



HYPERION RESEARCH

The Global QC Market: Strong and Steady Growth Ahead



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QC Market Executive Summary/Highlights

Continued strong and steady progress for the global QC sector

- **Based on a survey of 145 respondents from 18 different countries representing 108 quantum computing suppliers, the 2022 global QC market is estimated to be worth \$614 million USD in 2022 (see appendix 1 for details)**
- **The global QC market is projected to grow at an annual rate of 25.3% out to 2025**
 - Driving the global QC market to approximately \$1.2 billion USD in 2025
- **The QC supplier base is a diverse group of players**
 - 7% of surveyed firms have QC revenues expected to exceed \$10 million USD in 2022
 - 49% have QC revenues < \$500K USD, and 32% have no QC revenues
- **In 2025, CSP-related QC activities will account for almost half of QC revenues**
 - QC hardware revenues will compose ~35% of sector revenues

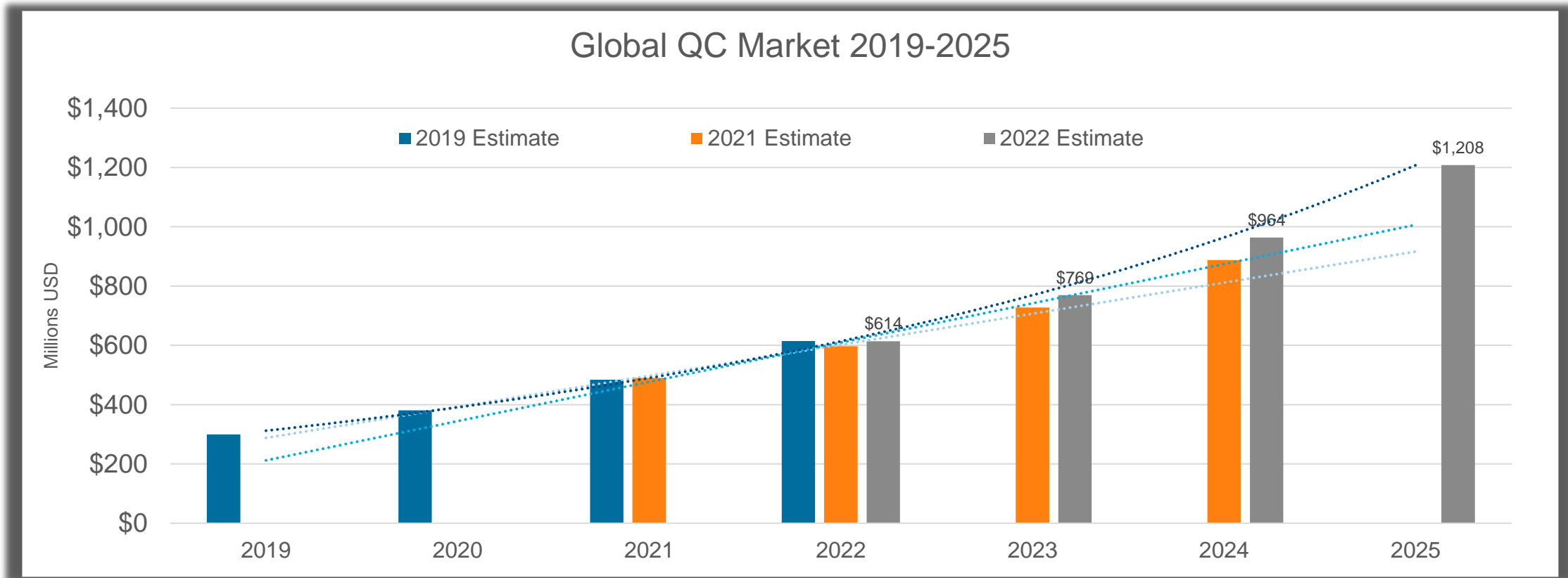
QC Market Executive Summary/Highlights

Continued strong and steady progress for the global QC sector

- **Almost 75% of surveyed firms have partnerships, primarily for access to QC hardware and software, but access to markets, verticals, and classical IT expertise also prevalent**
- **For the 108 companies represented in study, ownership is 60/40 public/private**
 - For the private firms, nearly 40% have no plans to go public
- **Top QC end user sectors: Financial, QC R&D, and cybersecurity on top**
 - But broad applicability envisioned across at least 18 other sectors

Market Estimate: \$614 Million USD in 2022

25.3% annual growth rate drives QC global market to \$1.2 billion USD in 2025



- **Dangerous to project out too far:**
 - Too many variables -- many unknowable -- can alter current trends

QC Supplier Survey: Road Map and Key Demographics

2022 QC Market Dynamics Study Roadmap

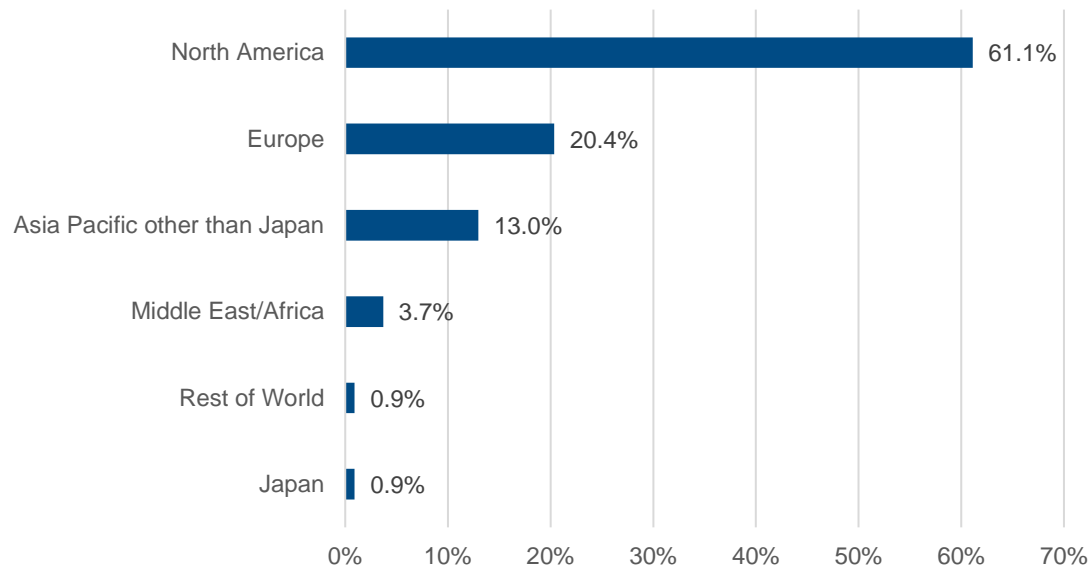
Formulate global status and prospects from a data-driven perspective

- **Conducted QC supplier survey to gather data and insights on QC market dynamics**
- **Expanded (yet again) survey coverage to include more global players**
 - Many thanks to QED-C (US), QuIC (EU), QIC (Canada), Q-Star (Japan) and the Australian Quantum Alliance (Australia) for assistance in reaching out to their respective domestic QC supplier bases
- **Sent out a 22-question survey to identified QC commercial suppliers**
- **Gathered results and ensured:**
 - Geographic variety, company size (total and QC-related revenues), market concentration, etc.
- **Analyzed results from 145 respondents representing 108 different companies**
 - Individual responses for industry-wide questions
 - Combined single response for organizations

QC Supplier Demographics: Location and Activity

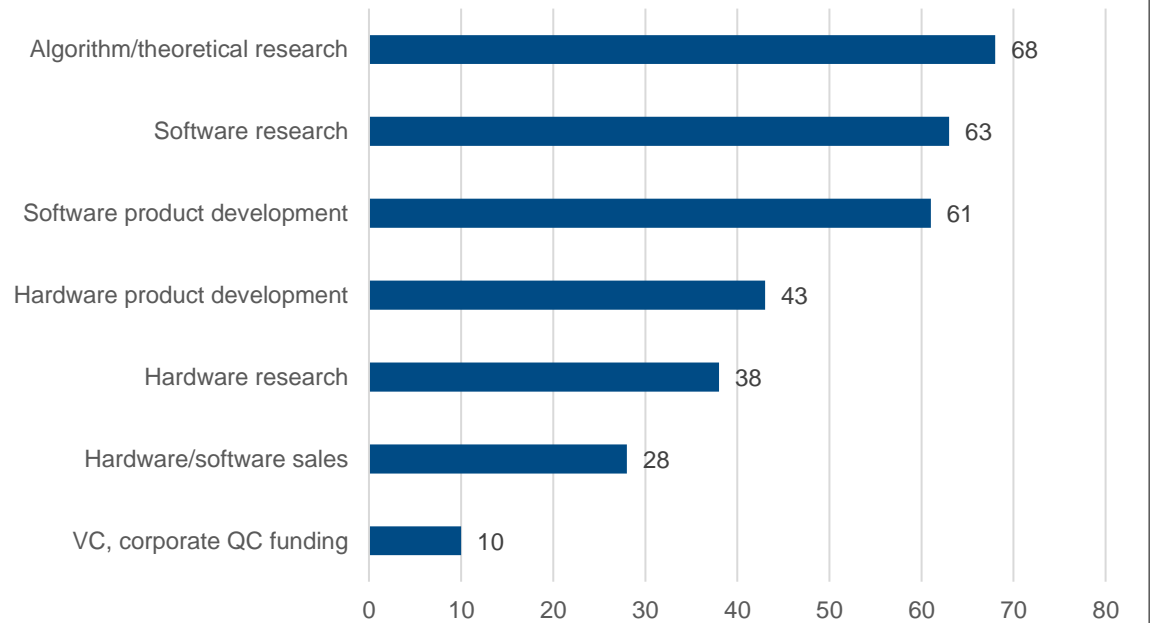
Casting a wide regional and functional net

