IonQ Investor Updates

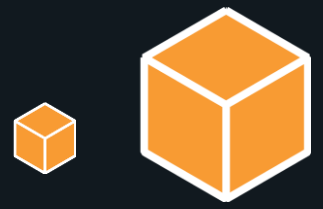
November 2022

The following presentation is subject to the legal disclaimer found on page 17.

OUR MISSION

To build the world's best quantum computers to solve the world's most complex problems, transforming business, society, and the planet for the better.

Quantum Computing Is Now, and IonQ Is Leading the Way



Best Measured Performance in Industry[1]

$65B

TAM By 2030 [2]

Large & Growing Market Opportunity

amazon NEA Google Breakthrough Energy VENTURES

World-Class Investor Base

Goldman Sachs accenture FCAT GE UNIVERSITY OF MARYLAND AIRBUS HYUNDAI

Premier Partners & Customers

25 #AQ

Algorithmic Qubits on Industry Leading IonQ Aria

Triple Expected Systems Online

Microsoft Azure aws Google Cloud

Only Quantum Hardware Available on All Major Clouds

Amazon Braket Qiskit Cirq Q# QDK ProjectQ PENNYLANE XACC

Every Major Quantum Language & SDK Supported

1 Based on data adapted from *Application-Oriented Performance Benchmarks for Quantum Computing* (2022) https://arxiv.org/abs/2110.03137
2 Prescient & Strategic Intelligence Private Limited, February 2020

Led by Industry Pioneers

Peter Chapman
President & CEO

Career began at 16 in MIT AI Lab under Marvin Minsky

Led technology for Amazon's Prime division, 2014–2019

Innovator in financial, aviation, e-reader technology with several successful exits (Data Acquisition Systems, New Media Graphics, Boston Compliance Systems)

amazon

Christopher Monroe
Co-founder & Chief Scientist

Demonstrated first ever quantum logic gate with Nobel laureate David Wineland at NIST in 1995

Over 25 years in quantum computing. Developed many of the fundamental techniques for trapped-ion QC

Citations: 54984 h-index: 97[1]

UNIVERSITY OF MARYLAND NIST

Jungsang Kim
Co-founder & CTO

In 2001, led a Bell Labs team to break the world record for what is still the world's largest optical switch

Over 20 years in quantum computing and related tech. Duke lab leads the world in miniaturization of quantum systems

Citations: 9581 h-index: 45[1]

Duke UNIVERSITY Bell Laboratories

Thomas Kramer
Chief Financial Officer

CFO at Opower, 2011–2016, taking company through IPO in 2014 and acquisition by Oracle in 2016

CFO and Co-Founder at Cvent, 2000–2011, taking company from zero revenue to 800 employees and market dominance

OPOWER cvent

Tom Jones
Chief People Officer

Led Human Resources and Talent Development at Blue Origin during scale-up from 600 employees to 3000, ultimately enabling human spaceflight

Led and developed people teams at transformative technology companies including Honeywell and Microsoft

