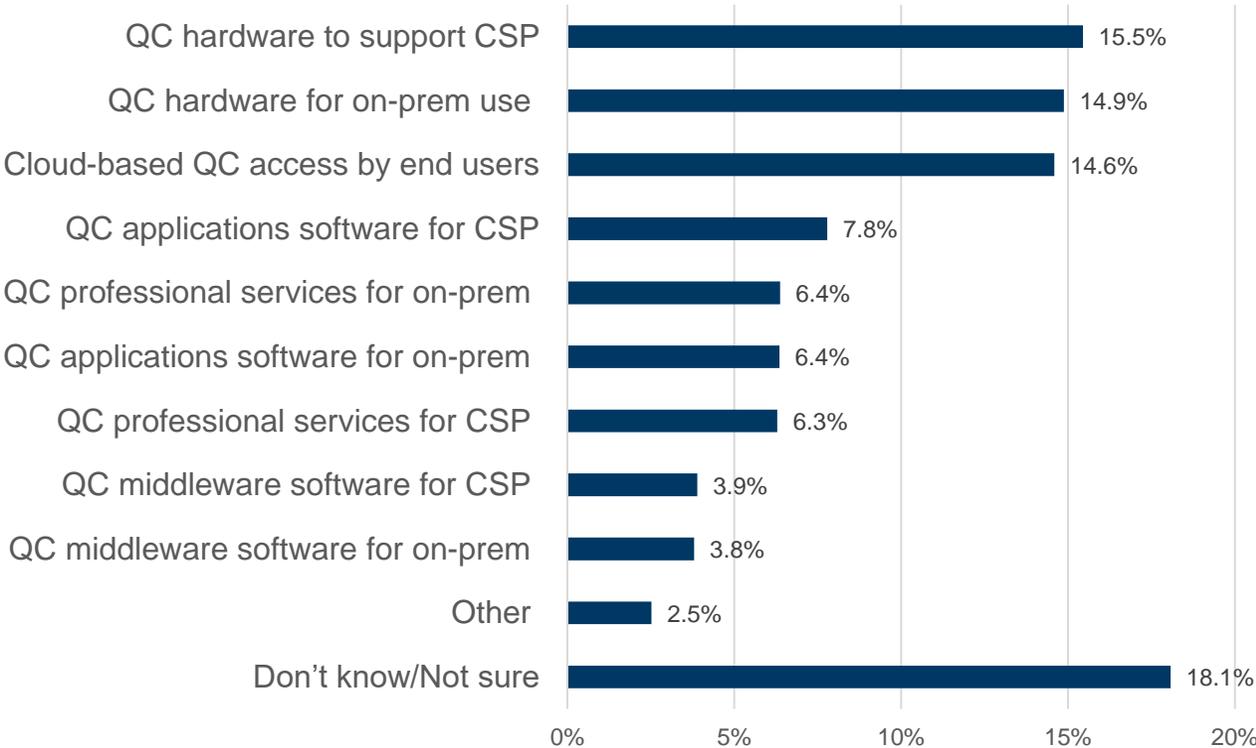
N = 108

Focus on QC Market Segments, Algorithms, Access, End User Sectors, and Budgets

QC Market 2026: Major Market Segments

QC hardware 30% of the market, CSP-related revenues about half

QC Major Market Segments by Revenue in 2026



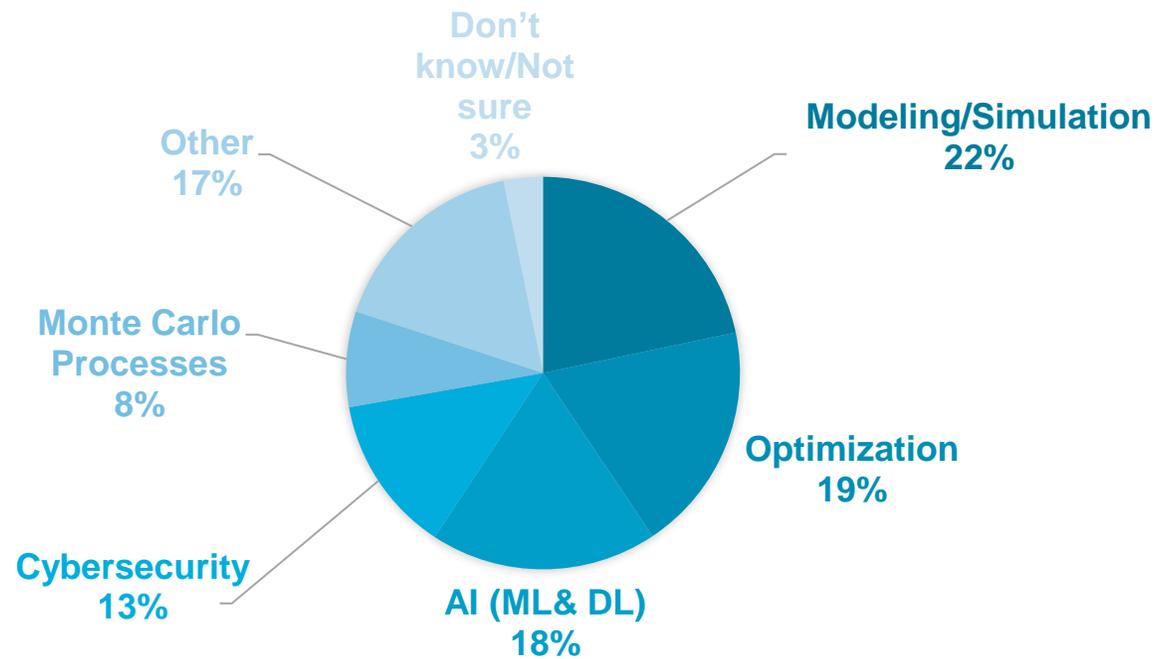
- **QC hardware for on-prem plus cloud = 30.4%**
 - **Equates to US\$469 million QC hardware market in 2026**
- **CSP interactions (hardware, software and end user access) account for 48.1% of all QC revenues**
- **Total on-premises based revenues (31.4%) worth about US\$485 in 2026**
- **No claims as to how the “Don’t know/Not sures” will partition**