Respondent Organization's
Headquarters Location



N = 108

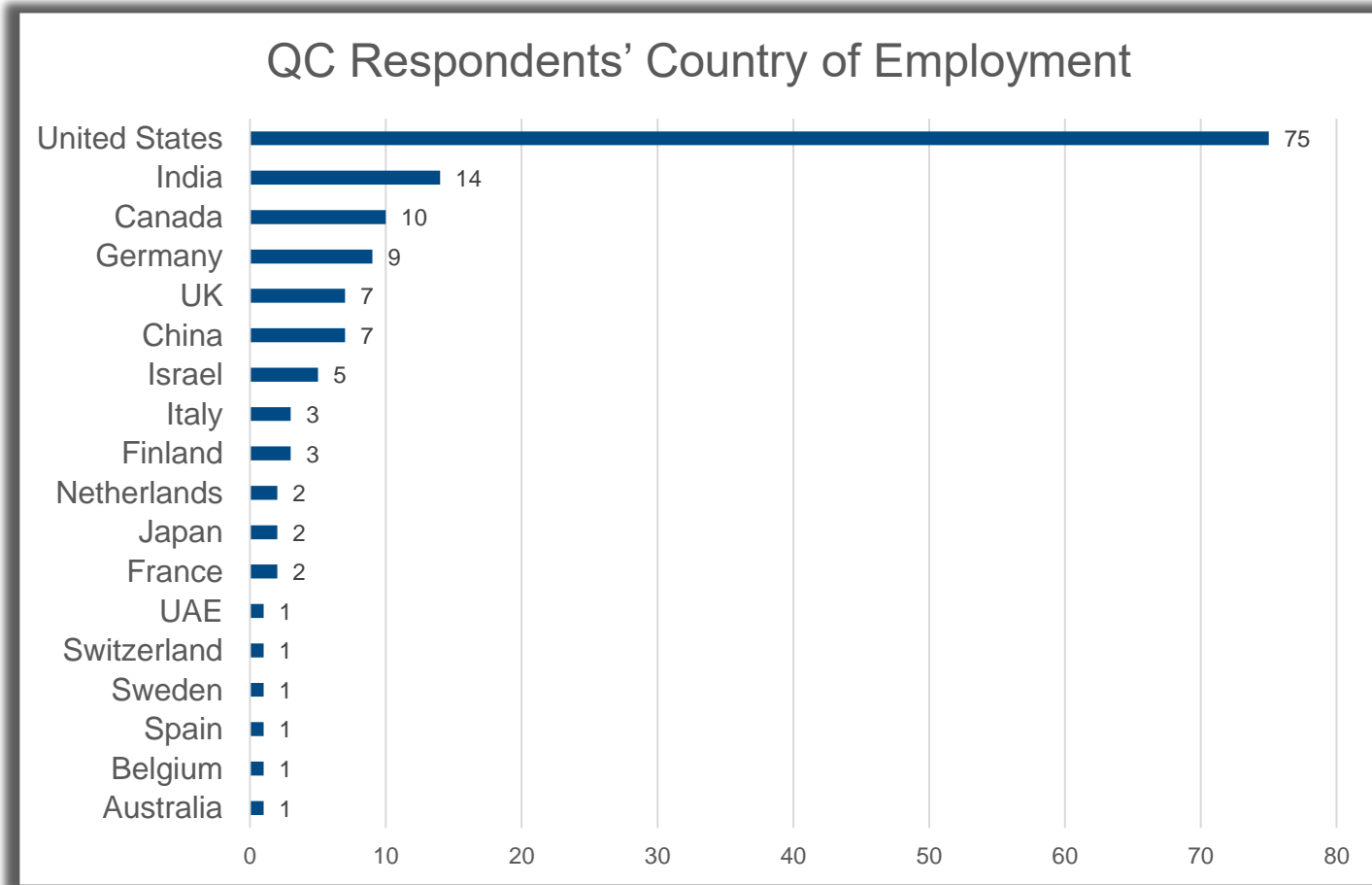
Organizations' Major QC Activities



N = 108, Select all that apply

QC Supplier Demographics: Respondents' Location

QC activity widely dispersed and often away from headquarters



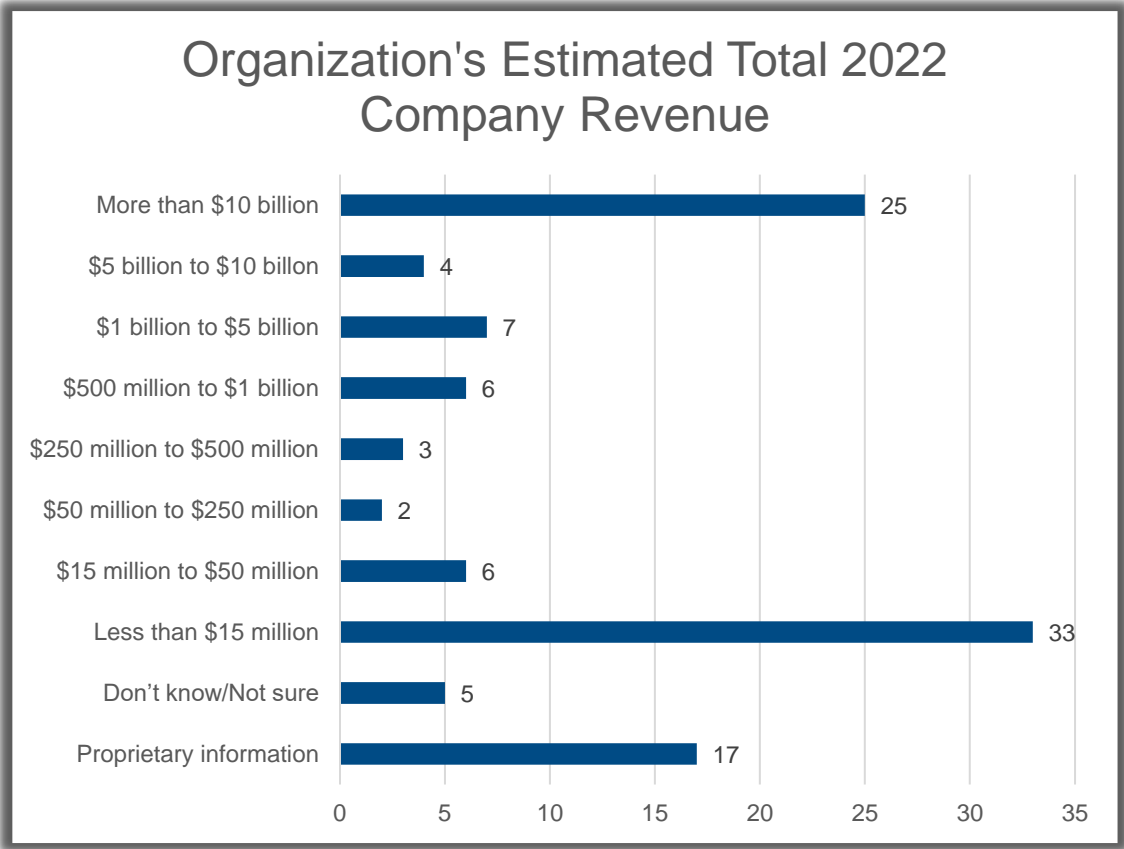
N = 145

- **US-centric but 18 countries represented**
- **Participation from India grows**
 - Driven primarily by India-based firms
- **More instances of respondents operating in different country from headquarters**
 - More prevalent for larger, more established, or more horizontally integrated organizations