Honeywell BLUE ORIGIN Microsoft

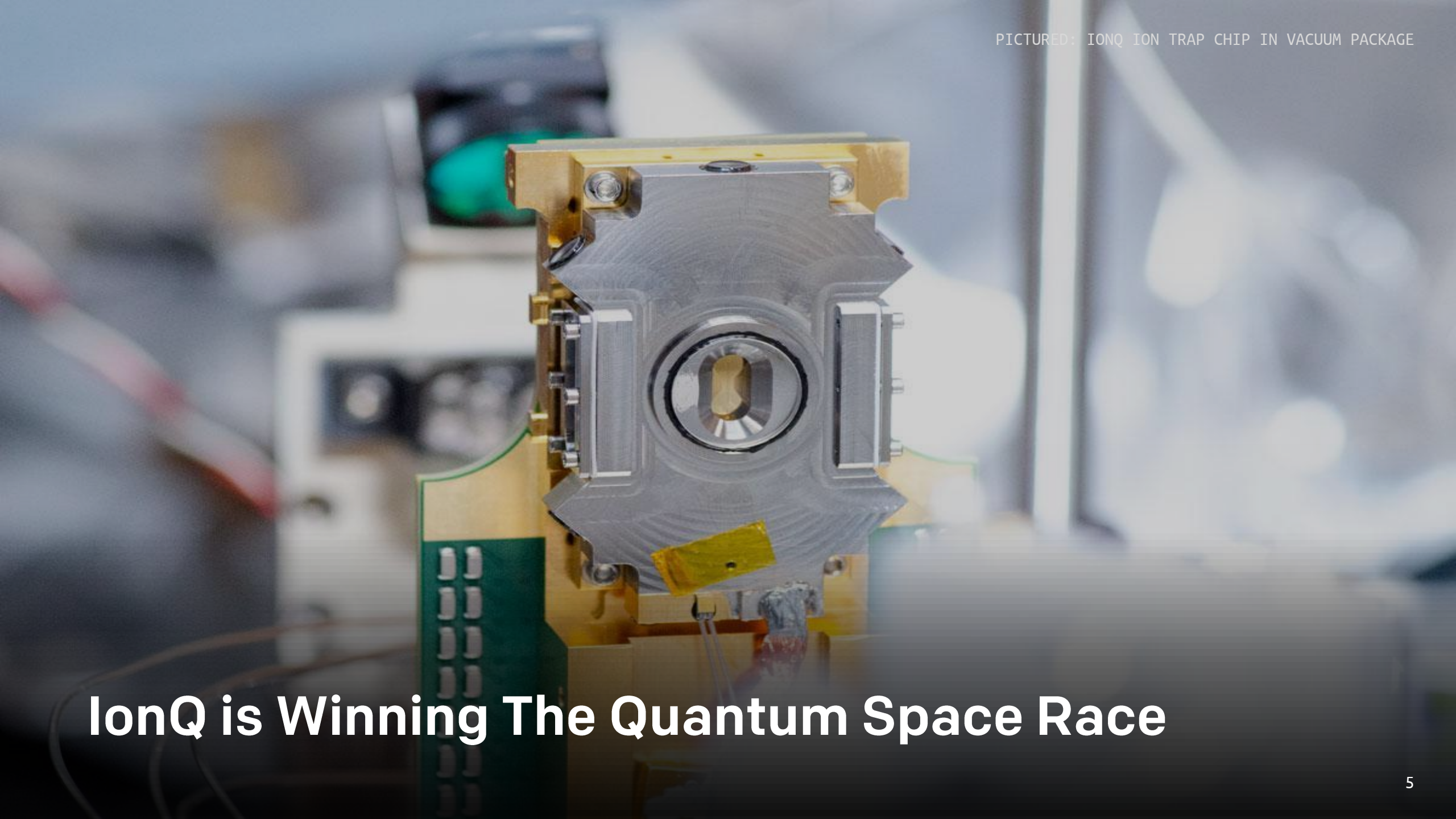
Laurie Babinski
General Counsel

Served for three years as Deputy General Counsel of Credit Karma, LLC. Was lead on multiple legal functions including product, marketing, regulatory, litigation, and privacy.

Worked at the law firm Baker Hostetler LLP, in the Media, Technology, and Intellectual Property Group.

credit karma BakerHostetler

1 Citations and h-indices as of November 2022



PICTURED: IONQ ION TRAP CHIP IN VACUUM PACKAGE

IonQ is Winning The Quantum Space Race

Expected Phases of Quantum Computing Maturity

Boston Consulting Group Analysis

Phase I

Estimated Impact (Operating Income):
$2-5 Billion

Technical Barrier To Entry
Error Reduction

Phase II

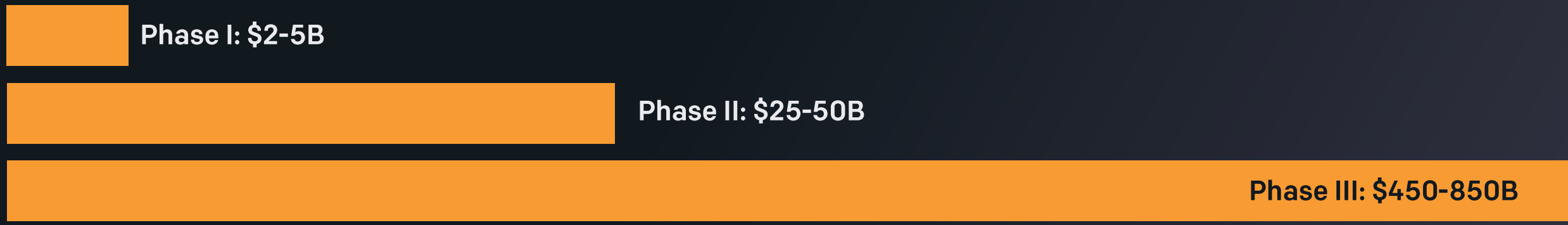
Estimated Impact (Operating Income):
$25-50 Billion