N = 133

QC Market 2026: Major Algorithms by Revenue

Mod/sim, optimization, and AI still the three major algorithms areas

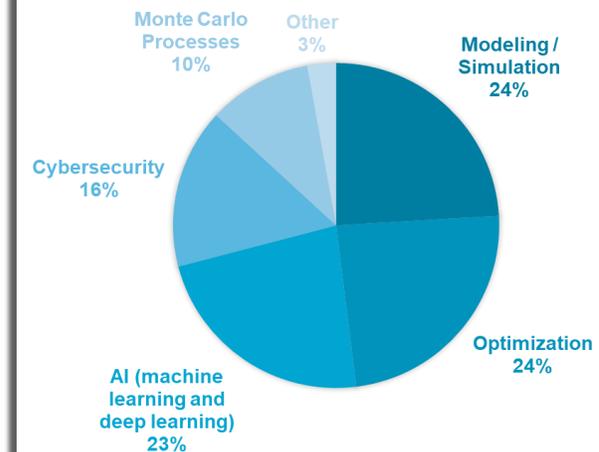
QC ALGORITHMS BY REVENUE 2026



N = 133

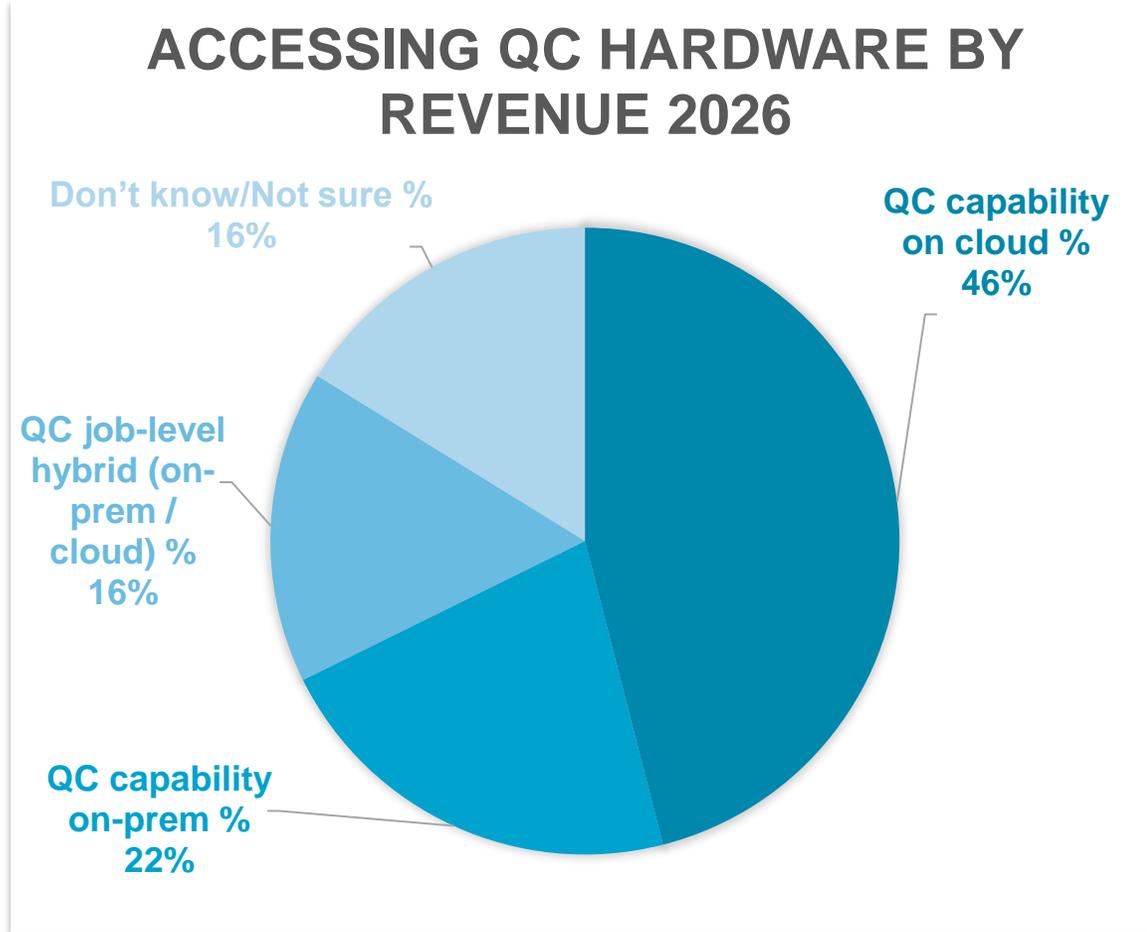
- Some changes from previous years' studies
 - The overall share of the big three is slipping due to major gains in the 'Other' category
 - But there was little detail offered about the new alternatives
 - Suggests trends towards mixed algorithms use