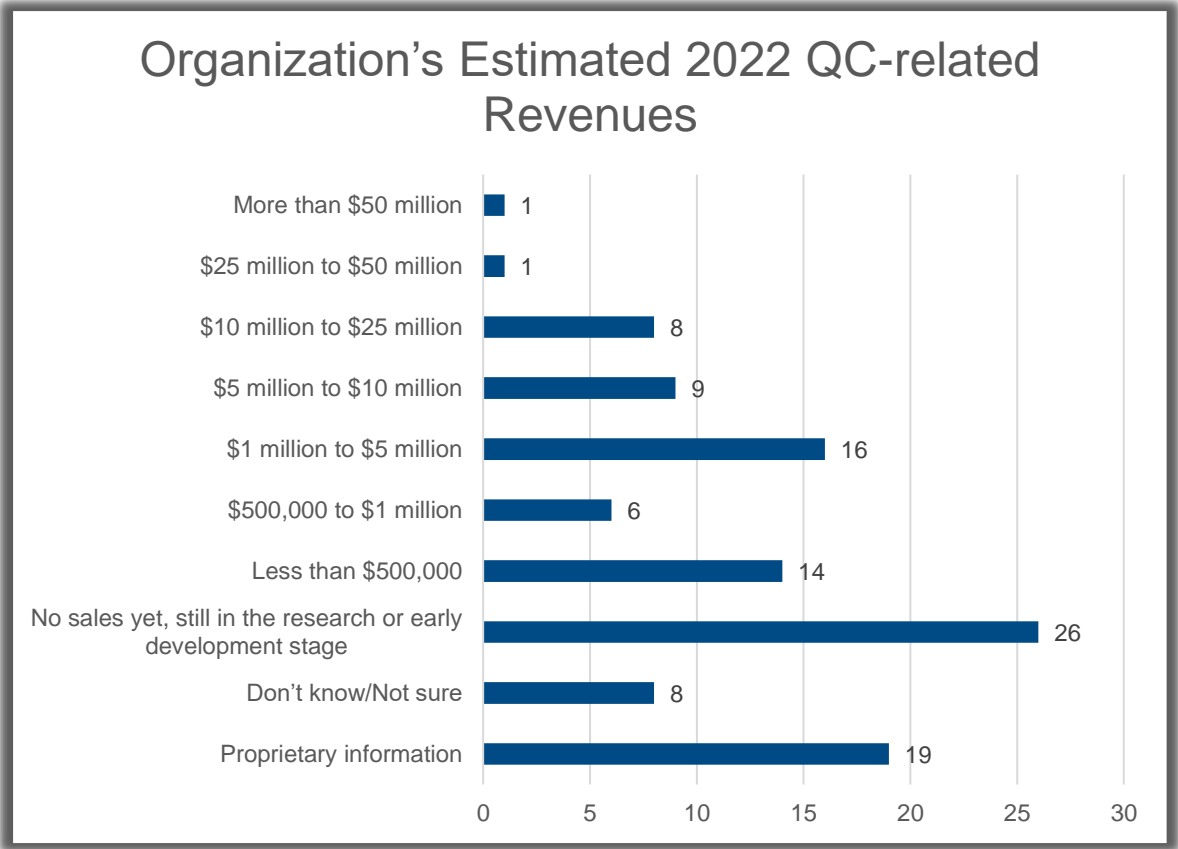
QC Supplier Survey: Current and Future Revenue

QC Suppliers: Total and QC Revenues

Bimodal Total Revenues, QC revenues 49% < \$500K, 32% no QC revenues



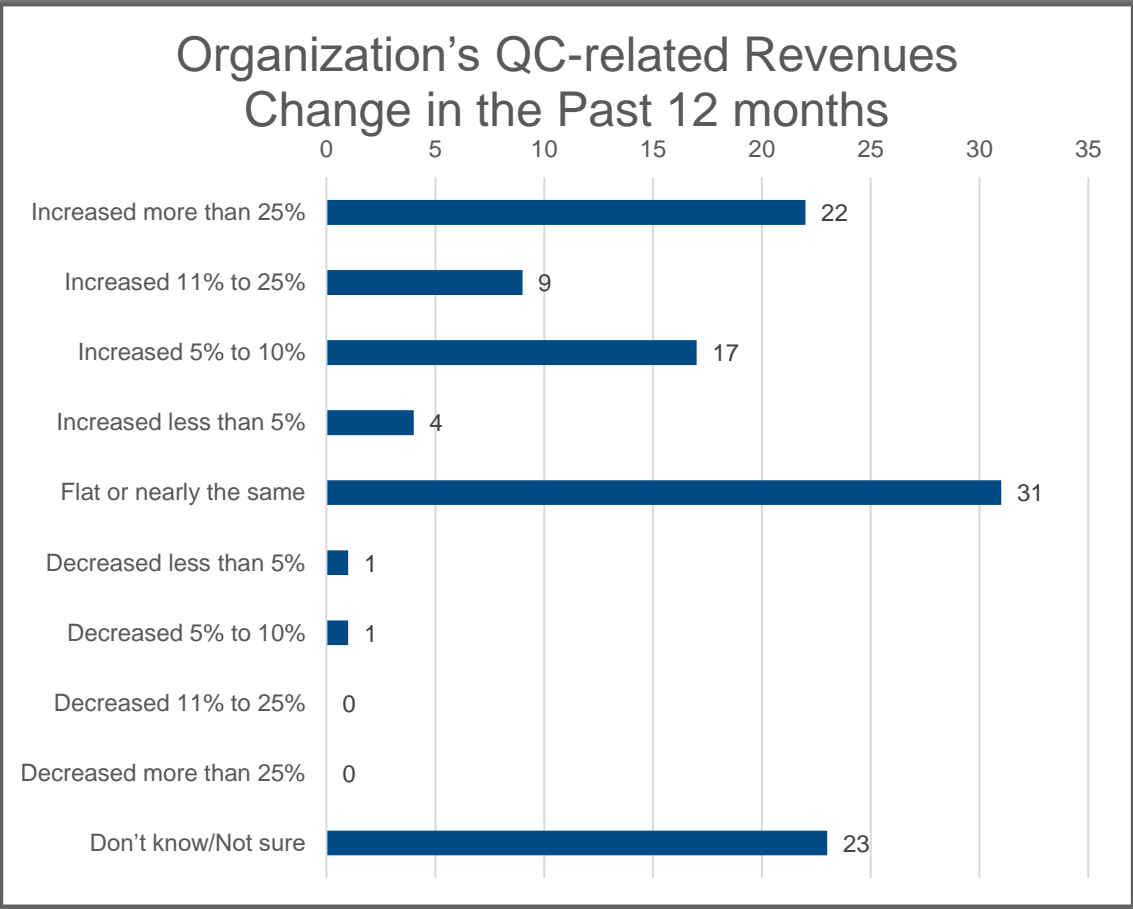
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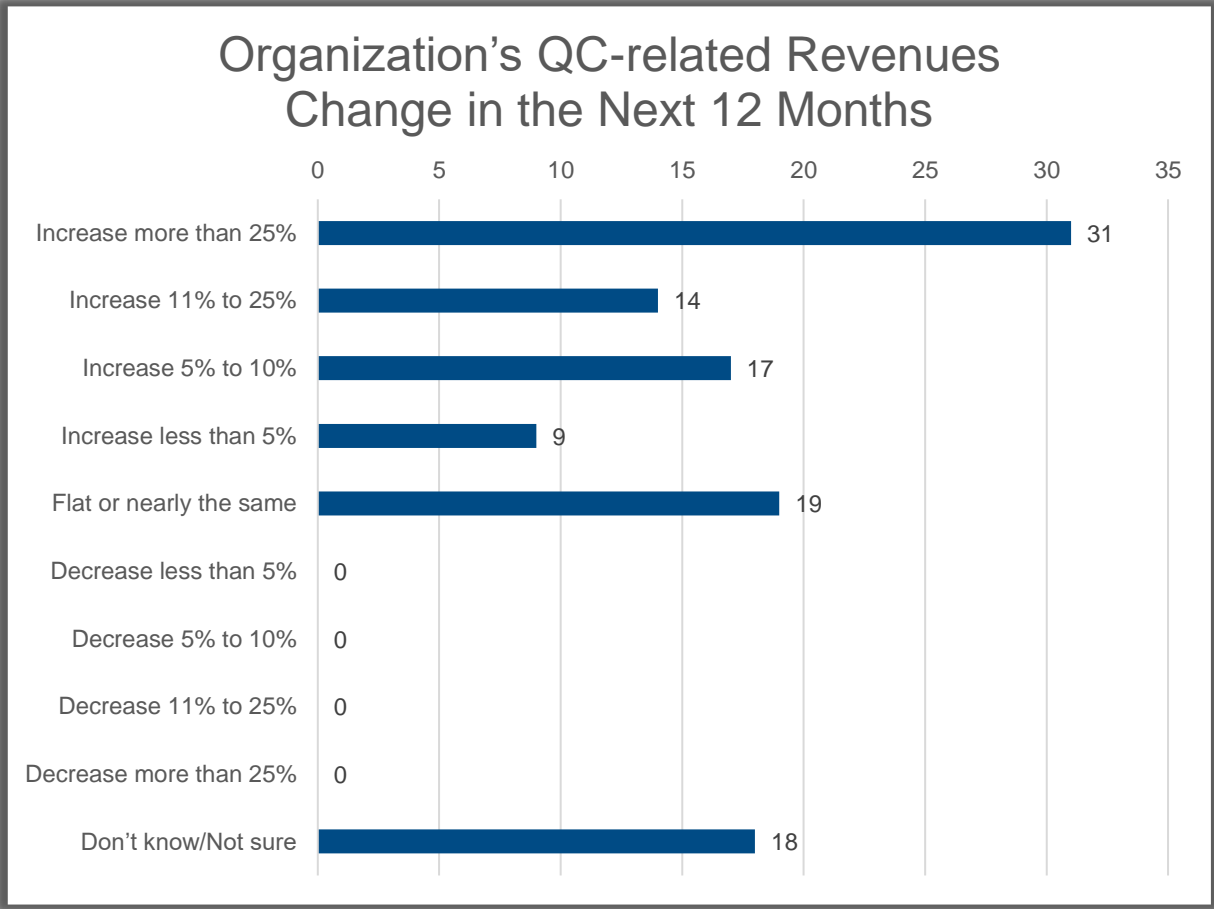
N = 108