Technical Barrier To Entry
Error Correction

Phase III

Estimated Impact (Operating Income):
$450-850 Billion

Technical Barrier To Entry
Modular Architecture

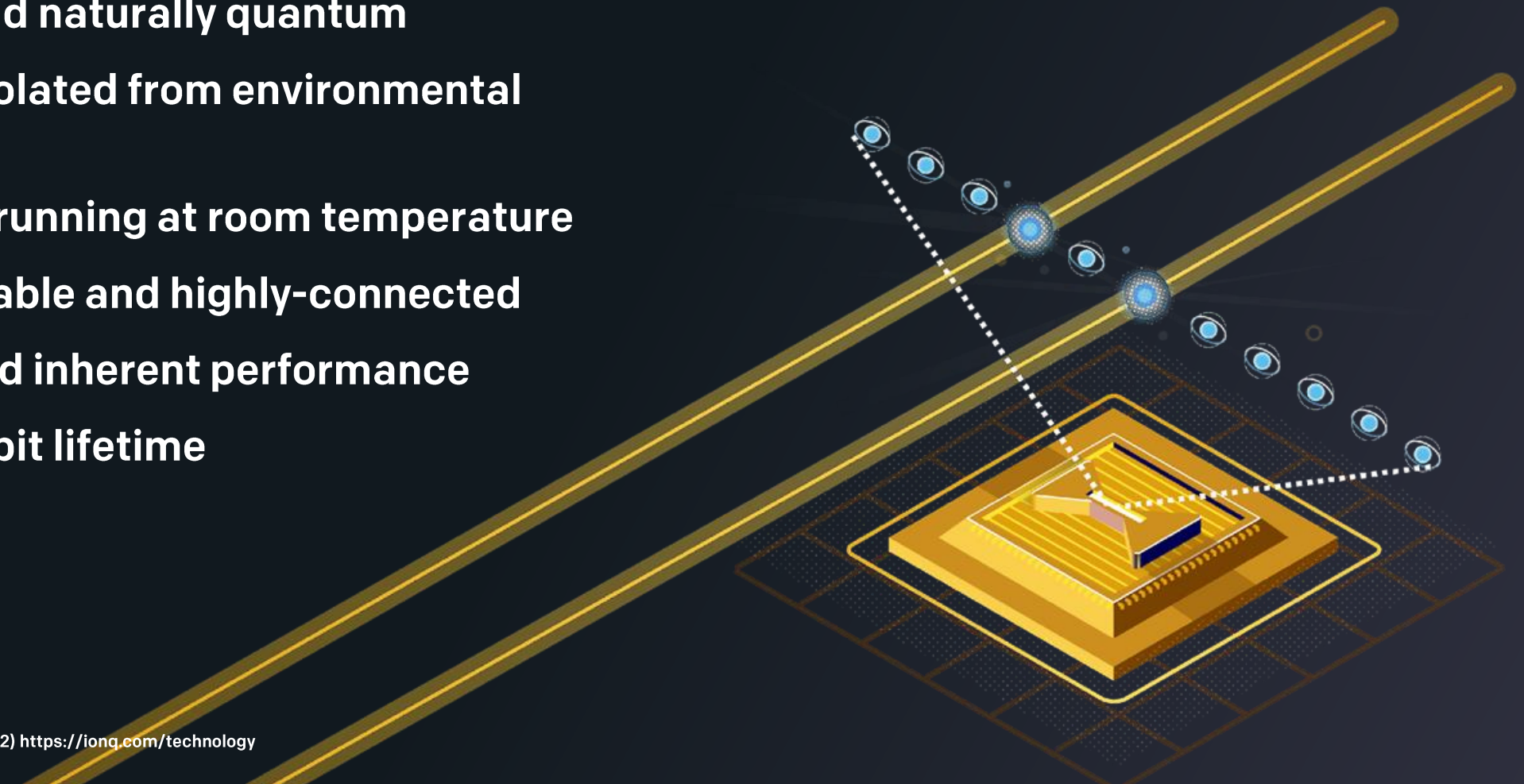


Source Where Will Quantum Computers Create Value—and When? *Boston Consulting Group* (2019)

Empowered by Unique Technological Advantages

Individual atomic ion qubits in an ion trap are superior to competing qubit platforms, creating the ability for IonQ to move farther, faster than the competition.