Major QC Algorithms by Revenue 2025



QC Market 2026: Access To QC Hardware

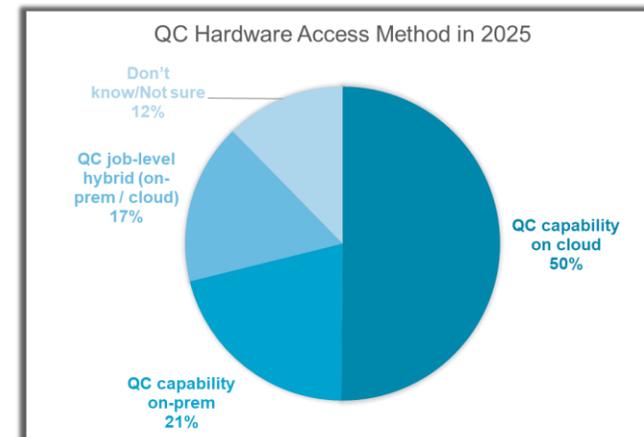
Cloud continues to dominate as preferred QC hardware access method



N = 133

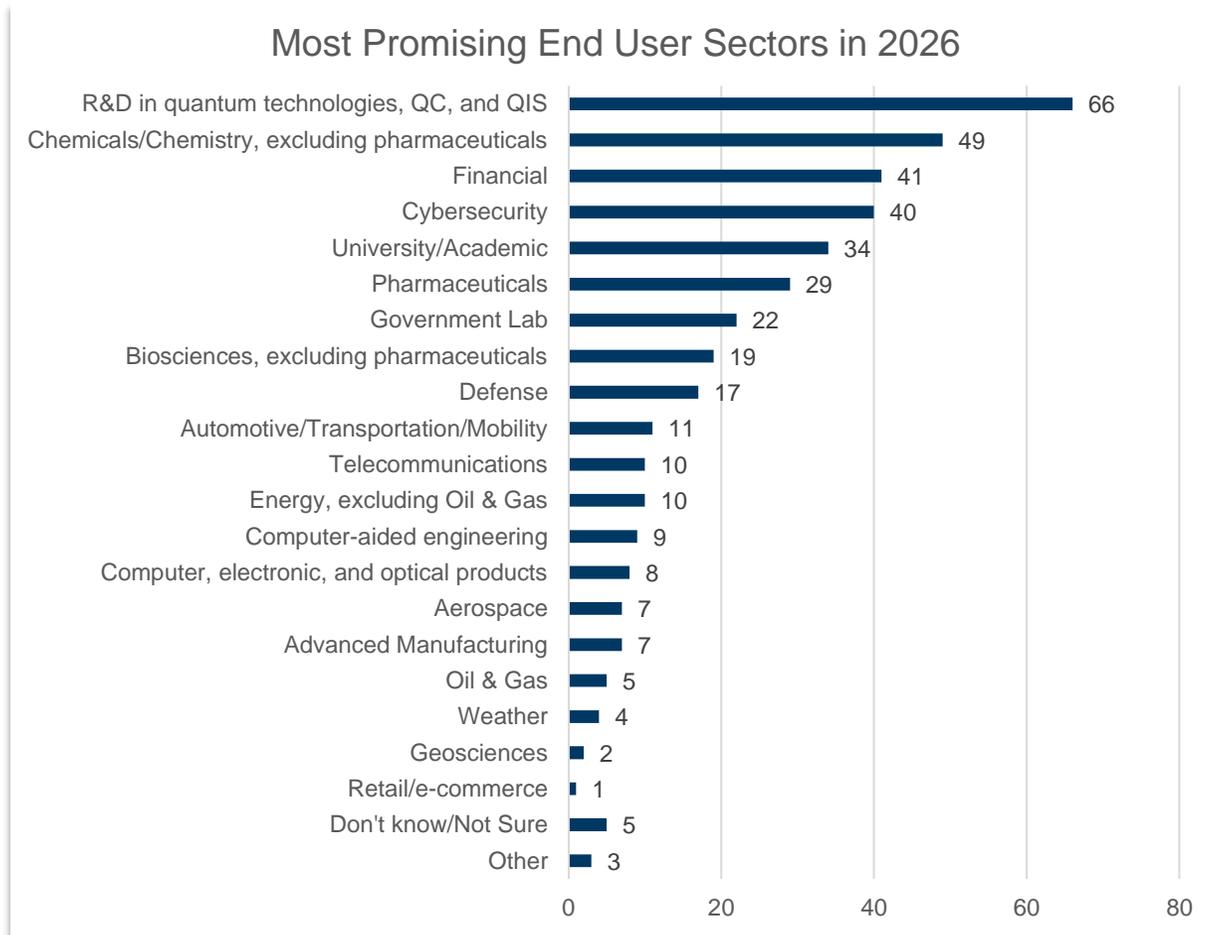
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- No major changes from last year's study
- Results imply that:
 - QC hardware procured strictly for on-premises use will be worth about US\$103 million in 2026
 - However, additional on-premises hardware procurements will be needed to support hybrid and off-site cloud access



