

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**
Washington, D.C. 20549

FORM 10-Q

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934**

For the quarterly period ended September 30, 2023

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES
EXCHANGE ACT OF 1934**

For the transition period from _____ to _____

Commission File No. 001-39694

IONQ, INC.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

85-2992192
(I.R.S. Employer
Identification No.)

4505 Campus Drive
College Park, MD 20740
(301) 298-7997

(Address, including zip code, and telephone number, including area code, of registrant's principal executive offices)

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Common stock, par value \$0.0001 per share	IONQ	The New York Stock Exchange
Warrants, each exercisable for one share of common stock for \$11.50 per share	IONQ WS	The New York Stock Exchange

Indicate by check mark whether the Registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the Registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes ☒ No ☐

Indicate by check mark whether the Registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the Registrant was required to submit such files). Yes ☒ No ☐

Indicate by check mark whether the Registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer ☐

Accelerated filer ☐

Non-accelerated filer ☒

Smaller reporting company ☐

Emerging growth company ☒

If an emerging growth company, indicate by check mark if the Registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the Registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act): Yes ☐ No ☒

As of November 2, 2023, there were 204,704,612 shares of common stock, par value \$0.0001 per share, issued and outstanding.

IONQ, INC.
QUARTERLY REPORT ON FORM 10-Q
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WHERE YOU CAN FIND MORE INFORMATION

Investors and others should note that we announce material financial information to our investors using our investor relations website at investors.ionq.com, press releases, filings with the U.S. Securities and Exchange Commission ("SEC") and public conference calls and webcasts. We also use IonQ's blog and the following social media channels as a means of disclosing information about the company, our products and services, our planned financials and other announcements and attendance at upcoming investor and industry conferences, and other matters. This is in compliance with our disclosure obligations under Regulation FD:

- IonQ Company Blog (<https://ionq.com/resources/learn>)
- IonQ LinkedIn Page (<https://www.linkedin.com/company/ionq.co>)
- IonQ Twitter Account (https://twitter.com/ionq_inc)
- IonQ YouTube Account (https://www.youtube.com/@ionq_inc)

Information posted through these social media channels may be deemed material. Accordingly, in addition to reviewing our press releases, SEC filings, public conference calls and webcasts, investors should monitor IonQ's blog and our other social media channels. The information we post through these channels is not part of this Quarterly Report on Form 10-Q.

PART 1-FINANCIAL INFORMATION

Item 1. Unaudited Financial Statements

IonQ, Inc.
Condensed Consolidated Balance Sheets
(unaudited)
(in thousands, except share and per share data)

	September 30, 2023	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	\$ 37,137	\$ 44,367
Short-term investments	346,853	311,430
Accounts receivable	3,033	3,292
Prepaid expenses and other current assets	16,816	12,539
Total current assets	403,839	371,628
Long-term investments	101,115	182,001
Property and equipment, net	35,356	26,014
Operating lease right-of-use assets	5,587	3,753
Intangible assets, net	13,059	8,944
Goodwill	742	742
Other noncurrent assets	5,680	4,910
Total Assets	\$ 565,378	\$ 597,992
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable	\$ 6,408	\$ 3,055
Accrued expenses	15,703	6,655
Current portion of operating lease liabilities	695	591
Unearned revenue	5,216	8,729
Current portion of stock option early exercise liabilities	576	1,130
Total current liabilities	28,598	20,160
Operating lease liabilities, net of current portion	6,500	3,459
Unearned revenue, net of current portion	457	1,201
Stock option early exercise liabilities, net of current portion	545	839
Warrant liabilities	30,599	3,819
Other noncurrent liabilities	183	303
Total liabilities	\$ 66,882	\$ 29,781
Commitments and contingencies (see Note 8)		
Stockholders' Equity:		
Common stock \$0.0001 par value; 1,000,000,000 shares authorized; 204,117,084 and 199,862,123 shares issued and outstanding as of September 30, 2023 and December 31, 2022, respectively	\$ 20	\$ 20
Additional paid-in capital	813,439	769,848
Accumulated deficit	(310,169)	(194,302)
Accumulated other comprehensive loss	(4,794)	(7,355)
Total stockholders' equity	\$ 498,496	\$ 568,211
Total Liabilities and Stockholders' Equity	\$ 565,378	\$ 597,992

The accompanying notes are an integral part of these condensed consolidated financial statements.

IonQ, Inc.
Condensed Consolidated Statements of Operations
(unaudited)
(in thousands, except share and per share data)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Revenue	\$ 6,136	\$ 2,763	\$ 15,936	\$ 7,324
Costs and expenses:				
Cost of revenue (excluding depreciation and amortization)	2,008	733	4,945	2,043
Research and development	24,599	13,292	60,701	30,282
Sales and marketing	5,047	1,969	11,289	5,971
General and administrative	13,927	10,149	35,438	26,901
Depreciation and amortization	2,749	1,531	6,869	4,248
Total operating costs and expenses	48,330	27,674	119,242	69,445
Loss from operations	(42,194)	(24,911)	(103,306)	(62,121)
Change in fair value of warrant liabilities	(7,640)	(1,151)	(26,787)	28,358
Interest income, net	5,007	2,059	14,115	3,926
Other income (expense), net	55	20	150	(27)
Loss before benefit for income taxes	(44,772)	(23,983)	(115,828)	(29,864)
Income tax expense	(39)	—	(39)	—
Net loss	\$ (44,811)	\$ (23,983)	\$ (115,867)	\$ (29,864)
Net loss per share attributable to common stockholders— basic and diluted	\$ (0.22)	\$ (0.12)	\$ (0.57)	\$ (0.15)
Weighted average shares used in computing net loss per share attributable to common stockholders—basic and diluted	203,390,383	198,301,240	201,656,916	197,255,965

The accompanying notes are an integral part of these condensed consolidated financial statements.

IonQ, Inc.
Condensed Consolidated Statements of Comprehensive Loss
(unaudited)
(in thousands)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Net loss	\$ (44,811)	\$ (23,983)	\$ (115,867)	\$ (29,864)
Other comprehensive income (loss), net of reclassification adjustments:				
Change in unrealized gain (loss) on available-for-sale securities, net	1,292	(2,195)	2,560	(8,976)
Currency translation adjustments	1	—	1	—
Total other comprehensive income (loss)	1,293	(2,195)	2,561	(8,976)
Total comprehensive loss	\$ (43,518)	\$ (26,178)	\$ (113,306)	\$ (38,840)

The accompanying notes are an integral part of these condensed consolidated financial statements.

IonQ, Inc.
Condensed Consolidated Statements of Changes in Stockholders' Equity
(unaudited)
(in thousands, except share data)

	Stockholders' Equity					
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
	Shares	Amount				
Balance, June 30, 2023	201,869,202	\$ 20	\$ 794,671	\$ (265,358)	\$ (6,087)	\$ 523,246
Net loss	—	—	—	(44,811)	—	(44,811)
Other comprehensive income (loss)	—	—	—	—	1,293	1,293
Stock options exercised	568,330	—	234	—	—	234
Vesting of restricted common stock	125,341	—	282	—	—	282
Issuance of common stock from the settlement of restricted stock units	1,553,290	—	141	—	—	141
Stock-based compensation	—	—	18,094	—	—	18,094
Warrants exercised	921	—	17	—	—	17
Balance, September 30, 2023	204,117,084	\$ 20	\$ 813,439	\$ (310,169)	\$ (4,794)	\$ 498,496

	Stockholders' Equity					
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
	Shares	Amount				
Balance, June 30, 2022	198,003,162	\$ 20	\$ 751,259	\$ (151,672)	\$ (6,929)	\$ 592,678
Net loss	—	—	—	(23,983)	—	(23,983)
Other comprehensive income (loss)	—	—	—	—	(2,195)	(2,195)
Stock options exercised	370,979	—	386	—	—	386
Vesting of restricted common stock	125,341	—	282	—	—	282
Issuance of common stock from the settlement of restricted stock units	414,919	—	—	—	—	—
Stock-based compensation	—	—	8,461	—	—	8,461
Warrants exercised	45	—	1	—	—	1
Balance, September 30, 2022	198,914,446	\$ 20	\$ 760,389	\$ (175,655)	\$ (9,124)	\$ 575,630

The accompanying notes are an integral part of these condensed consolidated financial statements.