- Identical and naturally quantum
- Perfectly isolated from environmental influences
- Capable of running at room temperature
- Reconfigurable and highly-connected
- Unparalleled inherent performance
- Longest qubit lifetime



Source Technology: *IonQ Team* (2022) https://ionq.com/technology

IonQ Leads in Error Correction Overhead

Phase II

16:1 [1]

IONQ

1000:1 – 1,000,000:1 [2]

Other Approaches

1 Estimate based on IonQ technical roadmap and experimental results recently published by IonQ founder Chris Monroe, advisor Ken Brown, and collaborators

2 1000:1 based on overhead for surface codes on a 2-D lattice. 1,000,000:1 based on linear connectivity systems.

IonQ's Leading Modular Architecture

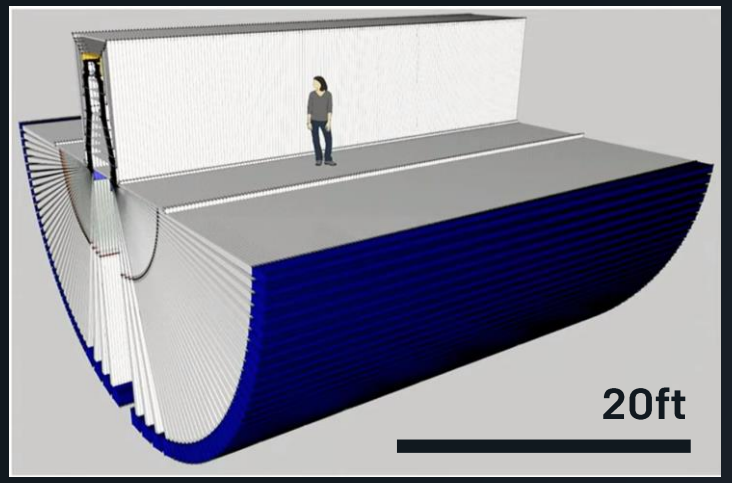
Each Generation of IonQ Hardware is Getting Smaller & Cheaper to Build

Phase III

IBM

An IBM engineer working on the custom-built dilution refrigerator casing for a single QPU

Google



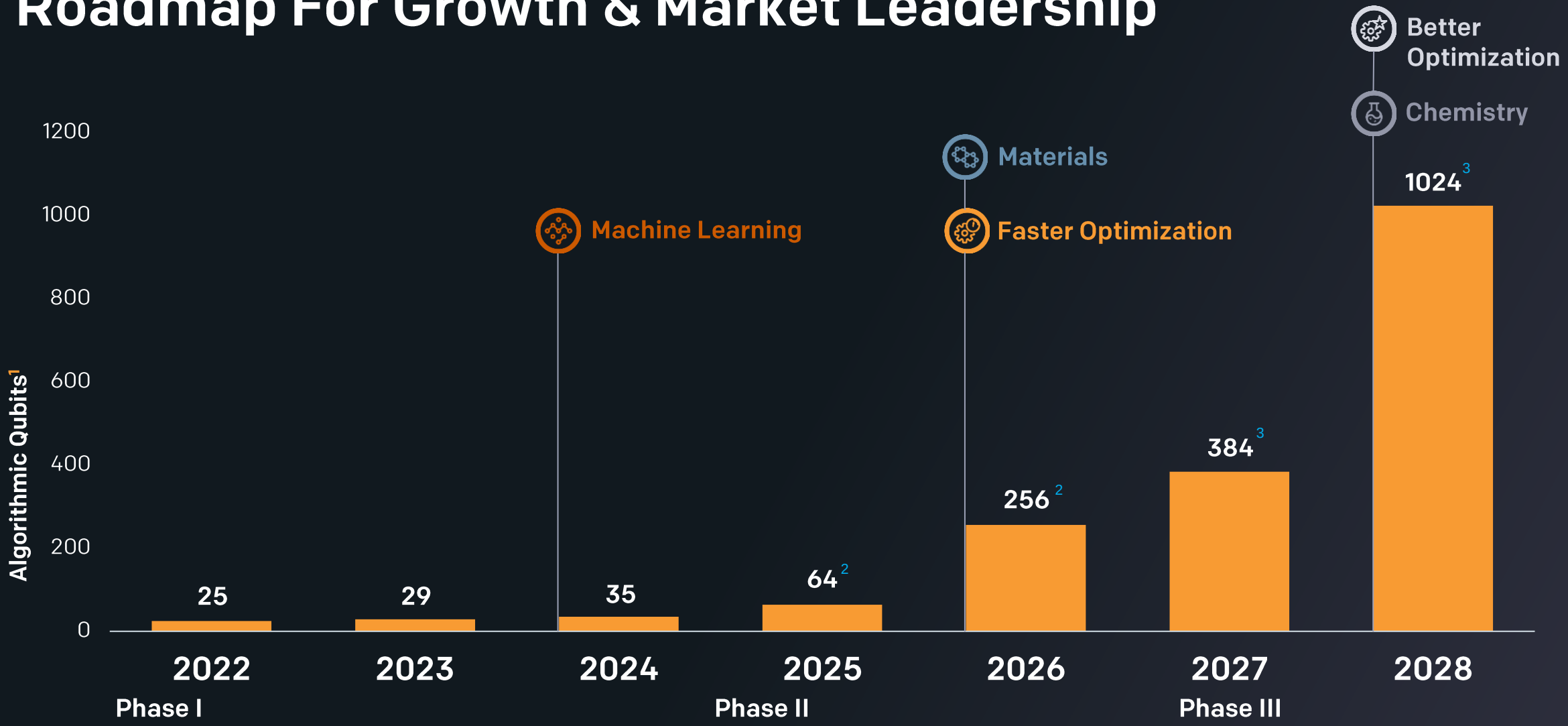
Google rendering of a planned million-physical-qubit system