QC Suppliers: Accelerating Revenue

*~1/3 expect more than 25% growth, less expect flat growth (36% vs 21%)**



N = 108

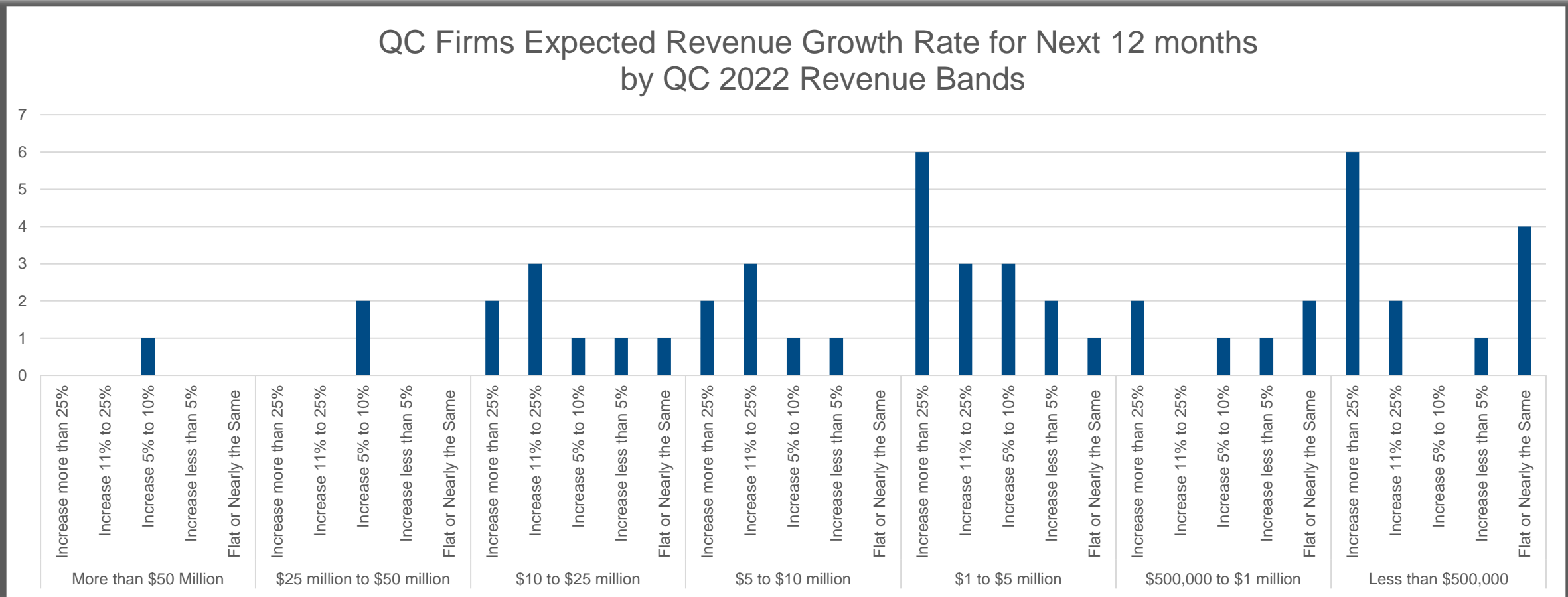


N = 108

*Excludes Dn/Ns responses

QC Suppliers: Accelerating Revenue Expected

None see decline, few see no growth, smaller firms more optimistic



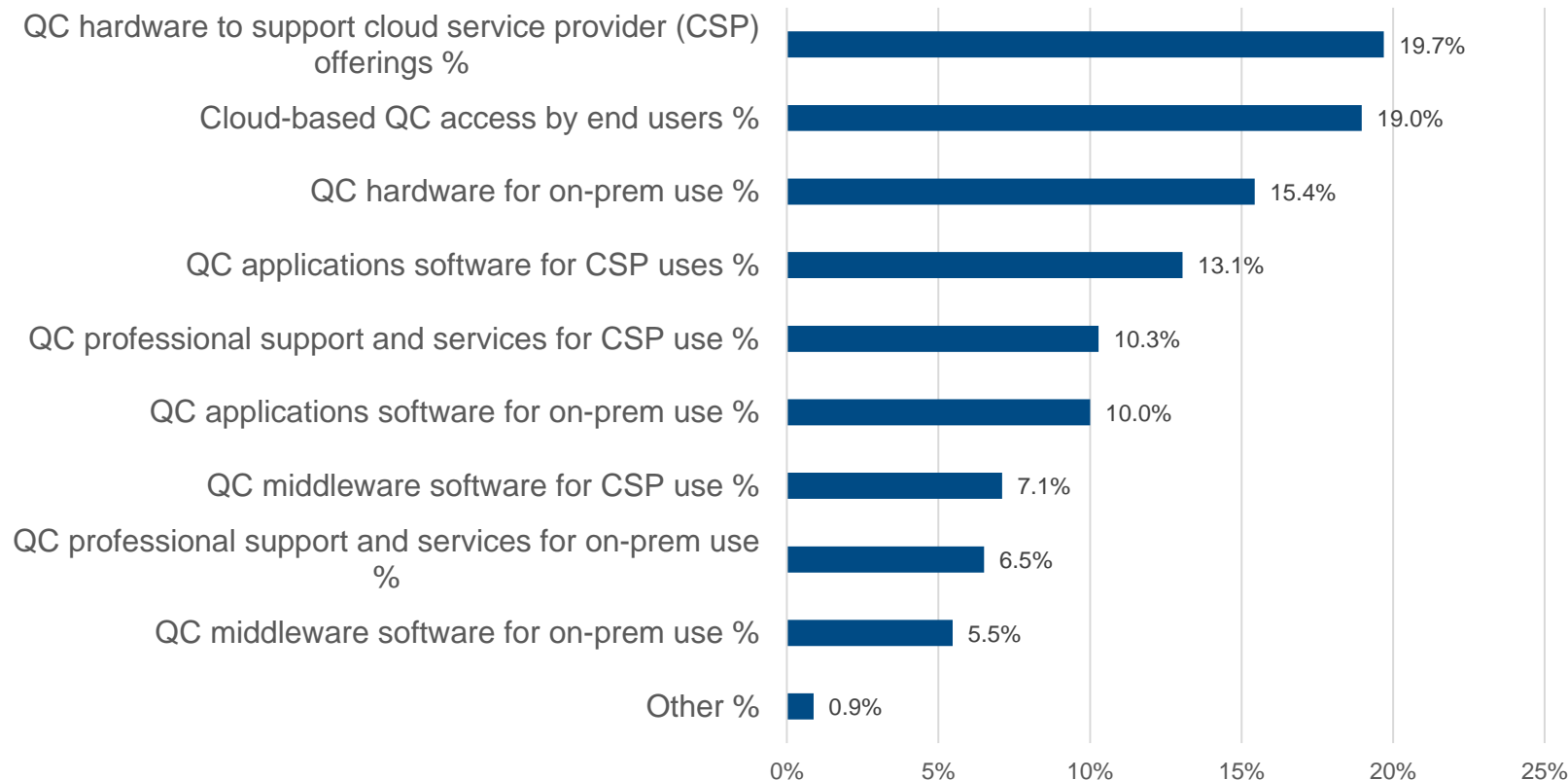
N = 108

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

QC Market 2025: Major Market Segments

QC hardware 1/3 of the market, CSP-related revenues about half

QC Major Market Segments by Revenue in 2025

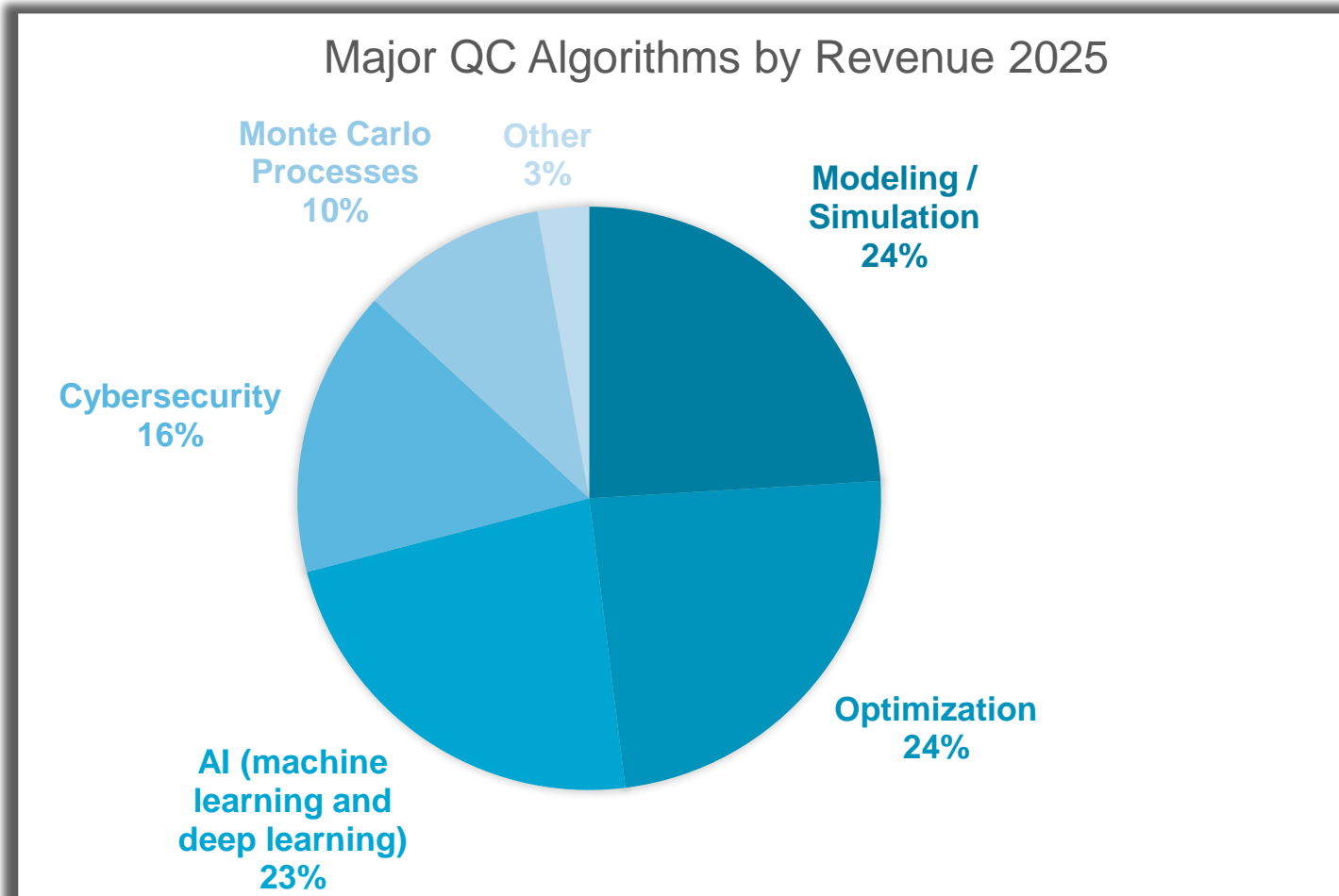


- **QC hardware for on-prem plus cloud = 35.1%**