IonQ, Inc.
Condensed Consolidated Statements of Changes in Stockholders' Equity
(unaudited)
(in thousands, except share data)

	Stockholders' Equity					
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
	Shares	Amount				
Balance, December 31, 2022	199,862,123	\$ 20	\$ 769,848	\$ (194,302)	\$ (7,355)	\$ 568,211
Net loss	—	—	—	(115,867)	—	(115,867)
Other comprehensive income (loss)	—	—	—	—	2,561	2,561
Stock options exercised	1,358,096	—	775	—	—	775
Vesting of restricted common stock	376,023	—	846	—	—	846
Issuance of common stock from the settlement of restricted stock units	2,519,921	—	2,641	—	—	2,641
Stock-based compensation	—	—	39,312	—	—	39,312
Warrants exercised	921	—	17	—	—	17
Balance, September 30, 2023	204,117,084	\$ 20	\$ 813,439	\$ (310,169)	\$ (4,794)	\$ 498,496

	Stockholders' Equity					
	Common Stock		Additional Paid-in Capital	Accumulated Deficit	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
	Shares	Amount				
Balance, December 31, 2021	195,630,975	\$ 19	\$ 737,150	\$ (145,791)	\$ (148)	\$ 591,230
Net loss	—	—	—	(29,864)	—	(29,864)
Other comprehensive income (loss)	—	—	—	—	(8,976)	(8,976)
Stock options exercised	2,043,655	1	952	—	—	953
Vesting of restricted common stock	390,193	—	880	—	—	880
Issuance of common stock from the settlement of restricted stock units	848,091	—	473	—	—	473
Stock-based compensation	—	—	20,909	—	—	20,909
Warrants exercised	1,532	—	25	—	—	25
Balance, September 30, 2022	198,914,446	\$ 20	\$ 760,389	\$ (175,655)	\$ (9,124)	\$ 575,630

The accompanying notes are an integral part of these condensed consolidated financial statements.

IonQ, Inc.
Condensed Consolidated Statements of Cash Flows
(unaudited)
(in thousands)

	Nine Months Ended September 30,	
	2023	2022
Cash flows from operating activities:		
Net loss	\$ (115,867)	\$ (29,864)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization	6,869	4,248
Non-cash research and development arrangements	390	390
Stock-based compensation	38,549	22,561
Change in fair value of warrant liabilities	26,787	(28,358)
Amortization of premiums and accretion of discounts on available-for-sale securities	(7,287)	(383)
Other, net	1,036	345
Changes in operating assets and liabilities:		
Accounts receivable	946	(1,135)
Prepaid expenses and other current assets	(7,545)	(1,842)
Accounts payable	975	2,992
Accrued expenses	8,066	1,996
Unearned revenue	(4,944)	(555)
Other assets and liabilities	(156)	(180)
Net cash used in operating activities	\$ (52,181)	\$ (29,785)
Cash flows from investing activities:		
Purchases of property and equipment	(6,544)	(8,381)
Capitalized software development costs	(3,134)	(1,491)
Intangible asset acquisition costs	(1,057)	(598)
Purchases of available-for-sale securities	(230,350)	(488,887)
Maturities and sales of available-for-sale securities	285,665	185,150
Net cash provided by (used in) investing activities	\$ 44,580	\$ (314,207)
Cash flows from financing activities:		
Proceeds from stock options exercised	775	953
Other financing, net	9	1,212
Net cash provided by financing activities	\$ 784	\$ 2,165
Effect of foreign exchange rate changes on cash, cash equivalents and restricted cash	3	—
Net change in cash, cash equivalents and restricted cash	(6,814)	(341,827)
Cash, cash equivalents and restricted cash at the beginning of the period	46,367	399,025
Cash, cash equivalents and restricted cash at the end of the period	\$ 39,553	\$ 57,198
Supplemental disclosures of non-cash investing and financing transactions		
Property and equipment purchases in accounts payable and accrued expenses	\$ 4,202	\$ 186
Intangible asset purchases in accounts payable and accrued expenses	321	256
Operating lease right-of-use assets subject to lease liability	2,380	—
Noncash reclassification of warrant liabilities to equity upon exercise	7	8
Bonus settled in restricted stock units	2,641	473

The accompanying notes are an integral part of these condensed consolidated financial statements.

IonQ, Inc.
Notes to Condensed Consolidated Financial Statements
(unaudited)

1. DESCRIPTION OF BUSINESS

IonQ, Inc. (“IonQ” or the “Company”), formerly known as dMY Technology Group, Inc. III (“dMY”), was incorporated in the state of Delaware in September 2020 and formed as a special purpose acquisition company for the purpose of effecting a merger, capital stock exchange, asset acquisition, stock purchase, reorganization, or similar business combination with one or more businesses. IonQ Quantum, Inc. (formerly known as IonQ, Inc., and referred to as “Legacy IonQ” herein), was incorporated in the state of Delaware in September 2015 and is headquartered in College Park, Maryland.

On March 7, 2021, Legacy IonQ entered into an Agreement and Plan of Merger (the “Merger Agreement”) with dMY and Ion Trap Acquisition Inc. (“Merger Sub”), a direct, wholly owned subsidiary of dMY. Pursuant to the Merger Agreement, on September 30, 2021, the Merger Sub was merged with and into Legacy IonQ with Legacy IonQ continuing as the surviving corporation following the Merger, becoming a wholly owned subsidiary of dMY and the separate corporate existence of the Merger Sub ceased (the “Business Combination”). Commensurate with the Business Combination, dMY changed its name to IonQ, Inc. and Legacy IonQ changed its name to IonQ Quantum, Inc.

Unless otherwise indicated, references in this Quarterly Report on Form 10-Q to the “Company” and “IonQ” refer to the consolidated operations of IonQ, Inc. subsequent to the Business Combination. References to “dMY” refer to the company prior to the consummation of the Business Combination and references to “Legacy IonQ” refer to IonQ, Inc. prior to the consummation of the Business Combination.

IonQ is engaged in quantum computing and develops general-purpose quantum computing systems designed to solve some of the world’s most complex problems, and transform business, society, and the planet for the better. To operate the quantum computing systems, the Company has developed custom hardware, custom firmware, and an operating system to orchestrate the quantum computers.

Business Combination

While the legal acquirer in the Merger Agreement is dMY, for financial accounting and reporting purposes under accounting principles generally accepted in the United States of America (“U.S. GAAP”), Legacy IonQ is the accounting acquirer and the merger is accounted for as a “reverse recapitalization” (i.e., a capital transaction involving the issuance of stock by dMY for the stock of Legacy IonQ).

For accounting purposes, the Business Combination was treated as the equivalent of Legacy IonQ issuing stock for the net assets of dMY, accompanied by a recapitalization. The net assets of dMY are stated at historical cost, and no goodwill or other intangible assets were recorded. Because Legacy IonQ was deemed the accounting acquirer in the Business Combination, the historical financial statements of Legacy IonQ are the historical financial statements of the Company upon the consummation of the Business Combination. As a result, the condensed consolidated financial statements included in this report reflect: (i) the historical operating results of Legacy IonQ prior to the Business Combination; (ii) the combined results of dMY and Legacy IonQ following the close of the Business Combination on September 30, 2021; and (iii) the assets and liabilities of Legacy IonQ stated at their historical cost.

In accordance with guidance applicable to these circumstances, the equity structure has been retroactively restated in all comparative periods to reflect the number of shares of the Company’s common stock, \$0.0001 par value per share, issued to Legacy IonQ’s stockholders in connection with the Business Combination. As such, the shares and corresponding capital amounts and earnings per share related to Legacy IonQ convertible redeemable preferred stock and warrants and Legacy IonQ common stock prior to the Business Combination have been retroactively restated in the consolidated financial statements and notes thereto as shares reflecting the exchange ratio established in the Business Combination. Legacy IonQ’s convertible redeemable preferred stock and warrants previously classified as mezzanine equity were retroactively adjusted, converted into common stock, and reclassified to permanent equity because of the reverse recapitalization. All exercise prices for stock options and customer warrants have similarly been retroactively restated to reflect the exchange ratio established in the Business Combination.

Segment Reporting

The Company operates as one operating segment as its chief executive officer, who is the chief operating decision maker, reviews financial information on a consolidated basis for purposes of making operating decisions, allocating resources, and evaluating financial performance.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Significant Accounting Policies

The Company’s significant accounting policies, which are disclosed in the audited financial statements for the year ended December 31, 2022, and the notes thereto are included in the Company’s Annual Report on Form 10-K (the “Annual Report”) that was filed with the Securities

and Exchange Commission (“SEC”) on March 30, 2023. Since the date of that filing, there have been no material changes to the Company’s significant accounting policies except as noted below.

Basis of Preparation

The accompanying condensed consolidated financial statements have been prepared in accordance with U.S. GAAP as determined by the Financial Accounting Standards Board (“FASB”). Such condensed consolidated financial statements include the accounts of IonQ and its wholly owned subsidiaries. All intercompany transactions and balances have been eliminated in consolidation.