IonQ

IonQ ion trap and vacuum chamber in a single, minuscule package [1]

1 The package pictured is a prototype developed at IonQ founder Jungsang Kim's Duke University lab.

Roadmap For Growth & Market Leadership



Note Prepared on the basis of certain technical, market, competitive and other assumptions to be subsequently described in further detail, and which may not be satisfied. As a result, these projections are subject to a high degree of uncertainty and may not be achieved within the time-frames described or at all.

Note Market inflection points are estimated based on alignment of IonQ technical roadmap with publicly documented quantum research problems in each market

1 Algorithmic qubit number defined as the effective number of qubits for typical algorithms, limited by the 2Q fidelity

2 Employs 16:1 error-correction encoding

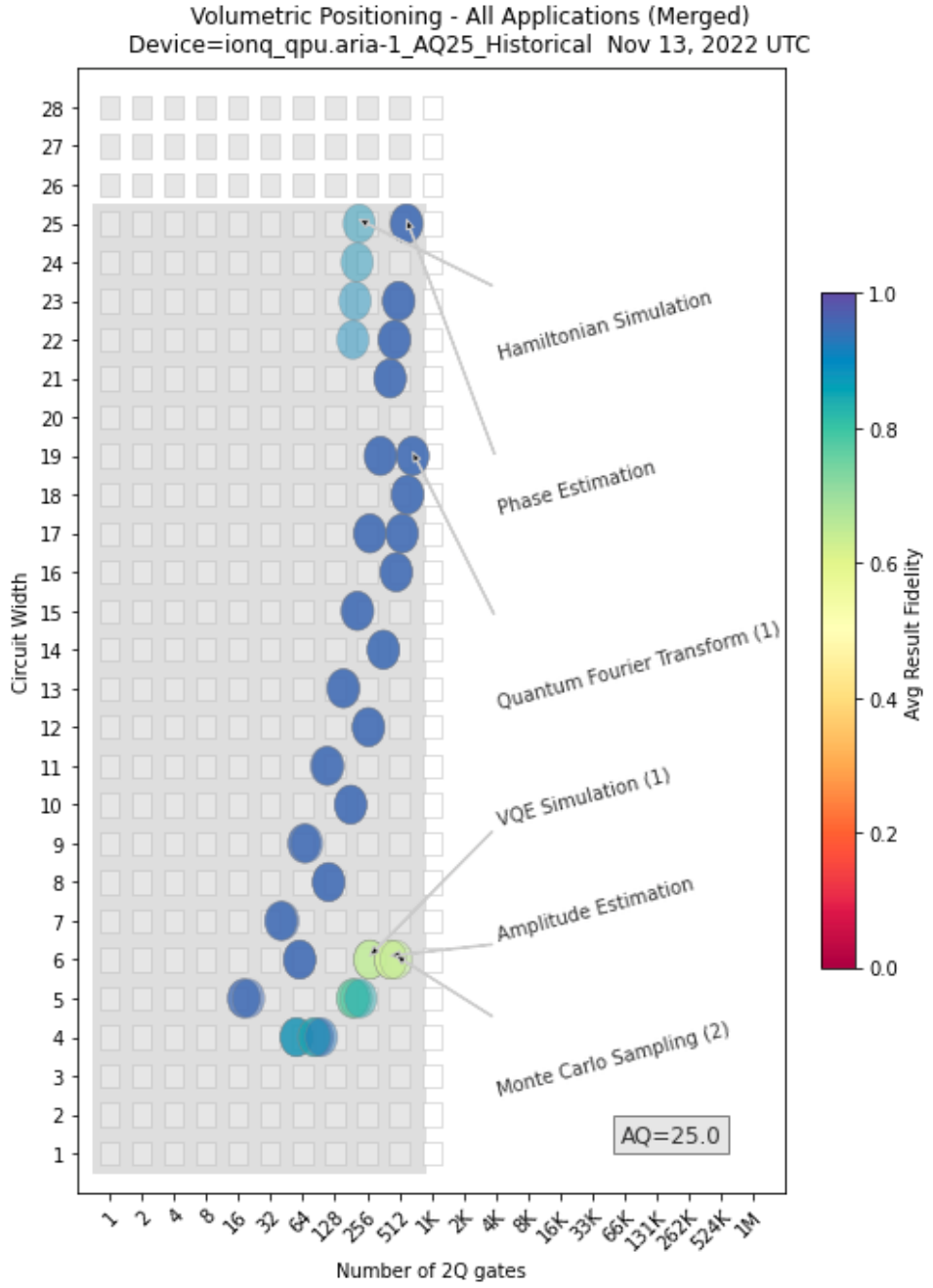
3 Employs 32:1 error-correction encoding