- **CSP aggregate participation = 50.2%**
- **QC Professional Services (on-prem + cloud) = 16.8%**
- **Combined QC applications software = 23.1%**
- **Scaled to account for 21.7% “Don’t know/Not sure” responses**

N = 121

QC Market 2025: Major Algorithms by Revenue

Mod/sim, optimization, and AI share significant and near equal presence



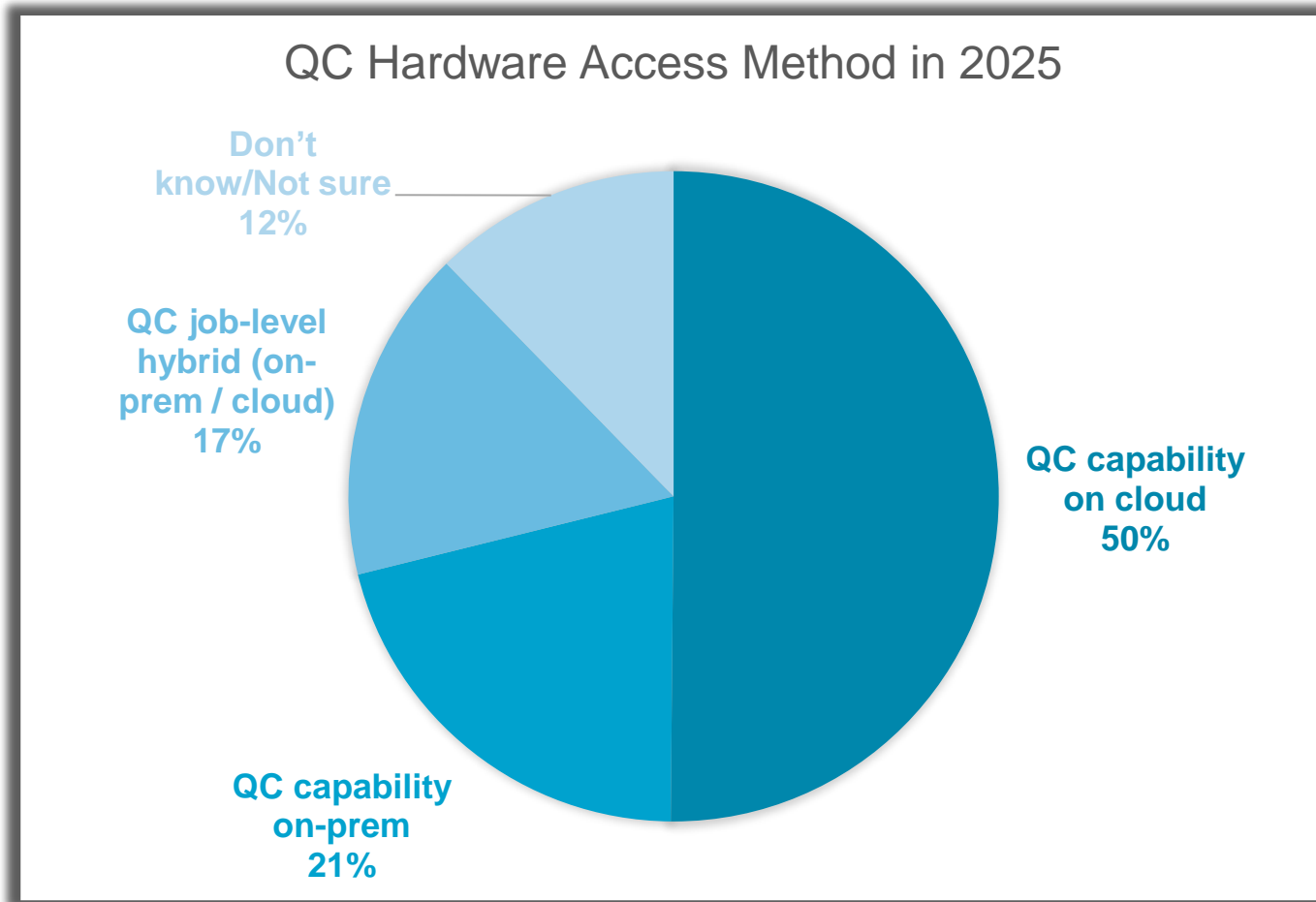
N = 113

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- No major changes from last year's study
 - Slight downturn in machine learning
 - Slight upticks in mod/sim and optimization
- No specifics on "Other"
- Is this list really the complete set?
- Scaled to account for 22.2% "Don't know/Not sure" responses"