QC Market 2026: Top Three End User Sectors

QC R&D and Chemicals on top, but broad applicability envisioned



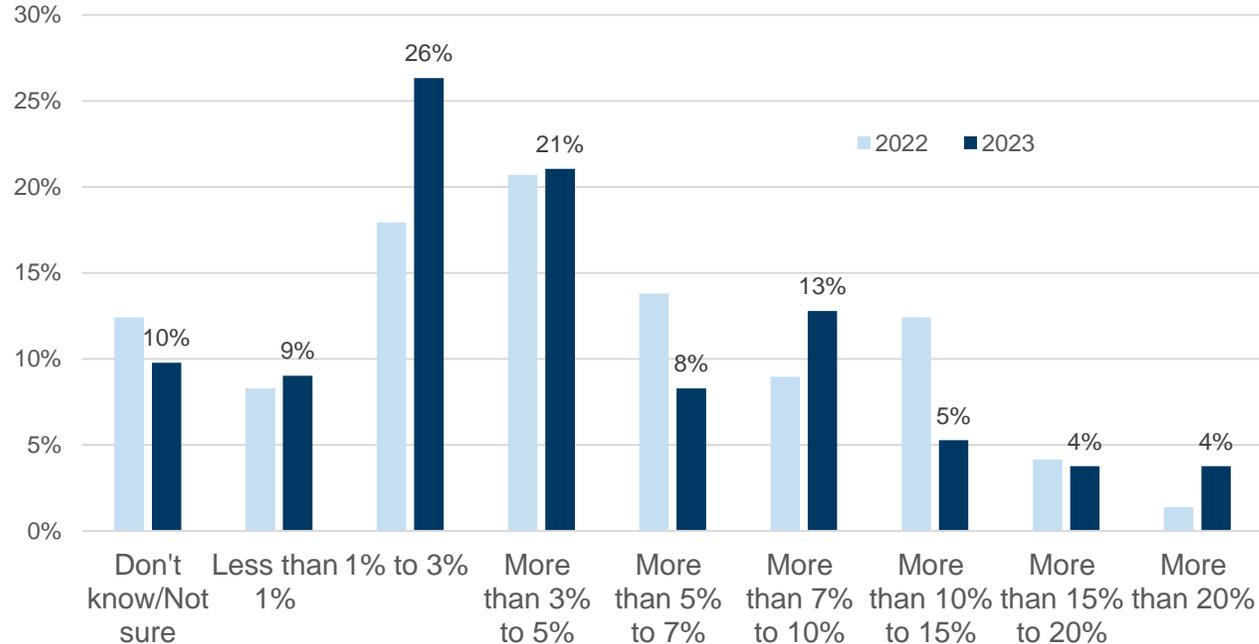
- R&D for quantum technology chosen by about half of the survey respondents
 - In keeping with the nature of a nascent technology/market
- Financial drops from last year's #1 spot to #3
- Chemicals/Chemistry moves from #4 to #2
- N.b. Nearly every sector choice deemed important by some
 - Crossing academic, commercial, and government spaces

N = 133, Select top three

QC 2026: Anticipated QC Budget Commitment

Wide range, likely in 1% to 5%, but 1 in 12 could commit 15% or more

Anticipated End User QC Budget Commitment as Percentage of Overall IT Budget in 2026



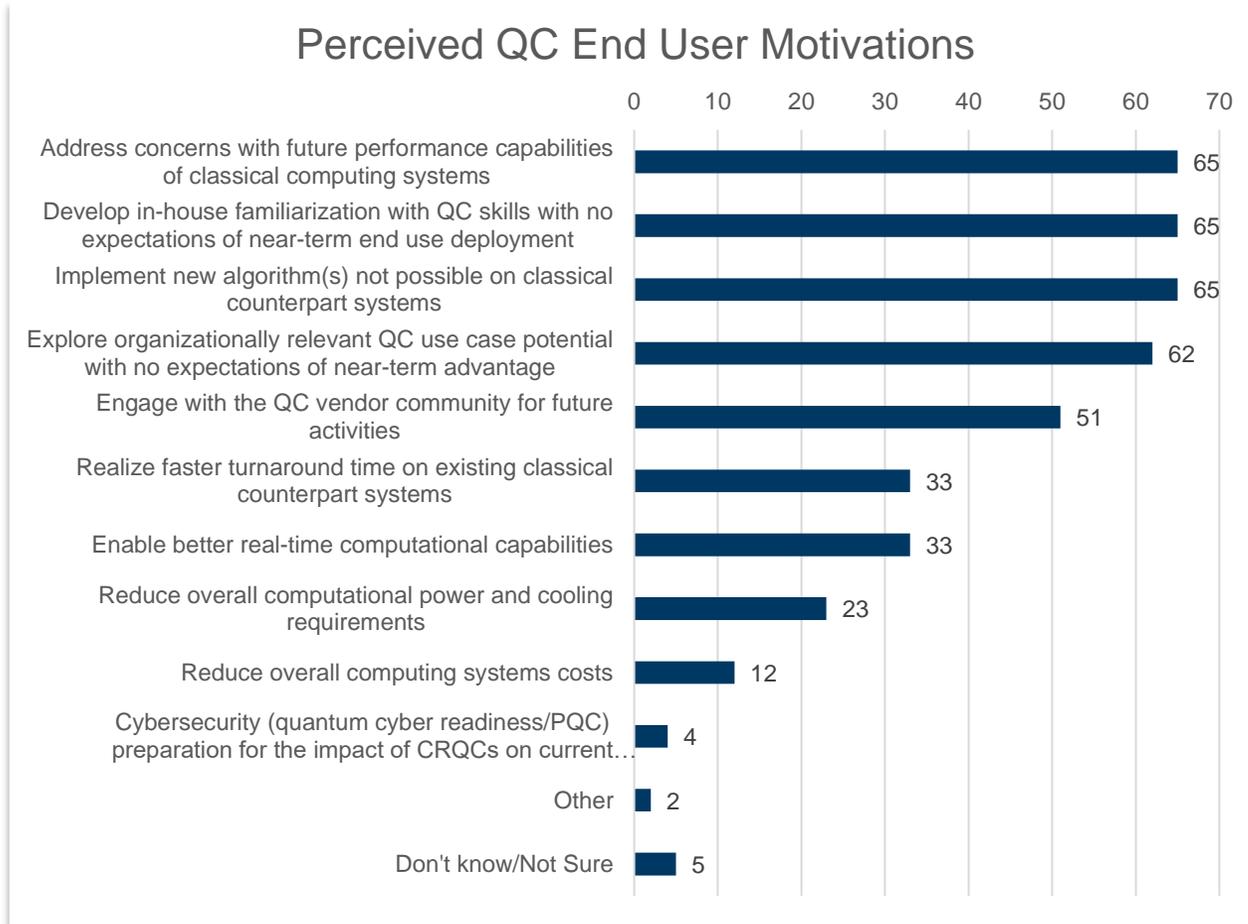
- **One in four, the largest group, are seen as committing 1% to 3% of their overall IT budget to QC**
- **47% are seen as committing between 1%-5% of their overall IT budget to QC**
- **1 in 8 see it reaching between 10% or more**
- **Compared with 2022 results, some movement towards less QC budget commitment as % of overall IT budget**