Investor Updates

November 2022

IonQ Aria Achieves 25 Algorithmic Qubits

By increasing computational power by 4x up from AQ 23, IonQ has achieved its 2022 Technical Roadmap Milestone ahead of schedule



#AQ measures the usefulness of a quantum computer.

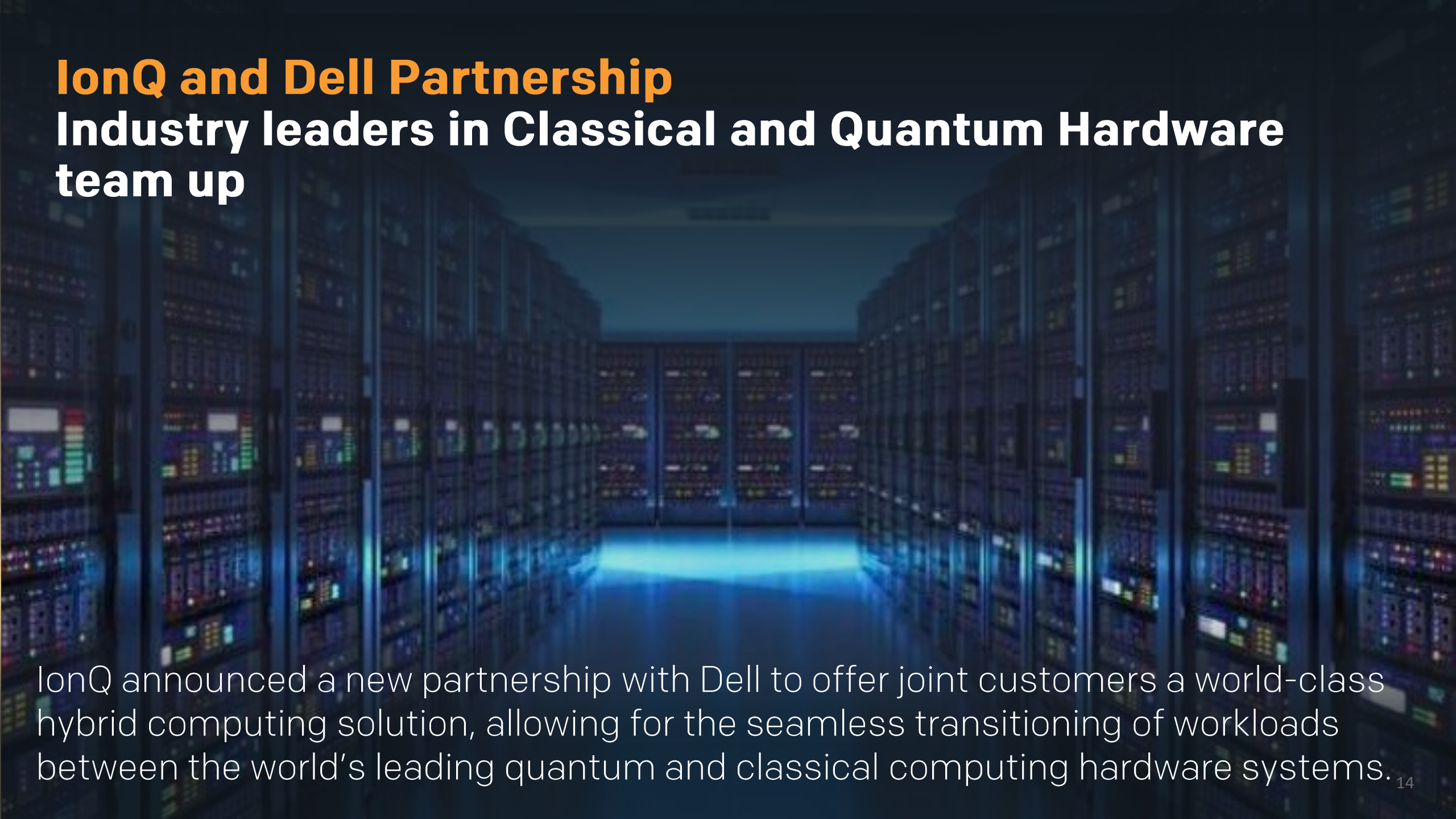
IonQ and AFRL

Groundbreaking $13.4 Million Contract with U.S. Air Force Research Lab

This multi-part contract will supply AFRL with cloud access to compute on our cutting-edge systems and hardware components to further research in quantum networking.