QC Market 2025: QC Access Method

Cloud continues to dominate as preferred QC hardware access method



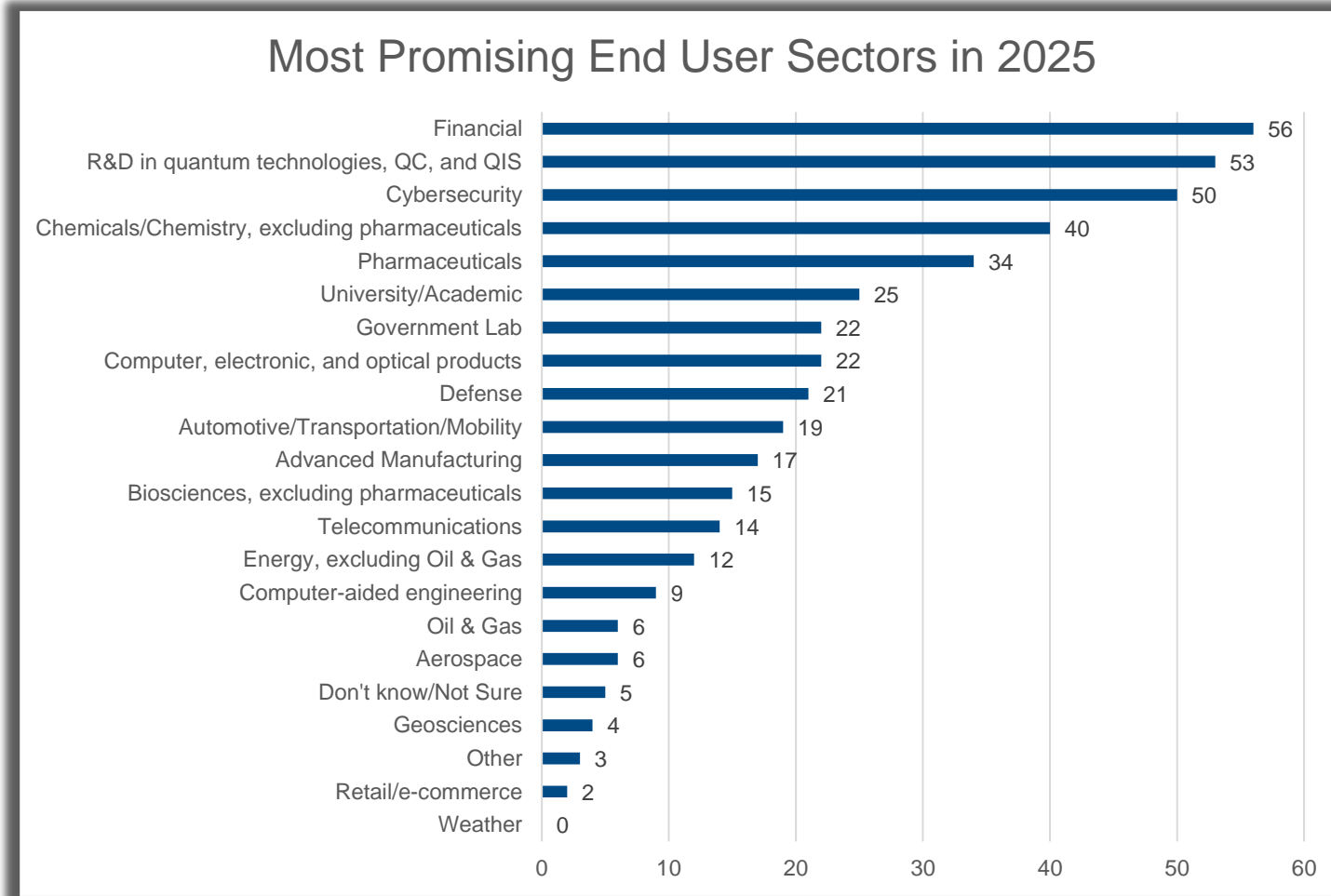
N = 145

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- **Cloud supports half of total QC hardware access**
 - Combined with hybrid, cloud involved in 67% of total QC hardware market access
- **No major changes from last year's study**
 - On-prem holds steady at ~20%
 - Slight increase in pure cloud-based option over hybrid alternative

QC Market 2025: Top Three End User Sectors

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

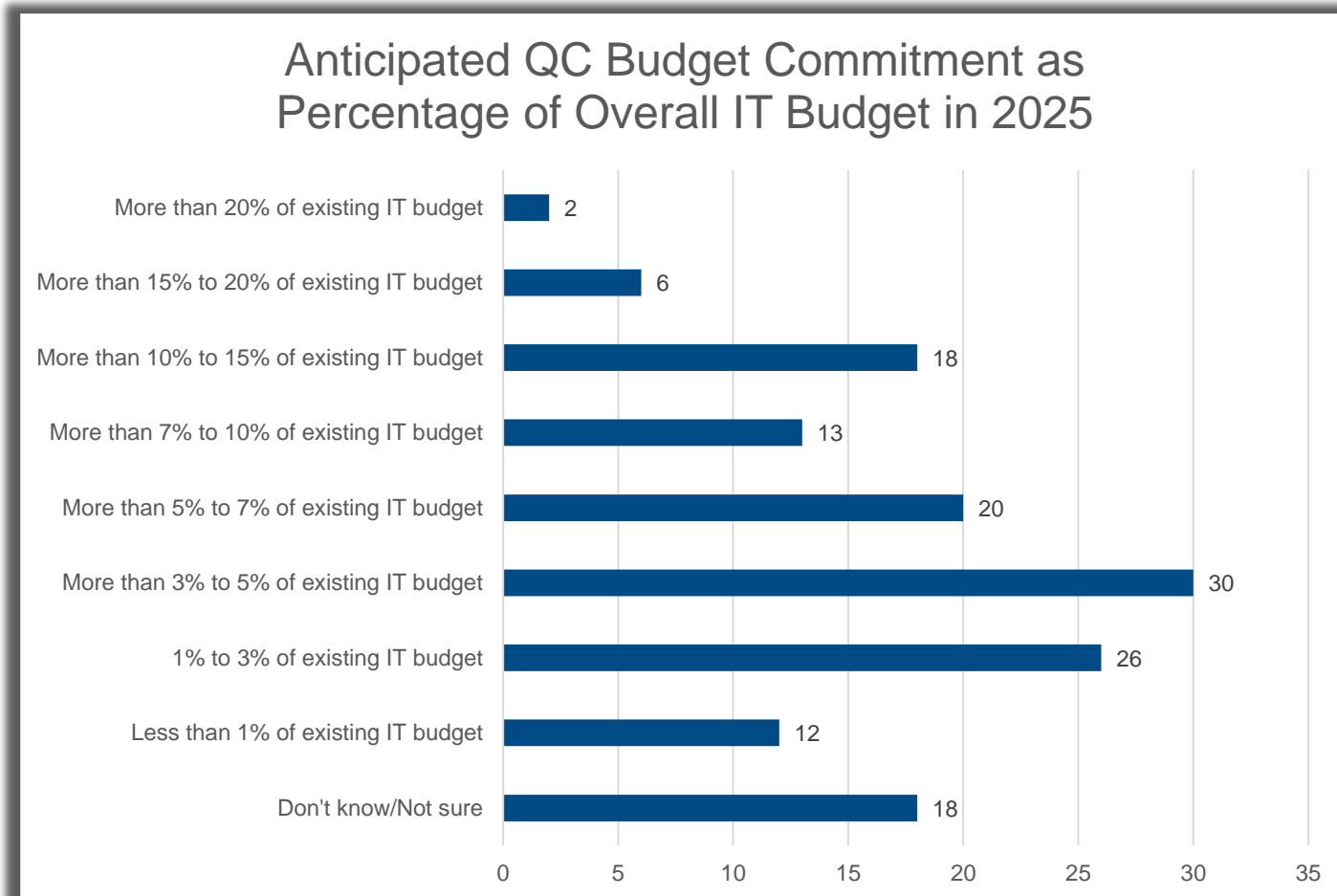


- **Financial chosen by one in three respondents as a top three most promising QC end user sector**
 - **But only narrowly ahead of QC R&D and cybersecurity**
- **Nearly every sector choice deemed important by some**
 - **Crossing academic, commercial, and government spaces**
- **Some minor changes from last year**
 - **↑ Financial moves into top spot from P2 (33.2% to 38.6%)**
 - **↓ QC R&D drops to P2 (37.5% to 36.5%)**
 - **↓ University/Academic drops from P4 to P6 (25.8% to 17.2%)**