N = 145,133

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QC 2026: QC End User Perceptions

Mixed Drivers for QC End User Adoption



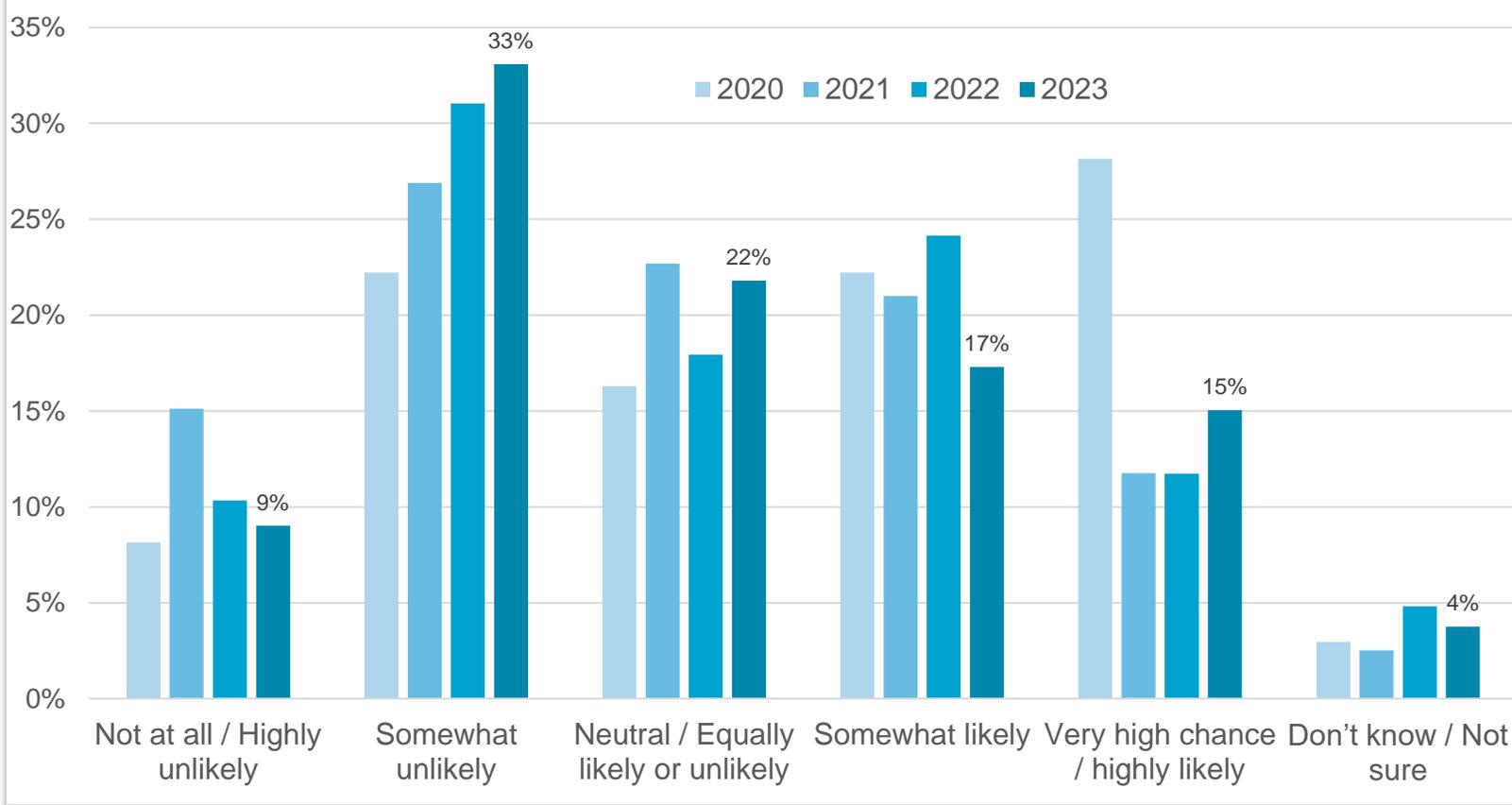
N = 133, Select All That Apply

- **No single driver for QC adoption, but main drivers span:**
 - **Concerns with future classical performance gains**
 - **Developing in-house expertise future decision making**
 - **Implementing new QC algorithms**
- **Drivers of lessor concern:**
 - **Reductions in power and cooling**
 - **Lower computing costs**

Whither Quantum Winter?