IonQ and Dell Partnership

Industry leaders in Classical and Quantum Hardware team up

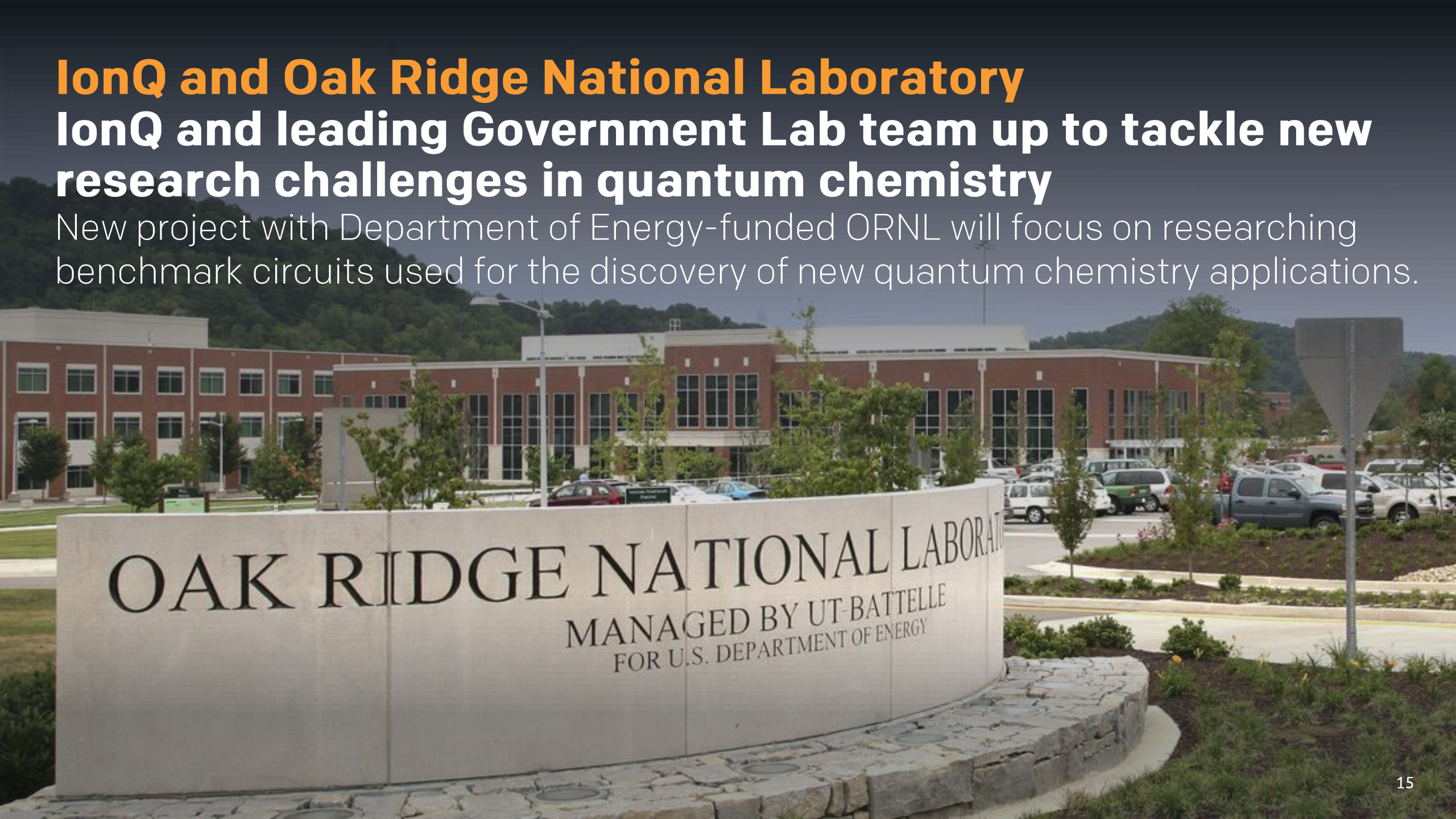


IonQ announced a new partnership with Dell to offer joint customers a world-class hybrid computing solution, allowing for the seamless transitioning of workloads between the world's leading quantum and classical computing hardware systems.

IonQ and Oak Ridge National Laboratory

IonQ and leading Government Lab team up to tackle new research challenges in quantum chemistry

New project with Department of Energy-funded ORNL will focus on researching benchmark circuits used for the discovery of new quantum chemistry applications.



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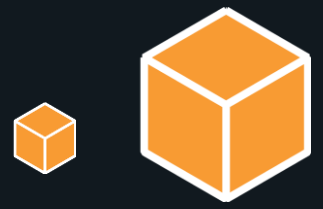

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Cautionary Notes

Forward Looking Statements

This Presentation may contain forward-looking statements made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995. These statements may be identified by words such as "believe," "may," "will," "estimate," "continue," "anticipate," "intend," "expect," "should," "would," "plan," "predict," "potential," "seem," "seek," "future," "outlook," and similar expressions that predict or indicate future events or trends or that are not statements of historical matters. These forward-looking statements include, but are not limited to, statements regarding estimates and forecasts of other financial and performance metrics and projections of market opportunity. These statements are based on various assumptions, whether or not identified in this Presentation, and on the current expectations of the management of IonQ and are not predictions of actual performance. These forward-looking statements are provided for illustrative purposes only and are not intended to serve as, and must not be relied on by an investor as, a guarantee, an assurance, a prediction or a