Unaudited Interim Financial Information

The interim condensed consolidated financial statements included in this Quarterly Report on Form 10-Q have been prepared by the Company and are unaudited, pursuant to the rules and regulations of the SEC. Certain information and footnote disclosures normally included in financial statements prepared in accordance with U.S. GAAP have been condensed or omitted pursuant to such rules and regulations. However, the Company believes that the disclosures contained in this Quarterly Report on Form 10-Q comply with the requirements of Section 13(a) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”), for a quarterly report and are adequate to make the information presented not misleading. The interim condensed consolidated financial statements included herein reflect all adjustments (consisting of normal recurring adjustments) which are, in the opinion of management, necessary for a fair presentation of the financial position, results of operations and cash flows for the interim periods presented. These interim condensed consolidated financial statements should be read in conjunction with the financial statements and notes thereto for the year ended December 31, 2022, included in the Annual Report. The condensed consolidated statements of operations and the condensed consolidated statements of comprehensive loss for the three and nine months ended September 30, 2023, are not necessarily indicative of the results to be anticipated for the entire year ending December 31, 2023, or thereafter. All references to September 30, 2023 and 2022, in the notes to the condensed consolidated financial statements are unaudited.

Emerging Growth Company

The Company is an emerging growth company, as defined in the Jumpstart Our Business Startups Act of 2012 (the “JOBS Act”). Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards issued subsequent to the enactment of the JOBS Act, until such time as those standards apply to private companies.

The Company has elected to use this extended transition period for complying with new or revised accounting standards that have different effective dates for public and private companies until the earlier of the date that it (i) is no longer an emerging growth company or (ii) affirmatively and irrevocably opts out of the extended transition period provided in the JOBS Act. As a result, the Company’s condensed consolidated financial statements may not be comparable to companies that comply with the new or revised accounting pronouncements as of public company effective dates.

As a result of the market value of the Company’s common stock held by non-affiliates as of June 30, 2023, exceeding \$700.0 million, the Company will be a “large accelerated filer” under the Exchange Act as of December 31, 2023, and will no longer qualify as an emerging growth company. The Company was also a smaller reporting company as defined in the Exchange Act until June 30, 2023. However, the Company may continue to use the scaled disclosures permitted for a smaller reporting company through its annual report on Form 10-K for the fiscal year ended December 31, 2023 and must begin providing non-scaled larger company disclosure in its first quarterly report in its next fiscal year (i.e., the quarterly report for the three-month period ended March 31, 2024).

Use of Estimates

The preparation of condensed consolidated financial statements in conformity with U.S. GAAP and the rules and regulations of the SEC requires management to make estimates and assumptions that affect the amounts reported in these condensed consolidated financial statements and accompanying notes.

Significant estimates and judgments are inherent in the analysis and measurement of items including, but not limited to: revenue recognition, capitalization of internally developed software and quantum computing costs, useful lives of long-lived assets, stock-based compensation for awards with performance and market conditions, and fair value of available-for-sale securities. Management bases its estimates and assumptions on historical experience, expectations, forecasts, and on various other factors that are believed to be reasonable under the

circumstances. Due to the inherent uncertainty involved in making estimates, actual results reported in future periods may differ and be affected by changes in those estimates.

Foreign Currency

The reporting currency of the Company is the U.S. dollar. Financial statements of subsidiaries whose functional currency is not the U.S. dollar are translated at exchange rates in effect at the balance sheet date for assets and liabilities and at average exchange rates for revenues and expenses for the respective periods. Translation adjustments are recorded in accumulated other comprehensive loss in the condensed consolidated balance sheets.

The Company is exposed to foreign currency risk to the extent that it enters into transactions denominated in currencies other than its subsidiaries' respective functional currencies. Transactions denominated in currencies other than subsidiaries' functional currencies are recorded based on exchange rates at the time such transactions arise. Changes in exchange rates with respect to amounts recorded in the Company's condensed consolidated balance sheets related to these items will result in unrealized foreign currency transaction gains and losses based upon period-end exchange rates. The Company also records realized foreign currency transaction gains and losses upon settlement of the transactions. Foreign currency transaction gains and losses resulting from the conversion of the transaction currency to functional currency are included in other income (expense), net in the condensed consolidated statements of operations.

Fair Value Measurements

The Company evaluates the fair value of certain assets and liabilities using the fair value hierarchy. Fair value is an exit price representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. Fair value is estimated by applying the following hierarchy, which prioritizes the inputs used to measure fair value into three levels and bases the categorization within the hierarchy upon the lowest level of input that is available and significant to the fair value measurement:

- Level 1—Observable inputs, which include quoted prices in active markets;
- Level 2—Observable inputs other than the quoted prices in active markets that are observable either directly or indirectly, such as quoted prices in markets that are not active, or other inputs such as broker quotes, benchmark yield curves, credit spreads and market interest rates for similar securities that are observable or can be corroborated by observable market data for substantially the full term of the assets or liabilities;
- Level 3—Unobservable inputs that are supported by little or no market activity and that are based on management's assumptions, including fair value measurements determined using pricing models, discounted cash flow methodologies or similar techniques.

The Company's assessment of the significance of a particular input to the fair value measurements requires judgment and may affect the valuation of the assets and liabilities being measured and their placement within the fair value hierarchy.

For assets that are measured using quoted prices in active markets, the total fair value is the published market price per unit multiplied by the number of units held, without consideration of transaction costs. Assets and liabilities that are measured using significant other observable inputs are primarily valued by reference to quoted prices of similar assets or liabilities in active markets, adjusted for any terms specific to that asset or liability.

Assets and liabilities that are measured at fair value on a non-recurring basis include property and equipment, intangible assets, and goodwill. The Company recognizes these items at fair value when they are considered to be impaired or upon initial recognition when acquired through a business combination or an asset acquisition. The fair value of these assets and liabilities are determined with valuation techniques using the best information available and may include quoted market prices, market comparables and discounted cash flow models.

Due to their short-term nature, the carrying amounts reported in the Company's condensed consolidated financial statements approximate the fair value for cash and cash equivalents, accounts receivable, accounts payable and accrued expenses.

Cash, Cash Equivalents and Restricted Cash

Cash and cash equivalents include cash in banks, checking deposits, and money market funds. The Company considers all short-term highly liquid investments with an original maturity at the date of purchase of three months or less to be cash equivalents. Restricted cash for collateralizing letters of credit and corporate credit cards is included in other noncurrent assets in the condensed consolidated balance sheets. The Company issues letters of credit in the ordinary course of business, including for lease arrangements. As of September 30, 2023 and December 31, 2022, letters of credit totaling \$2.1 million and \$2.0 million were outstanding, respectively.

The following table provides a reconciliation of cash and restricted cash included in the condensed consolidated balance sheets to the amounts included in the condensed consolidated statements of cash flows (in thousands):

	September 30, 2023	December 31, 2022
Cash and cash equivalents	\$ 37,137	\$ 44,367
Restricted cash	2,416	2,000
Total cash, cash equivalents and restricted cash in the condensed consolidated statements of cash flows	\$ 39,553	\$ 46,367

Accounts Receivable and Allowance for Credit Losses

Accounts receivable are non-interest bearing and represent amounts billed and currently due from customers at the gross invoiced amount as well as unbilled amounts related to unconditional rights for consideration to be received for services performed but not yet invoiced. A receivable is recorded when the Company has an unconditional right to receive payment. Accounts receivable consists of the following at (in thousands):

	September 30, 2023	December 31, 2022
Billed accounts receivable	\$ 844	\$ 1,150
Unbilled accounts receivable	2,189	2,142
Total accounts receivable	\$ 3,033	\$ 3,292

On a periodic basis, management evaluates its accounts receivable and determines whether to provide an allowance for credit losses. This assessment is based on management's evaluation of relevant information about past events, including historical experience, current conditions and reasonable and supportable forecasts that affect the collectability of the receivable.

The Company did not have any allowance for credit losses as of either September 30, 2023 or December 31, 2022.

Materials and Supplies

Materials and supplies are carried at average cost and recorded in prepaid expenses and other current assets in the condensed consolidated balance sheets. Materials and supplies used in the production of quantum computing systems to be made commercially available are capitalized to property and equipment when installed. Materials and supplies used for maintenance, research and development efforts or to service customer contracts are expensed when consumed. The Company capitalized \$0.9 million and \$3.1 million of materials and supplies to property and equipment for the three and nine months ended September 30, 2023, respectively.

Investments

Management determines the appropriate classification of investments at the time of purchase based upon management's intent with regard to such investments. The Company primarily invests in debt securities and classifies its investments as available-for-sale at the time of purchase if they are available to support either current or future operations. This classification is re-evaluated at each balance sheet date. Investments not considered cash equivalents, with remaining contractual maturities of one year or less from the balance sheet date are classified as short-term investments, and those with remaining contractual maturities greater than one year from the balance sheet date are classified as long-term investments. All investments are recorded at their estimated fair value, and any unrealized gains and losses are recorded in accumulated other comprehensive loss. Realized gains and losses on sales and maturities of investments are determined based on the specific identification method and are recognized in the condensed consolidated statements of operations in other income (expense), net. Accrued interest receivable on available-for-sale investments is recorded in the condensed consolidated balance sheet in prepaid expenses and other current assets. As of September 30, 2023 and December 31, 2022, accrued interest receivable was \$1.9 million and \$1.7 million, respectively.