Waning concern -- but skepticism lingers

Perceived Threat of a Quantum Winter 2020-2023



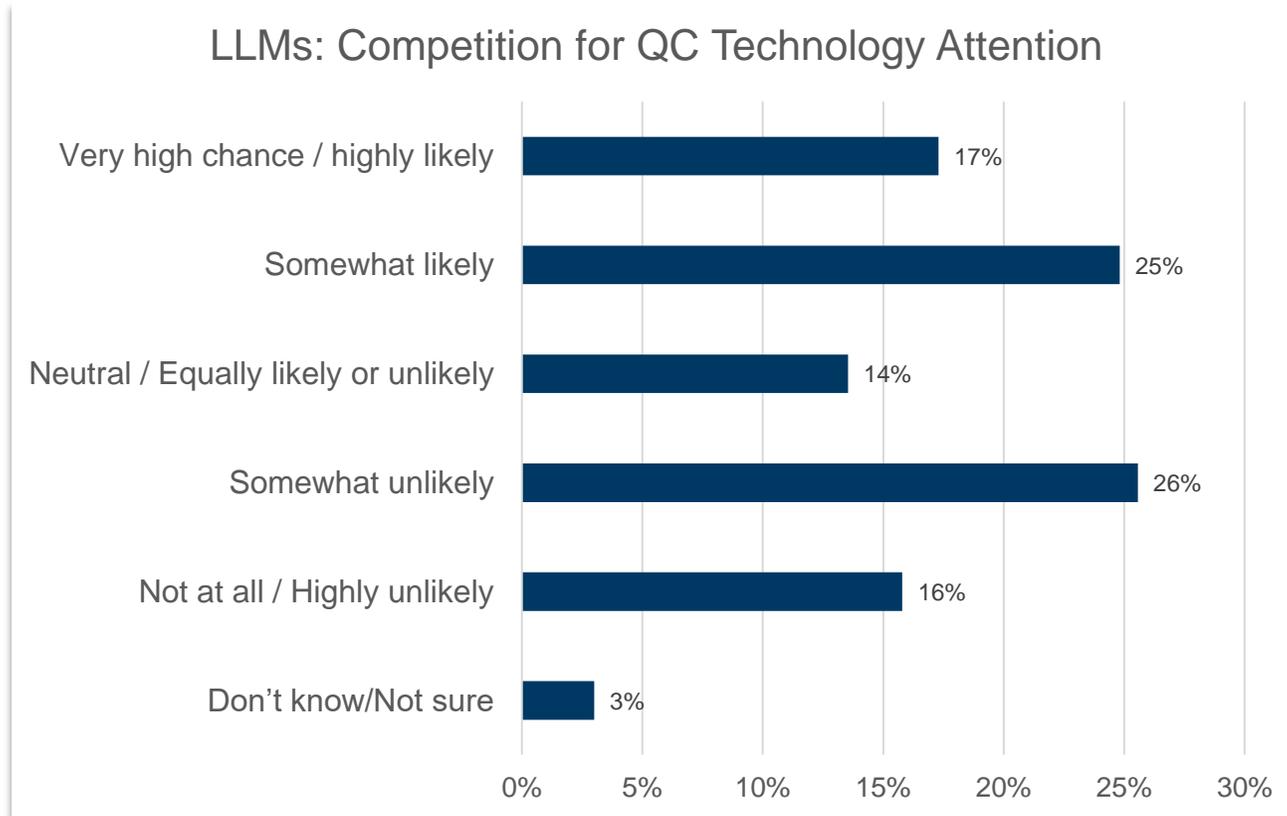
N = 133

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- One third see QC winter as somewhat unlikely - highest level to date
 - 50% increase since 2020
 - 42% are in the unlikely range
- One third still see some chance of a QC winter
 - Essentially same as last year
 - But well below 2020 at 50%
- *Quantum winter defined here as a greater than 25% decline in investment in QC R&D that lasts more than three years - in the next ten years*

QC Distractions and LLMs

How likely is it that the emergence of large language models like ChatGPT and BERT will draw attention away from end user interest in quantum computing?



N = 133

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- **LLMs – and likely generative AI in general - seen as near-term competitor for end user interest in QC by 42% of respondents**
- **But equal percentage not overly concerned**
- **Demonstrates need for QC to continue to deliver on technology/performance gains**
- **Highlights perceived end user interest in performance gains no matter how it is delivered**

QUESTIONS?



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Insufficient facts always invite danger.