N = 145, Select top three

QC 2025: Anticipated QC Budget Commitment

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



N = 145

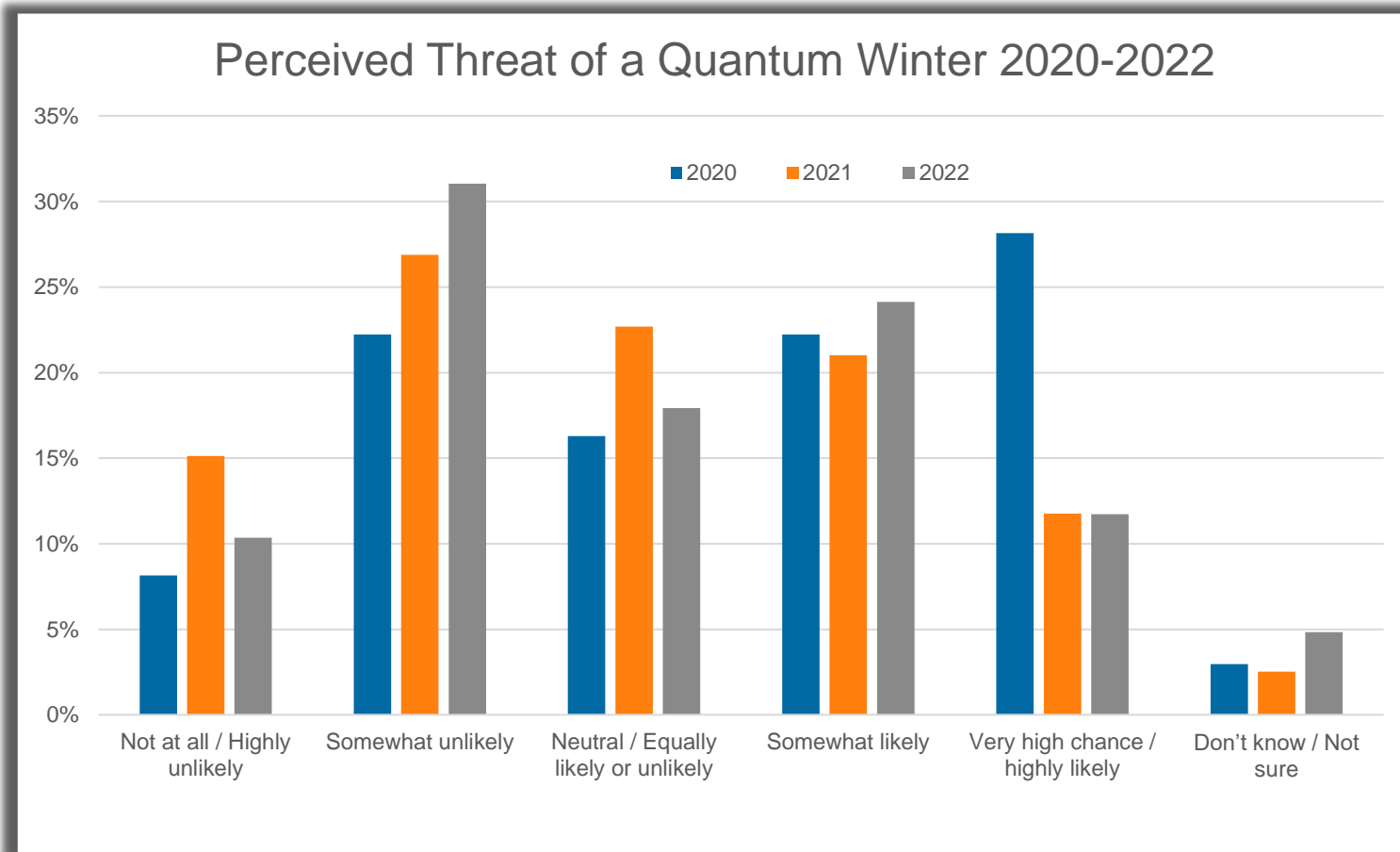
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- **One in five, the largest group, anticipate committing 3% to 5% of their overall IT budget to QC**
- **34% of respondents anticipate QC to be 3% to 7% of their overall IT budget**
- **One in 8 see it reaching between 10% to 15%**
- **Only about one in 12 see it being less than 1%**

*Includes Dn/Ns responses

Whither Quantum Winter?

Cautious optimism about quantum winter -- but skepticism lingers



- **2020: 30% unlikely, 50% likely**
- **2021: 42% unlikely, 33% likely**
- **2022: 41% unlikely, 36% likely**
- **Growing optimism in the “Somewhat Unlikely” scenario**
 - **40% increase there since 2020**
- **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**

N = 145

Some Closing Thoughts

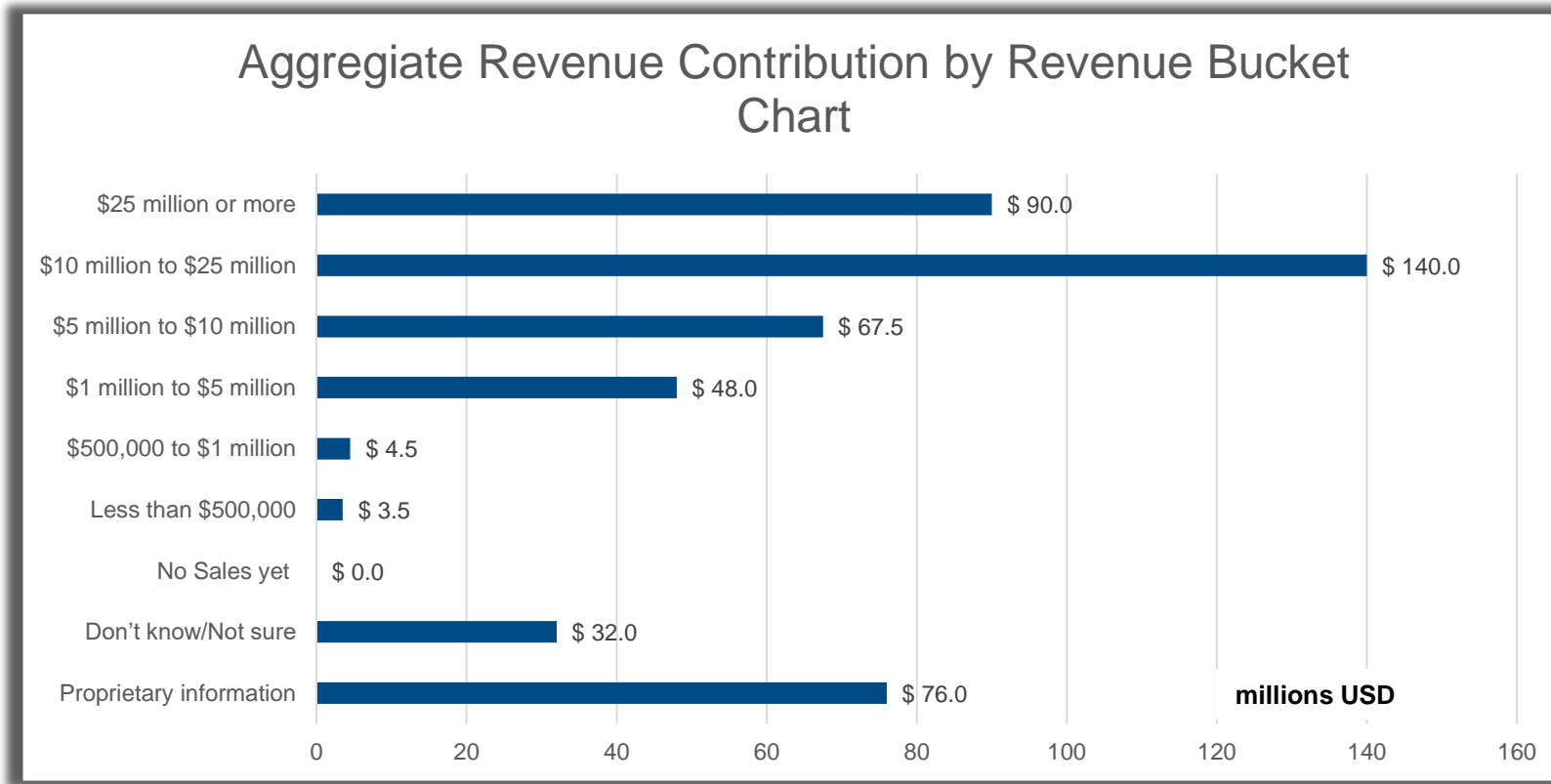
Time permitting

- **Non-US QC participation in the global QC supply and market ecosystem appears to be on the rise**
 - Activity mainly remains local -- for now
- **QC professional services are a critical contributor to the future prospect of the sector**
 - Composed of a mix of QC and non-QC-specific consulting entities
- **As in HPC, large government procurements could soon alter the trajectory of the sector**
 - A double-edged sword in the making?
- **Questions about continued VC investment (currently at an impressive magnitude and rate of growth) is causing no small degree of angst**
 - Many private firms will continue to rely on private funding instruments

Appendix 1: Building a Market Forecast

Market Estimate: Adding Up the Data

Totaling QC revenues amassed through survey = \$461 million USD



Key Assumptions

- **Selected center of buckets for all suppliers in a bucket**
 - **E.g., 14 respondents in less than \$500,000 bucket counted each as \$250,000 revenue = \$3.5 million USD**
- **Provided estimates for select proprietary suppliers**
- **Adjusted some revenues based on ancillary information**
- **Treated DK/NS as a 'known average' company'**