The Company performs periodic evaluations to determine whether any declines in the fair value of investments below amortized cost are credit losses or impairments. The evaluation consists of qualitative and quantitative factors regarding the severity of the unrealized loss, as well as the Company's ability and intent to hold the investments until a forecasted recovery occurs. Declines in fair value are considered to be credit losses if they are related to deterioration in credit risk or are considered impairments if it is likely that the underlying securities will be sold prior to a full recovery of their cost basis. Credit losses and impairments are determined based on the specific identification method and are reported in other income (expense), net in the condensed consolidated statements of operations.

Property and Equipment, Net

Property and equipment, net is stated at cost less accumulated depreciation. Historical cost of fixed assets is the cost as of the date acquired. Hardware and labor costs associated with the building of quantum computing systems are capitalized. Costs to maintain quantum computing systems are expensed as incurred.

Depreciation is calculated using the straight-line method over the estimated useful lives of the assets. Useful lives are as follows:

Computer equipment and acquired computer software	3 – 5 years
Machinery, equipment, furniture and fixtures	5 – 7 years
Quantum computing systems	3 years
Leasehold improvements	Shorter of the lease term or the estimated useful life of the related asset

Effective October 1, 2022, the Company revised the accounting useful life of quantum computing systems, which was determined to be a change in accounting estimate and is being applied prospectively. This change in accounting estimate was not material for the three or nine months ended September 30, 2023. The estimated useful life for quantum computing systems was previously 2 years.

Leases

The Company determines if an arrangement is a lease at inception. Operating leases are included in operating lease right-of-use (“ROU”) assets and current operating lease liabilities and operating lease liabilities, net of current portion on the Company’s condensed consolidated balance sheets. As of September 30, 2023, the Company has no financing lease arrangements. The Company recognizes lease expense for its operating leases on a straight-line basis over the term of the lease.

The Company records a ROU asset and lease liability in connection with its operating leases. The Company’s lease portfolio is comprised primarily of real estate leases, which are accounted for as operating leases. The Company elected the practical expedient to not separate lease and non-lease components for all leases.

ROU assets and lease liabilities are recognized at the lease commencement date based on the present value of the future minimum lease payments, including the impact of any lease incentives, as applicable, over the lease term. Amendments to a lease are assessed to determine if it represents a lease modification or a separate contract. Lease modifications are reassessed as of the effective date of the modification using an incremental borrowing rate based on the information available at the commencement date. For modified leases the Company also reassesses the lease classification as of the effective date of the modification.

The interest rate used to determine the present value of the future lease payments is the Company’s incremental borrowing rate, because the interest rate implicit in the Company’s leases is not readily determinable. The incremental borrowing rate is estimated to approximate the interest rate on a collateralized basis with similar terms and payments, and in economic environments where the leased asset is located.

The Company’s lease terms include periods under options to extend or terminate the lease when it is reasonably certain that the Company will exercise that option. The Company considers contractual-based factors such as the nature and terms of the renewal or termination, asset-based factors such as physical location of the asset and entity-based factors such as the importance of the leased asset to the Company’s operations to determine the lease term. The Company generally uses the base non-cancelable lease term when determining the ROU assets and lease liabilities.

Capitalized Internally Developed Software

Capitalized internally developed software, which is included in intangible assets, net, consists of costs to purchase and develop internal-use software, which the Company primarily uses to provide services to its customers. The costs to purchase and develop internal-use software are capitalized from the time that the preliminary project stage is completed, and it is considered probable that the software will be used to perform the function intended, until the time the software is placed in service for its intended use. Any costs incurred during subsequent efforts to upgrade and enhance the functionality of the software are also capitalized. Once this software is ready for its intended use, these costs are amortized on a straight-line basis over the estimated useful life of the software, which is typically assessed to be three years. During the three months ended September 30, 2023 and 2022, the Company capitalized \$2.0 million and \$0.8 million in internal-use software costs, respectively, and during the nine months ended September 30, 2023 and 2022, the Company capitalized \$5.3 million and \$2.1 million, respectively. The Company amortized \$0.8 million and \$0.4 million of capitalized internally developed software costs during the three months ended September 30, 2023 and 2022, respectively, and \$1.9 million and \$1.0 million of capitalized internally developed software costs during the nine months ended September 30, 2023 and 2022, respectively. Amortization is included in depreciation and amortization in the condensed consolidated statements of operations.

Impairment of Long-Lived Assets

Long-lived assets, such as property and equipment and other long-term assets, are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. If circumstances require a long-lived asset or asset group be tested for possible impairment, the Company first compares undiscounted cash flows expected to be generated by that asset or asset group to its carrying amount. If the carrying amount of the long-lived asset or asset group is not recoverable on an undiscounted cash flow basis, an impairment is recognized to the extent the carrying amount of the underlying asset exceeds its fair value. No impairment loss was recognized for the three or nine months ended September 30, 2023 and 2022.

Warrant Liabilities

The Company evaluates its financial instruments to determine if such instruments are derivatives or contain features that qualify as embedded derivatives in accordance with ASC Topic 815, "Derivatives and Hedging." For derivative financial instruments that are accounted for as liabilities, the derivative instrument is initially recorded at its fair value on the grant date and is then re-valued upon exercise or at each reporting date for the unexercised warrants, with changes in the fair value reported in the condensed consolidated statements of operations. The classification of derivative instruments, including whether such instruments should be recorded as liabilities or as equity, is evaluated at the end of each reporting period. The warrants of dMY assumed in the Business Combination are classified as liabilities and remeasured at each reporting period (as more fully described in Note 10). Derivative warrant liabilities are classified as non-current liabilities as their liquidation is not reasonably expected to require the use of current assets or require the creation of current liabilities.

Revenue Recognition

The Company derives revenue from providing access to its quantum-computing-as-a-service ("QCaaS"), consulting services related to co-developing algorithms on the quantum computing systems, and from contracts associated with the design, development, and construction of specialized quantum computing systems together with related services. The Company applies the provisions of the FASB Accounting Standards Update ("ASU"), Revenue from Contracts with Customers ("ASC 606"), and all related applicable guidance. The core principle of ASC 606 is that an entity shall recognize revenue to depict the transfer of promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services.

To support this core principle, the Company applies the following five step approach:

1. Identify the contract with the customer
2. Identify the performance obligations
3. Determine the transaction price
4. Allocate the transaction price to the performance obligations
5. Recognize revenue when (or as) the entity satisfies a performance obligation

The Company has determined that its QCaaS contracts represent a combined, stand-ready performance obligation to provide access to its quantum computing systems together with related maintenance and support. The transaction price may consist of a variable fee based on usage of its quantum computing systems or a fixed fee for a minimum volume of usage to be made available over a defined period of access. Fixed fee arrangements may also include a variable component whereby customers pay an amount for usage over contractual minimums contained in the contracts. The Company has determined that contracts that contain consulting services related to co-developing quantum computing algorithms and the ability to use its quantum computing systems to run such algorithms represent a combined performance obligation that is satisfied over-time with revenue recognized based on the efforts incurred to date relative to the total expected effort. For contracts with a fixed transaction price, the fixed fee is recognized on a straight-line basis over the access period or associated measure of progress for the Company's consulting services contracts. For contracts without fixed fees, variable usage fees are billed and recognized during the period of such usage.

Certain of the Company's contracts contain multiple performance obligations, most commonly in contracts for the sale of specialized quantum computing systems together with related maintenance and support. Such contracts may also include access to the Company's QCaaS. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when or as the performance obligation is satisfied. When there are multiple performance obligations in a contract, the Company allocates the transaction price to each performance obligation based on its standalone selling price when available. The Company determines standalone selling price based on the observable price of a product or service when it sells the products or services separately in similar circumstances and to similar customers. When the standalone selling price is not known, due to it being either highly variable or uncertain, the Company allocates the transaction price using the residual approach.

Performance obligations are satisfied over time if the customer receives the benefits as the Company performs the work, if the customer controls the asset as it is being produced (continuous transfer of control), or if the product being produced for the customer has no alternative use and the Company has a contractual right to payment for performance to date. Revenue is recognized on performance obligations satisfied over time based on the efforts incurred to date relative to the total expected effort.

For the three and nine months ended September 30, 2023 and 2022, substantially all revenue was recognized based on transfer of service over time. Revenues recognized at a point in time were not material. In arrangements with cloud service providers, the cloud service provider is considered the customer and IonQ does not have any contractual relationships with the cloud service providers' end users. For these arrangements, revenue is recognized at the amount charged to the cloud service provider and does not reflect any mark-up to the end user.