definitive statement of fact or probability. Actual events and circumstances are difficult or impossible to predict and will differ from assumptions. Many actual events and circumstances are beyond the control of IonQ. Many factors could cause actual future events to differ materially from the forward-looking statements in this presentation, including but not limited to: market adoption of quantum computing solutions and IonQ's products, services and solutions; the ability of IonQ to protect its intellectual property; changes in the competitive industries in which IonQ operates; changes in laws and regulations affecting IonQ's business; IonQ's ability to implement its business plans, forecasts and other expectations, and identify and realize additional partnerships and opportunities; and the risk of downturns in the market and the technology industry including, but not limited to, as a result of the COVID-19 pandemic. The foregoing list of factors is not exhaustive. You should carefully consider the foregoing factors and the other risks and uncertainties described in the "Risk Factors" section of IonQ's Quarterly Report on Form 10-Q for the quarter ended June 30, 2022 and other documents filed by IonQ from time to time with the Securities and Exchange Commission. These filings identify and address other important risks and uncertainties that could cause actual events and results to differ materially from those contained in the forward-looking statements. Forward-looking statements speak only as of the date they are made. Readers are cautioned not to put undue reliance on forward-looking statements, and IonQ assumes no obligation and do not intend to update or revise these forward-looking statements, whether as a result of new information, future events, or otherwise. IonQ does not give any assurance that it will achieve its expectations.

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