Yields a total revenue of ~US \$461 million USD for the 108 QC firms surveyed

Market Estimate: \$614 Million USD in 2022

Adding a growing foreign base and QC professional services adds to the mix

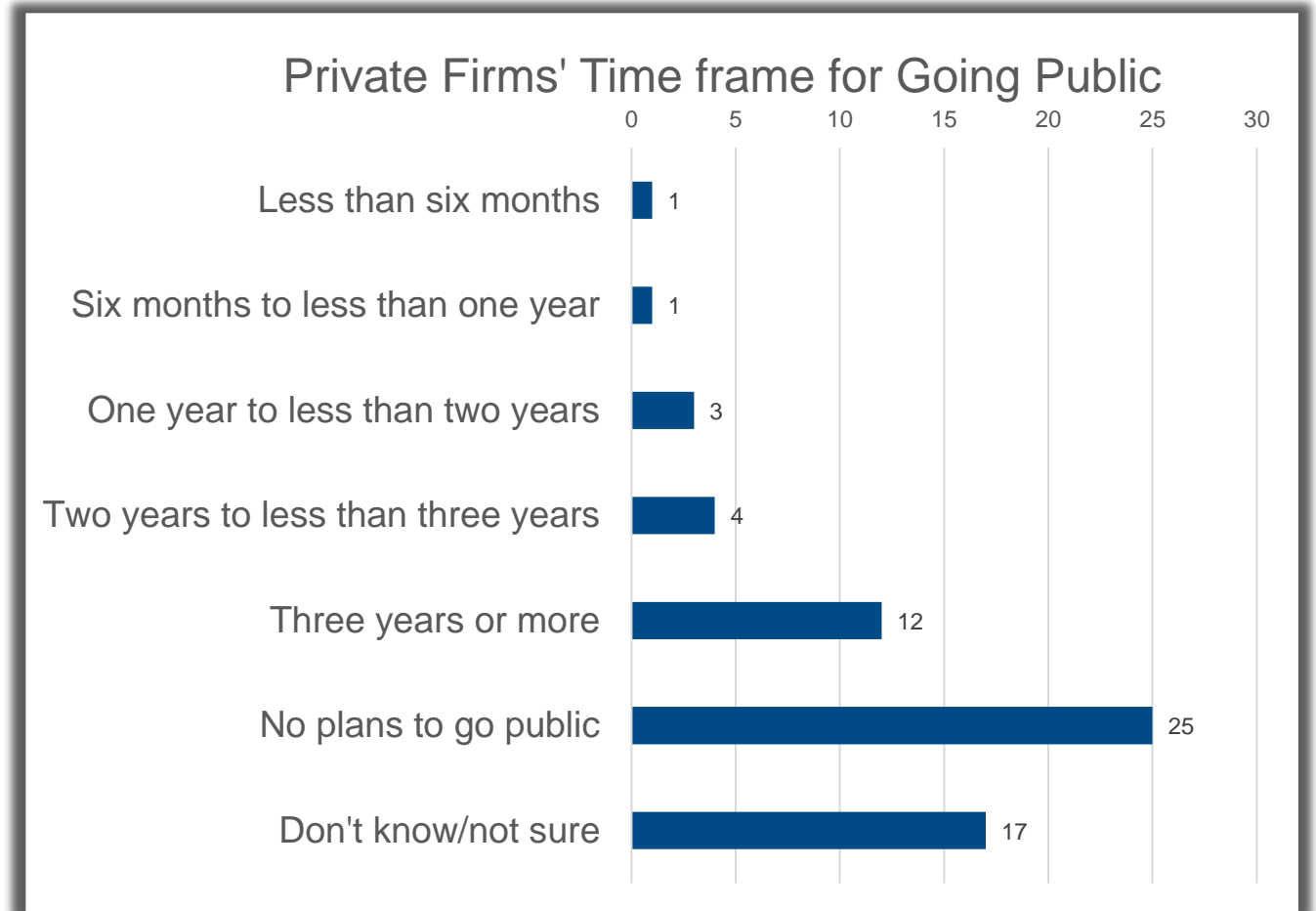
- **As this study concluded, there was a total 2022 quantum computing revenue base of about \$461 million USD for the 108 commercial entities surveyed**
- **Assume:** The study covers 75% of the global commercial QC revenue base
 - Lower than last year (85%)
 - Despite increased global participation, decision driven by increasing number of non-US firms adding to the market corpus that did not participate in the study
 - Reflects growing base of QC professional services: harder to locate
- **Conclusion**
 - 2022 global QC market was worth \$614 million USD in 2022
 - Represents a 25.3% annual growth rate, based on 2021 estimate of \$490 million USD

Appendix 2: Unpacking the QC Sector Corporate Structure

QC Corporate Composition: Public and Private

Majority of QC firms privately owned

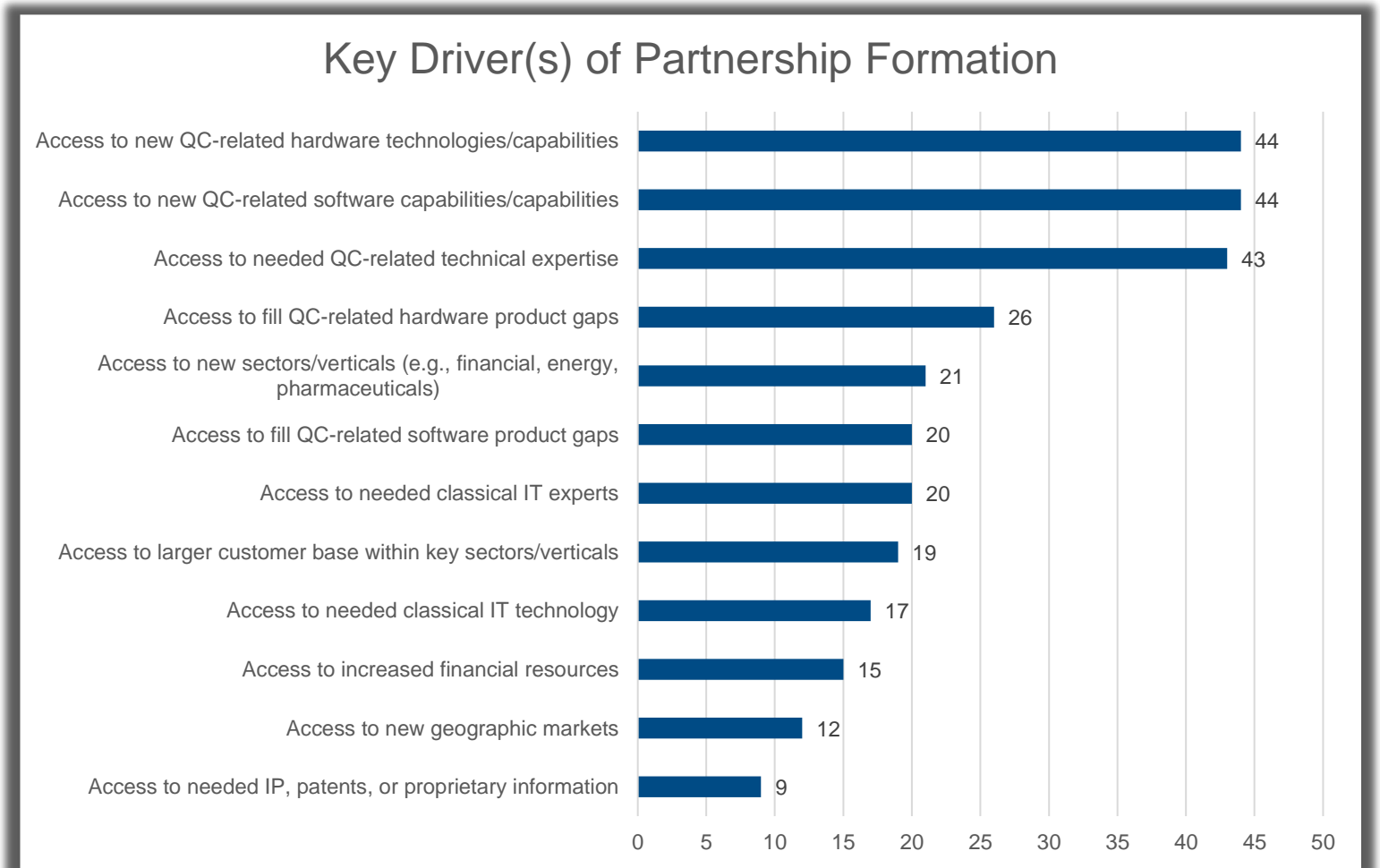
- **For the 108 companies represented in study**
 - **Private : 58.3% (63)**
 - **Public : 41.7% (45)**
- **Nearly 40% of private firms currently have no plans to go public**
- **For those with plans, the majority are to more than three years out**
- **One quarter: Don't know/ Not Sure**



QC Corporate Composition: Partnership Drivers

3/4 respondent firms in partnerships; some for many motives

- Firms currently involved in a partnership with any other QC or IT commercial supplier(s)
 - Yes: 72.2% (78)
 - No: 27.8% (30)
- Broad motivations for partnerships
 - Average 2.7 drivers per respondent
- Lead drivers:
 - Access to QC hardware tech (56%)
 - Access to QC software capabilities (56%)
- Access to markets, verticals, and classical IT expertise IT also prevalent
- IP not an issue ... yet



N = 78, Select all that apply

QUESTIONS?



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Insufficient facts always invite danger.

- Spock, *Stardate: 3141.9.*