The Company may enter into multiple contracts with a single counterparty at or near the same time. The Company will combine contracts and account for them as a single contract when one or more of the following criteria are met: (i) the contracts are negotiated as a package with a single commercial objective; (ii) consideration to be paid in one contract depends on the price or performance of the other contract; and (iii) goods or services promised are a single performance obligation. Consideration payable to a customer includes cash amounts that an entity pays, or expects to pay, to the customer. For arrangements that contain consideration payable to a customer, the Company uses judgment in determining whether such payments are a reduction of the transaction price or a payment to the customer for a distinct good or service.

The variable fees associated with the QCaaS are generally billed a month in arrears. Customers also have the ability to make advance payments. If a contract exists under ASC 606, advance payments are recorded as a contract liability until services are delivered or obligations are met and revenue is earned. Contract liabilities to be recognized in the succeeding 12-month period are classified as current and the remaining amounts are classified as non-current liabilities in the Company's condensed consolidated balance sheets.

As of September 30, 2023, approximately \$73.1 million of revenue is expected to be recognized from remaining performance obligations that are unsatisfied (or partially unsatisfied), including both funded (firm orders for which funding has been both authorized and appropriated by the customer) and unfunded (firm orders for which funding has not been appropriated) orders. Unexercised contract options are not included in remaining performance obligations until the time the option is exercised. The Company expects approximately 35% of the remaining performance obligations to be recognized as revenue within the next twelve months.

The following table summarizes the changes in unearned revenue for the nine months ended September 30, 2023 (in thousands):

	Total
Balance as of December 31, 2022	\$ 9,930
Revenue recognized	(8,202)
New deferrals, net	3,945
Balance as of September 30, 2023	\$ 5,673

For contractual arrangements where consideration is paid up-front, the transfer of the quantum computing services is completed at the discretion of the customer as the customer chooses to use the services starting from the date of contract inception. As such, the up-front payment of consideration does not represent a significant financing component.

Assets Recognized from Costs to Obtain a Contract

Sales commissions paid to employees and third parties are considered incremental costs to obtain a contract with a customer. These costs are capitalized in the period a customer contract is executed and are amortized as an expense consistent with the transfer of the goods or services to the customer. Capitalized costs are recorded in prepaid expenses and other current assets and other noncurrent assets in the condensed consolidated balance sheets. Applying the practical expedient, the Company recognizes the incremental costs of obtaining contracts as an expense when incurred if the amortization period of the assets is one year or less. As of September 30, 2023 and December 31, 2022, total capitalized costs were \$2.9 million and \$1.0 million, respectively. Amortization expense was \$0.2 million and zero for the three months ended September 30, 2023 and 2022, respectively, and \$0.5 million and zero for the nine months ended September 30, 2023 and 2022, respectively. Amortization is included in sales and marketing in the condensed consolidated statements of operations.

Stock-Based Compensation

The Company measures and records the expense related to stock-based awards based on the fair value of those awards as determined on the date of grant. The Company recognizes stock-based compensation expense over the requisite service period of the individual grant, generally equal to the vesting period and uses the straight-line method to recognize stock-based compensation. The Company uses the Black-Scholes-Merton ("Black-Scholes") option-pricing model to determine the estimated fair value for stock options. The Black-Scholes option-pricing model requires the use of subjective assumptions, which determine the fair value of stock options awards, including the option's expected term, the

price volatility of the underlying common stock, risk-free interest rates, and the expected dividend yield of the common stock. The assumptions used to determine the fair value of the stock options represent management's best estimates. These estimates involve inherent uncertainties and the application of management's judgment. The Company records forfeitures as they occur.

Stock-based compensation cost for restricted stock units and performance-based restricted stock units is measured based on the fair value of the Company's common stock on the grant date. The fair value of performance-based restricted stock units with a market condition is estimated on the date of grant using the Monte Carlo simulation model. The Monte Carlo simulation model requires the use of subjective assumptions, which determine the fair value of these awards, including price volatility, contractual term, discount rate, risk-free interest rates, and the expected dividend yield of the common stock. The assumptions used to determine the fair value of the restricted stock awards represent management's best estimates. These estimates involve inherent uncertainties and the application of management's judgment. For awards with a performance-based vesting condition, including those with a market condition, the Company records stock-based compensation cost if it is probable that the performance conditions will be achieved. Stock-based compensation cost will be recognized if the performance condition is satisfied, even if the market condition is not met and the award does not vest. At each reporting period, the Company reassesses the probability of the achievement of the performance conditions and any change in expense resulting from an adjustment in the estimated shares to be released is treated as a cumulative catch-up in the period of the adjustment.

The Company records stock-based compensation expense for incentive compensation liabilities based on estimated payments to employees for which the Company expects to settle the liability by granting restricted stock units. For these awards, stock-based compensation expense is accrued commencing at the service inception date, which generally precedes the grant date, through the end of the requisite service period.

The Company obtained third-party valuations to estimate the fair value of its common stock for awards granted prior to the Business Combination, for purposes of measuring stock-based compensation expense. The third-party valuations were prepared using methodologies, approaches, and assumptions consistent with the American Institute of Certified Public Accountants ("AICPA") Accounting & Valuation Guide, Valuation of Privately-Held-Company Equity Securities Issued as Compensation.

Concentrations of Credit Risk

Financial instruments that potentially subject the Company to concentrations of credit risk consist primarily of cash, cash equivalents, restricted cash, investments, and trade accounts receivable. The Company maintains the majority of its cash, cash equivalents, restricted cash and investments with three financial institutions. The Company's deposits routinely exceed amounts guaranteed by the Federal Deposit Insurance Corporation. While the Company has not experienced any losses in such accounts, the failure of Silicon Valley Bank ("SVB"), at which the Company held cash and cash equivalents in multiple accounts, exposed the Company to limited credit risk prior to the completion by the Federal Deposit Insurance Corporation of the resolution of SVB in a manner that fully protected all depositors.

The Company's accounts receivable are derived from customers primarily located in the U.S. The Company performs periodic evaluations of its customers' financial condition and generally does not require its customers to provide collateral or other security to support accounts receivable and maintains an allowance for credit losses. Credit losses historically have not been material.

Significant customers are those that represent more than 10% of the Company's total revenue. The Company's revenue was primarily from three significant customers for the three months ended September 30, 2023, and from two significant customers for the nine months ended September 30, 2023. The Company's revenue was primarily from three significant customers for each of the three and nine months ended September 30, 2022.

Earnings (Loss) Per Share

Basic earnings (loss) per share is computed by dividing net income (loss) by the weighted-average number of shares of common stock outstanding for the period. Diluted earnings per share is computed by dividing net income (loss) by the weighted average number of shares of common stock during the period, plus common stock equivalents, outstanding during the period. If the Company reports a net loss, the computation of diluted loss per share excludes the effect of dilutive common stock equivalents, as their effect would be antidilutive.

The following table sets forth the computation of basic and diluted loss per share attributable to common stockholders (in thousands, except share and per share data):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Numerator:				
Net loss attributable to common stockholders	\$ (44,811)	\$ (23,983)	\$ (115,867)	\$ (29,864)
Denominator:				
Weighted average shares used in computing net loss per share attributable to common stockholders—basic and diluted	203,390,383	198,301,240	201,656,916	197,255,965
Net loss per share attributable to common stockholders—basic and diluted	\$ (0.22)	\$ (0.12)	\$ (0.57)	\$ (0.15)

In periods with a reported net loss, the effect of anti-dilutive stock options, unvested restricted stock units, unvested common stock (including unvested restricted common stock) and warrants are excluded and diluted loss per share is equal to basic loss per share. The following is a summary of the weighted average common stock equivalents for the securities outstanding during the respective periods that have been excluded from the computation of diluted net loss per common share, as their effect would be anti-dilutive:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Common stock options outstanding	23,443,324	22,876,924	23,952,845	22,569,244
Warrants to purchase common stock	8,301,202	8,301,202	8,301,202	8,301,202
Public warrants	5,231,164	5,231,525	5,231,378	5,231,839
Unvested restricted stock units	15,749,472	5,805,000	13,009,874	3,224,741
Unvested common stock	591,771	1,093,136	717,112	1,221,453
Total	53,316,933	43,307,787	51,212,411	40,548,479

Recently Adopted Accounting Standards

In June 2016, the FASB issued ASU 2016-13, Financial Instruments—Credit Losses, along with various updates and improvements. The standard, including subsequently issued amendments, requires a financial asset measured at amortized cost basis, such as accounts receivable and certain other financial assets, to be presented at the net amount expected to be collected based on relevant information about past events, including historical experience, current conditions and reasonable and supportable forecasts that affect the collectability of the reported amount. The Company adopted this standard in the first quarter of 2023, and it did not have a material effect on the condensed consolidated financial statements and related disclosures.