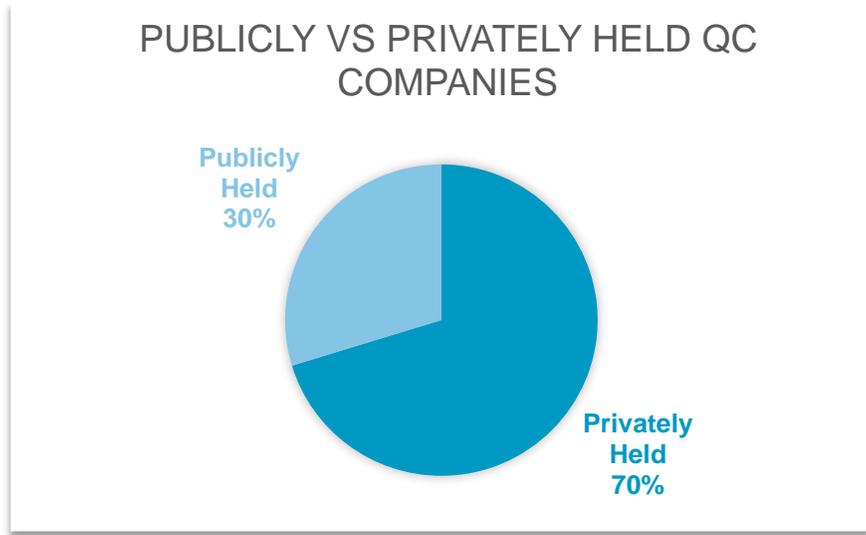
- Spock, *Stardate: 3141.9.*

Appendix One: QC Companies Public/Private Status and Partnership Drivers

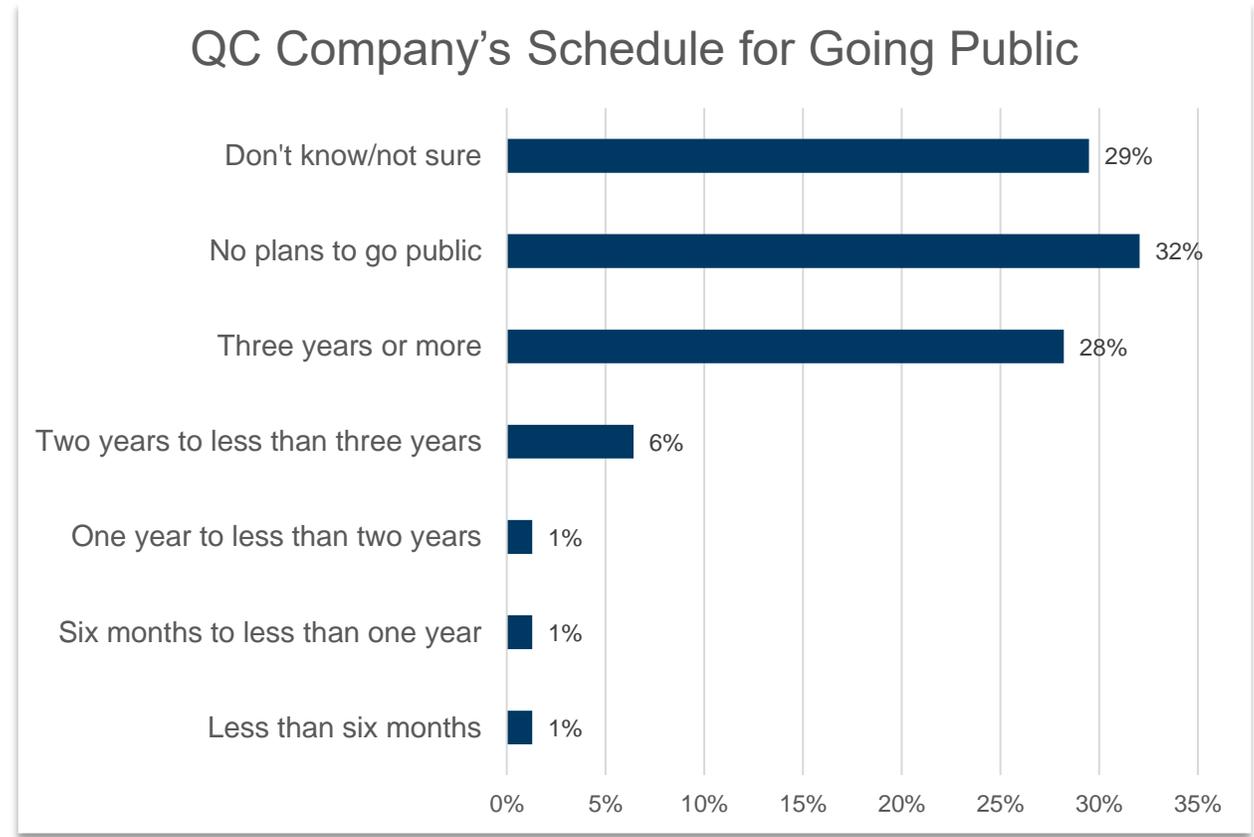
QC Supplier Demographics: Public Vs Private

Most surveyed organizations privately held and intend to stay that way

- For the 108 distinct companies represented in this survey:
 - 70% are privately held
 - Only 9% plan to go public in three years or less, but uncertainty abounds