Recently Issued Accounting Standards Not Yet Adopted

In August 2020, the FASB issued ASU 2020-06, Debt, Debt with Conversion and Other Options (Subtopic 470-20) and Derivatives and Hedging Contracts in Entity's Own Equity (Subtopic 815-40) Accounting for Convertible Instruments and Contracts in an Entity's Own Equity. The ASU simplifies accounting for convertible instruments by removing major separation models required under current U.S. GAAP. Consequently, more convertible debt instruments will be reported as a single liability instrument with no separate accounting for embedded conversion features. The ASU removes certain settlement conditions that are required for equity contracts to qualify for the derivative scope exception, which will permit more equity contracts to qualify for the exception. The ASU also simplifies the diluted net income per share calculation in certain areas. The Company will adopt this guidance retroactively effective January 1, 2023, in the Company's Annual Report on Form 10-K for the year ended December 31, 2023, as it will be designated a large accelerated filer on that date. The Company does not expect adoption of this guidance to have a material impact on its consolidated financial statements and related disclosures.

3. CASH, CASH EQUIVALENTS, RESTRICTED CASH AND INVESTMENTS

The following table summarizes the Company's unrealized gains and losses and estimated fair value of cash, cash equivalents, restricted cash and investments in available-for-sale securities recorded in the condensed consolidated balance sheets (in thousands):

	As of September 30, 2023				As of December 31, 2022			
	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Estimated Fair Value
Cash and money market funds	\$ 8,030	\$ —	\$ —	\$ 8,030	\$ 46,367	\$ —	\$ —	\$ 46,367
Commercial paper	40,030	—	(50)	39,980	130,141	—	(443)	129,698
Corporate notes and bonds	202,007	—	(3,652)	198,355	277,184	19	(5,993)	271,210
Municipal bonds	4,978	—	(105)	4,873	9,905	—	(273)	9,632
US government and agency	237,271	2	(990)	236,283	83,556	23	(688)	82,891
Total cash, cash equivalents, restricted cash and investments	\$ 492,316	\$ 2	\$ (4,797)	\$ 487,521	\$ 547,153	\$ 42	\$ (7,397)	\$ 539,798

Unrealized losses related to investments were primarily a result of interest rate fluctuations. The following table presents information about the Company's investments in available-for-sale securities with gross unrealized losses and the length of time that individual securities have been in a continuous unrealized loss position as of September 30, 2023 (in thousands).

	As of September 30, 2023					
	Less than 12 Months		12 Months or Longer		Total	
	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses	Fair Value	Gross Unrealized Losses
Commercial paper	\$ 39,980	\$ (50)	\$ —	\$ —	\$ 39,980	\$ (50)
Corporate notes and bonds	59,132	(544)	134,711	(3,108)	193,843	(3,652)
Municipal bonds	—	—	4,872	(105)	4,872	(105)
US government and agency	188,526	(692)	9,196	(298)	197,722	(990)
Total	\$ 287,638	\$ (1,286)	\$ 148,779	\$ (3,511)	\$ 436,417	\$ (4,797)

There were no securities in a gross unrealized loss position for greater than twelve months as of December 31, 2022.

The Company did not have any allowance for credit losses as of either September 30, 2023 or December 31, 2022. The Company neither intends to nor believes that it is more likely than not that it will be required to sell the investments in an unrealized loss position before the recovery of the associated amortized cost basis.

The estimated fair value of the Company's cash, cash equivalents, restricted cash and investments in available-for-sale securities as of September 30, 2023, aggregated by investment category and classified by contractual maturity date, is as follows (in thousands):

	1 Year or Less	Greater than 1 Year	Total
Cash and money market funds	\$ 5,614	\$ 2,416	\$ 8,030
Commercial paper	39,980	—	39,980
Corporate notes and bonds	133,242	65,113	198,355
Municipal bonds	4,873	—	4,873
US government and agency	200,281	36,002	236,283
Total	\$ 383,990	\$ 103,531	\$ 487,521

4. FAIR VALUE MEASUREMENTS

The Company's financial assets and liabilities subject to fair value measurements on a recurring basis and the level of inputs used for such measurements were as follows (in thousands):

	Fair Value Measured as of September 30, 2023			
	Level 1	Level 2	Level 3	Total
Assets				
Cash, cash equivalents and restricted cash:				
Cash and money market funds ⁽¹⁾	\$ 8,030	\$ —	\$ —	\$ 8,030
US government and agency	—	31,523	—	31,523
Total cash, cash equivalents and restricted cash	\$ 8,030	\$ 31,523	\$ —	\$ 39,553
Short-term investments:				
Commercial paper	—	39,980	—	39,980
Corporate notes and bonds	—	133,242	—	133,242
Municipal bonds	—	4,873	—	4,873
US government and agency	—	168,758	—	168,758
Total short-term investments	\$ —	\$ 346,853	\$ —	\$ 346,853
Long-term investments:				
Corporate notes and bonds	—	65,113	—	65,113
US government and agency	—	36,002	—	36,002
Total long-term investments	\$ —	\$ 101,115	\$ —	\$ 101,115
Total Assets	\$ 8,030	\$ 479,491	\$ —	\$ 487,521
Liabilities				
Public warrants	\$ 30,599	\$ —	\$ —	\$ 30,599

	Fair Value Measured as of December 31, 2022			
	Level 1	Level 2	Level 3	Total
Assets				
Cash, cash equivalents and restricted cash:				
Cash and money market funds ⁽¹⁾	\$ 46,367	\$ —	\$ —	\$ 46,367
Total cash, cash equivalents and restricted cash	\$ 46,367	\$ —	\$ —	\$ 46,367
Short-term investments:				
Commercial paper	—	129,698	—	129,698
Corporate notes and bonds	—	120,447	—	120,447
Municipal bonds	—	4,911	—	4,911
US government and agency	—	56,374	—	56,374
Total short-term investments	\$ —	\$ 311,430	\$ —	\$ 311,430
Long-term investments:				
Corporate notes and bonds	—	150,763	—	150,763
Municipal bonds	—	4,721	—	4,721
US government and agency	—	26,517	—	26,517
Total long-term investments	\$ —	\$ 182,001	\$ —	\$ 182,001
Total Assets	\$ 46,367	\$ 493,431	\$ —	\$ 539,798
Liabilities				
Public warrants	\$ 3,819	\$ —	\$ —	\$ 3,819

(1) Includes money market funds associated with the Company's overnight investment sweep account and cash collateralizing the Company's letter of credit and corporate credit cards.

Transfers to/from Levels 1, 2 and 3 are recognized at the beginning of the reporting period. There were no transfers between levels during the period. On September 30, 2023, the closing trading price of the public warrants was \$5.85 per warrant.

5. PROPERTY AND EQUIPMENT, NET

Property and equipment, net is composed of the following (in thousands):

	September 30, 2023	December 31, 2022
Computer equipment and acquired computer software	\$ 4,195	\$ 2,407
Machinery, equipment, furniture and fixtures	8,940	7,506
Leasehold improvements	7,327	1,132
Quantum computing systems	27,052	22,430
Gross property and equipment	47,514	33,475
Less: accumulated depreciation	(12,158)	(7,461)
Total property and equipment, net	\$ 35,356	\$ 26,014

Depreciation expense for the three months ended September 30, 2023 and 2022 was \$1.9 million and \$1.1 million, respectively. Depreciation expense for the nine months ended September 30, 2023 and 2022 was \$4.7 million and \$3.1 million, respectively.

6. AGREEMENTS WITH UNIVERSITY OF MARYLAND AND DUKE UNIVERSITY

Exclusive License Agreement

The Company entered into an exclusive license agreement (“License Agreement”) in July 2016 with the University of Maryland (“UMD”) and Duke University (“Duke”). The License Agreement grants to the Company an exclusive, perpetual license (“Initial Patents”) to certain patents, know-how and other intellectual property utilized in trapped-ion quantum computing systems. The license granted to the Company is exclusive for all patents (and non-exclusive for other types of intellectual property), subject to certain governmental rights and retained rights by UMD and Duke and other non-profit institutions to use and practice the Licensed Patents (as defined below) and technology for internal research and other non-profit purposes. In exchange for the Initial Patents, UMD and Duke received an aggregate of 142,886 shares of common stock after giving effect to the recapitalization.

On February 1, 2021, the Company and UMD executed two amendments to the License Agreement granting exclusive rights to license additional intellectual property in exchange for a total of 257,198 shares of common stock after giving effect to the recapitalization. Management evaluated the amendments and concluded that the arrangements qualify as equity-classified instruments and recorded an intangible asset and additional paid-in capital based on the fair value of the shares at the date the amendments were executed of \$1.6 million. The shares for each executed amendment were issued during the year ended December 31, 2021.

Exclusive Option Agreements

The Company also entered into an exclusive option agreement (the “Option Agreement”) with each of UMD and Duke in 2016 whereby on the anniversary of the effective date of the License Agreement for a period of 5 years, the Company has the right to exclusively license additional intellectual property developed by UMD and Duke (the “Additional Patents” and together with the Initial Patents, the “Licensed Patents”) by exercising an annual option and issuing shares of common stock each to Duke and UMD in consideration for the Additional Patents. The amount issued to UMD and Duke pursuant to the Option Agreement over the 5-year term was equal to an aggregate of 642,995 shares of common stock to each university after giving effect to the recapitalization. The Company may elect not to exercise the option if there was not a minimum number of intellectual property developed in a given year and then the Option Agreement would extend another year.

In December 2020, the Company amended its Option Agreement with Duke, and under this amendment, the Company issued 1,214,317 shares of common stock, after giving effect to the recapitalization, to Duke in consideration for research and development services through July 15, 2026. Under the terms of the amended Option Agreement, the issuance of shares is a nonrefundable upfront payment in exchange for research and development services by Duke whereby the Company will obtain rights to any potential future intellectual property developed during the term. As such, the fair value of the shares of common stock was recorded as a prepaid expense and is being amortized over the term of the arrangement as services are received. The Company recognized \$0.1 million of research and development expense related to the agreement with Duke during each of the three months ended September 30, 2023 and 2022, and \$0.4 million of research and development expense related to the agreement with Duke during each of the nine months ended September 30, 2023 and 2022.

The useful life of the Licensed Patents derived from the License Agreement and the Option Agreement is the remaining legal life at the time of acquisition. The value of the Licensed Patents is based on the fair value of the common stock given as consideration on the effective date of each agreement and exercise of option. The asset is amortized over the useful life of the Licensed Patents.

7. OTHER BALANCE SHEET ACCOUNTS

Accrued expenses are composed of the following (in thousands):

	September 30, 2023	December 31, 2022
Accrued salaries and other payroll liabilities	\$ 9,752	\$ 4,935
Accrued professional services	2,316	678
Accrued equipment and services liabilities for research and development	550	489
Accrued expenses—other	3,085	553
Total accrued expenses	\$ 15,703	\$ 6,655

8. COMMITMENTS AND CONTINGENCIES

Warranties and Indemnification

The Company's commercial services are typically warranted to perform in a manner consistent with general industry standards that are reasonably applicable and materially in accordance with the Company's documentation under normal use and circumstances.

The Company's arrangements generally include certain provisions for indemnifying customers against liabilities if its products or services infringe third-party intellectual property rights. To date, the Company has not incurred any material costs as a result of such obligations and has not accrued any liabilities related to such obligations in the accompanying condensed consolidated financial statements.

Stockholder Lawsuit

In May 2022, a securities class action complaint captioned Leacock v. IonQ, Inc. et al., Case No. 8:22-cv-01306, was filed by a stockholder of the Company in the United States District Court for the District of Maryland (the "Leacock Litigation") against the Company and certain of the Company's current officers. In June 2022, a securities class action complaint captioned Fisher v. IonQ, Inc., Case No. 8:22-cv-01306-DLB (the "Fisher Litigation") was filed by a stockholder against the Company and certain of the Company's current officers ("IonQ Defendants"). Both the Leacock Litigation and Fisher Litigation, which have been consolidated into a single action, allege violations of Section 10(b) of the Exchange Act, and Rule 10b-5 promulgated thereunder, and Section 20(a) of the Exchange Act and seek damages. In September 2022, the Court appointed lead plaintiffs and counsel for lead plaintiffs, and ordered lead plaintiffs to file a consolidated amended complaint. The consolidated amended complaint was filed on November 22, 2022. As part of the consolidated amended complaint, certain members of the Company's board of directors as well as other dMY-related defendants ("Additional Defendants") have been added as defendants to the case. On February 7, 2023, the IonQ Defendants and the Additional Defendants each filed a motion to dismiss the consolidated amended complaint. On March 23, 2023, lead plaintiffs filed their omnibus opposition to the motions to dismiss. On April 26, 2023, the IonQ Defendants and the Additional Defendants each filed a reply in support of the motions to dismiss. On September 29, 2023, the District Court of Maryland issued an order dismissing plaintiffs' claims against the IonQ Defendants and the Additional Defendants with prejudice and directed the clerk to close the case. On October 26, 2023, the plaintiffs filed a motion for post-judgment relief, seeking to amend their consolidated amended complaint. IonQ's response to the plaintiffs' motion will be due on November 9, 2023 and the plaintiffs reply will be due on November 27, 2023. Both the IonQ Defendants and Additional Defendants believe that the allegations in the complaints are without merit and intend to defend the matters vigorously. Given the uncertainty of litigation, the preliminary stage of the case, and the legal standards that must be met for, among other things, class certification and success on the merits, the Company cannot reasonably estimate the possible loss or range of loss, if any, that may result from the associated suit.

Glatt Litigation

On January 12, 2021, dMY Technology Group, Inc. II, dMY Sponsor II, LLC, dMY, and dMY Sponsor III, LLC ("Sponsor") accepted service of a lawsuit where they were named as counterclaim defendants in an underlying action by and between GTY Technology Holdings, Inc. ("GTY"), dMY Technology Holdings Inc., dMY Sponsor, LLC, dMY Sponsor II, LLC, dMY Technology Group Inc. II, dMY and Sponsor (collectively "dMY Defendants") and Carter Glatt ("Glatt") and Captains Neck Holdings LLC ("Captains Neck"), an entity of which Mr. Glatt is a member. The underlying lawsuit, filed by dMY Technology Group, Inc. and dMY Sponsor, LLC, seeks a declaratory judgment that Glatt and Captains Neck are not entitled to membership units of dMY Sponsor LLC, which was formed by Harry L. You, the co-founder and former President and Chief Financial Officer of GTY when Glatt was still working at GTY. The underlying lawsuit contains claims arising from Glatt's termination of employment from GTY, including theft and misappropriation of confidential GTY information, breach of contract, breach of the duties of loyalty and fiduciary duty and conversion. Glatt responded to the underlying lawsuit by adding members of the Sponsor and officers of dMY as additional counterclaim defendants (collectively with the dMY Defendants Glatt and Captains Neck, the "Counterclaim Defendants") and adding Dune Acquisition Holdings LLC, a newly formed special purpose acquisition company, as a counterclaimant and asserting claims for breach of contract, fraudulent misrepresentation, negligent misrepresentation, tortious interference with business relations, quantum meruit and unjust enrichment. dMY and the Company have never employed Glatt nor maintained any business agreements with him. The Counterclaim

Defendants have denied the claims against them and have filed a motion to dismiss the suit. Although the outcome of this matter cannot be predicted with certainty and the impact of the final resolution of this matter on the Company's results of operations in a particular subsequent reporting period is not known, management does not believe that the resolution of this matter will have a material adverse effect on the Company's future consolidated financial position, future results of operations or cash flows.

9. WARRANT TRANSACTION AGREEMENT

In November 2019, contemporaneously with a revenue arrangement, the Company entered into a contract, pursuant to which the Company agreed to issue to a customer warrants to acquire shares of Legacy IonQ Series B-1 preferred stock (the "Warrant Shares"), subject to certain vesting events. Upon closing of the Business Combination, these warrants exercisable for Legacy IonQ Series B-1 preferred stock were assumed by the Company and converted into a warrant to purchase shares of common stock. Except as specifically provided in the Merger Agreement, the Warrant Shares will have the same terms and be subject to the same conditions (including applicable vesting conditions) as set forth in the Legacy IonQ warrant agreement. As of September 30, 2023, the contract allows for the customer to acquire up to 8,301,202 shares of common stock in the Company.

As the Warrant Shares were issued in connection with an existing commercial agreement with a customer, the value of the Warrant Shares was determined to be consideration payable to the customer and consequently treated as a reduction to revenue recognized under the corresponding revenue arrangement.

Approximately 6.5% of the Warrant Shares vested and became immediately exercisable in August 2020. The fair value of the vested Warrant Shares was amortized over time as the related customer revenue was earned and was fully amortized as of December 31, 2021. The remaining Warrant Shares will vest and become exercisable upon satisfaction of certain milestones based on revenue generated under the commercial agreement with the customer, to the extent certain prepayments are made by the customer. The exercise price for the Warrant Shares is \$1.38 per share and the warrant is exercisable through November 2029. The fair value of the Warrant Shares at the date of issuance was determined to be \$8.7 million.

10. WARRANT LIABILITIES

The Company assumed 7,500,000 public warrants on September 30, 2021 as part of the Business Combination. As of September 30, 2023, there were 5,230,565 public warrants to purchase common stock outstanding. Each warrant entitles the registered holder to purchase one share of common stock at a price of \$11.50 per share.

Public warrants

The public warrants may be exercised on the later of (a) 30 days after the completion of a Business Combination or (b) 12 months from the closing of the Initial Public Offering of dMY; provided in each case that the Company has an effective registration statement under the Securities Act covering the shares of common stock issuable upon exercise of the public warrants and a current prospectus relating to them is available (or the Company permits holders to exercise their public warrants on a cashless basis and such cashless exercise is exempt from registration under the Securities Act). The public warrants became exercisable on November 17, 2021.