N = 108

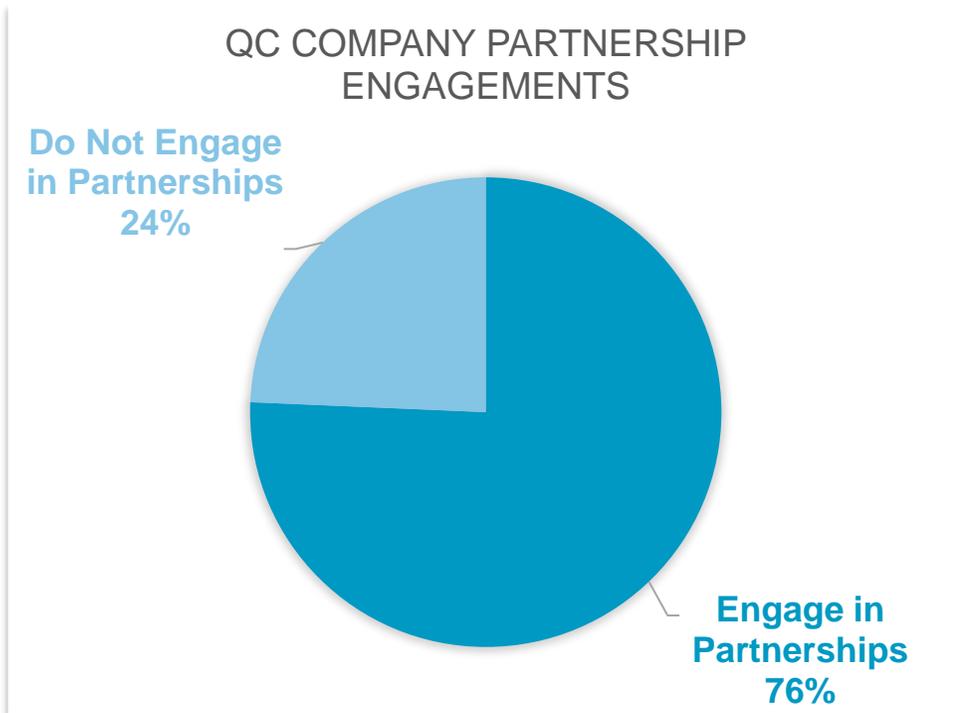


N = 78

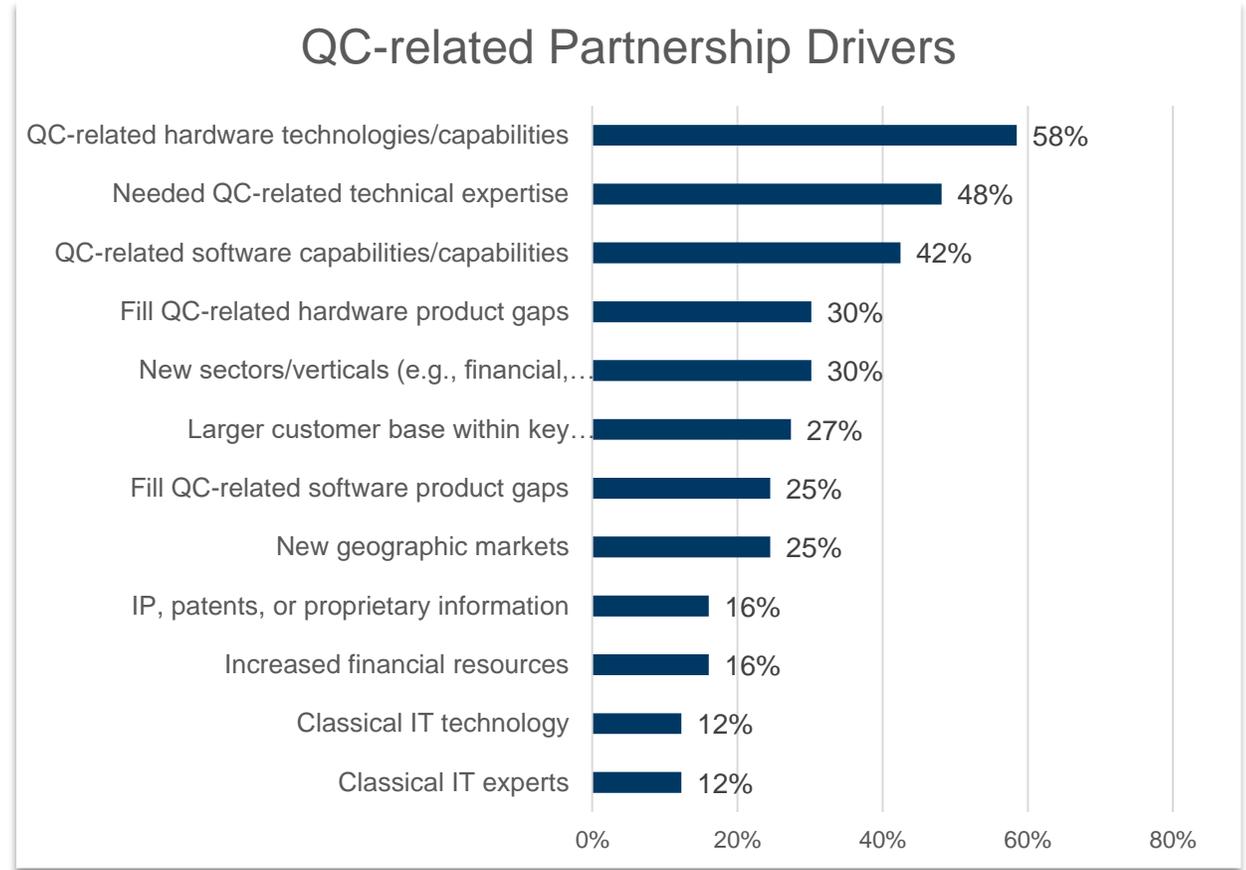
QC Supplier Demographics: Partnerships

Three-quarters have partnerships, average of three drivers per organization

- **For the 108 distinct companies represented in this survey**



N = 108



N = 84, Select All that Apply