Redemption of warrants when the price per share of common stock equals or exceeds \$18.00:

Once the warrants become exercisable, the Company may redeem the outstanding warrants for cash:

- in whole and not in part;
- at a price of \$0.01 per warrant;
- upon a minimum of 30 days' prior written notice of redemption; and
- if, and only if, the closing price of common stock equals or exceeds \$18.00 per share (as adjusted) for any 20 trading days within a 30-trading day period ending on the third trading day prior to the date on which the Company sends the notice of redemption to the warrant holders.

Redemption of warrants for when the price per share of common stock equals or exceeds \$10.00:

Once the warrants become exercisable, the Company may redeem the outstanding warrants:

- in whole and not in part;

- at \$0.10 per warrant upon a minimum of 30 days' prior written notice of redemption provided that holders will be able to exercise their warrants on a cashless basis prior to redemption and receive that number of shares determined by reference to an agreed table based on the redemption date and the fair market value (as defined within the warrant agreement) of the common stock except as otherwise described within the warrant agreement; and upon a minimum of 30 days' prior written notice of redemption; and
- if, and only if, the closing price of common stock equals or exceeds \$10.00 per public share (as adjusted) for any 20 trading days within the 30-trading day period ending three trading days before the Company sends notice of redemption to the warrant holders.

No public warrants had been redeemed by the Company as of September 30, 2023.

11. STOCK-BASED COMPENSATION

Equity Incentive Plans

The Company has a 2015 Equity Incentive Plan (the "2015 Plan"), which provided for the grant of share-based compensation to certain officers, directors, employees, consultants, and advisors. Upon the closing of the Business Combination, no further awards were made pursuant to the 2015 Plan and all outstanding Legacy IonQ stock options under the 2015 Plan were assumed by the Company. Each Legacy IonQ stock option issued and outstanding immediately prior to the Business Combination was converted into an option to purchase shares of common stock of the Company equal to the product of (a) the number of shares of Legacy IonQ common stock subject to such Legacy IonQ stock option agreement immediately prior to the Business Combination and (b) the exchange ratio at an exercise price equal to the (i) the exercise price per share of such Legacy IonQ stock option divided by (ii) the exchange ratio. Such stock options will continue to be governed by the terms of the 2015 Plan and the stock option agreements thereunder, until such outstanding options are exercised or until they terminate or expire by their terms. For awards granted under the 2015 Plan, vesting generally occurs over four to five years from the date of grant.

In August 2021, the Company's board of directors adopted the 2021 Equity Incentive Plan (the "2021 Plan"), which was subsequently approved by the Company's stockholders in September 2021, and became effective upon the closing of the Business Combination. The 2021 Plan provides for the grant of stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards ("RSU"), performance awards and other forms of awards to employees, directors, and consultants. The number of shares of the Company's common stock reserved for issuance under the 2021 Plan automatically increases on January 1 of each year, beginning on January 1, 2022, and continuing through and including January 1, 2031, by 5% of the Fully Diluted Common Stock (as defined in the 2021 Plan) outstanding on December 31 of the preceding year, or a lesser number of shares determined by the Company's board of directors prior to such increase. As of January 1, 2023, the number of shares reserved for issuance under the 2021 Plan increased by 13,587,593. For awards granted under the 2021 Plan, vesting terms range from one to four years from the date of grant. As of September 30, 2023, the Company had 13,657,614 shares available for grant under the 2021 Plan.

Under both equity incentive plans, all options granted have a contractual term of 10 years.

Stock Options

The Company estimates the fair value of stock options on the date of grant using the Black-Scholes option-pricing model. The Black-Scholes option-pricing model requires estimates of highly subjective assumptions, which affect the fair value of each stock option.

Expected Volatility—As the Company was privately held until 2021 and there has been limited history of a public market for its common stock prior to closing the Business Combination, the expected volatility is based on the average historical stock price volatility of comparable publicly-traded companies in its industry peer group, financial, and market capitalization data.

Expected Term—The expected term of the Company's options represents the period that the stock-based awards are expected to be outstanding.

The Company has estimated the expected term of its employee awards using the SAB Topic 14 Simplified Method allowed by the FASB and SEC for calculating expected term, as it has limited historical exercise data to provide a reasonable basis upon which to otherwise estimate expected term. Certain of the Company's options began vesting prior to the grant date, in which case the Company uses the remaining vesting term at the grant date in the expected term calculation.

Risk-Free Interest Rate—The Company estimates its risk-free interest rate by using the yield on actively traded on-inflation-indexed U.S. treasury securities with contract maturities equal to the expected term.

Dividend Yield—The Company has not declared or paid dividends to date and does not anticipate declaring dividends. As such, the dividend yield has been estimated to be zero.

Fair Value of Underlying Common Stock—For options granted under the 2015 Plan, because the Company’s common stock was not yet publicly traded on the date of grant, the Company estimated the fair value of common stock prior to closing the Business Combination. The board of directors considered numerous objective and subjective factors to determine the fair value of the Company’s common stock at each meeting in which awards were approved. The factors considered included, but were not limited to: (i) the results of contemporaneous independent third-party valuations of the Company’s common stock; (ii) the prices, rights, preferences, and privileges of Legacy IonQ’s previously Convertible Redeemable Preferred Stock relative to those of its common stock; (iii) the lack of marketability of the Company’s common stock; (iv) actual operating and financial results; (v) current business conditions and projections; (vi) the likelihood of achieving a liquidity event, such as an initial public offering or sale of the Company, given prevailing market conditions; and (vii) precedent transactions involving the Company’s shares. For options granted under the 2021 Plan, the Company utilizes the closing stock price on the date of grant as the fair value of the common stock underlying such options.

The assumptions used to estimate the fair value of stock options granted during the three and nine months ended September 30, 2023 and 2022, are as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Risk-free interest rate	—%	3.00%	4.09%	2.53%
Expected term (in years)	—	6.06	5.50	5.80
Expected volatility	—%	73.83%	80.63%	75.96%
Dividend yield	—%	—%	—%	—%

The stock option activity is summarized in the following table:

	Number of Option Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (in millions)
Outstanding as of December 31, 2022	24,716,270	\$ 2.19	7.32	\$ 49.69
Granted	104,020	13.53		
Exercised	(1,358,096)	0.57		
Cancelled/ Forfeited	(565,360)	5.11		
Outstanding as of September 30, 2023	22,896,834	\$ 2.27	6.67	\$ 288.73
Exercisable as of September 30, 2023	14,028,424	\$ 1.37	6.07	\$ 189.59
Exercisable and expected to vest as of September 30, 2023	22,896,834	\$ 2.27	6.67	\$ 288.73

The following table summarizes additional information on stock option grants, vesting and exercises (in millions, except per share amounts):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Total intrinsic value of options exercised	\$ 8.4	\$ 1.5	\$ 14.5	\$ 9.4
Aggregate grant-date fair value of options vested	\$ 3.5	\$ 2.8	\$ 11.6	\$ 7.3
Weighted-average grant date fair value per share for options granted	\$ —	\$ 5.05	\$ 9.38	\$ 6.26

Early Exercised Stock Options

As of September 30, 2023 and December 31, 2022, there were 529,105 and 905,128 shares, respectively, subject to repurchase related to stock options early exercised and unvested. As of September 30, 2023 and December 31, 2022, the Company recorded a liability related to these shares subject to repurchase in the amount of \$1.1 million and \$2.0 million, respectively, in its condensed consolidated balance sheets.

Restricted Stock Units

The RSU activity is summarized in the following table:

	Number of RSUs	Weighted Average Grant Date Fair Value	Weighted Average Remaining Contractual Term (Years)	Aggregate Fair Value (in millions)
Outstanding as of December 31, 2022	9,320,045	\$ 7.02	3.21	\$ 65.38
Granted	10,251,205	9.88		
Vested	(3,229,439)	8.21		
Forfeited	(690,524)	6.90		
Outstanding as of September 30, 2023	15,651,287	\$ 8.65	3.14	\$ 135.40
Expected to vest after September 30, 2023	15,610,287	\$ 8.64	3.15	\$ 134.87

During the three and nine months ended September 30, 2023, the Company released 20,334 and 381,204 RSUs, respectively, related to the settlement of an accrued bonus liability. During the three and nine months ended September 30, 2022, the Company released zero and 81,134 RSUs, respectively, related to the settlement of an accrued bonus liability.

Performance-Based Restricted Stock Units

During the three and nine months ended September 30, 2023, the Company granted performance-based restricted stock unit awards ("PSU") to certain officers and employees, which vest over approximately four years. The target number of PSUs granted was 4,641,564. The number of shares that can be earned will range from 0% to 300% of the target number of shares, based on the Company's achievement of certain financial and technical goals, as well as a stock price hurdle requirement for a portion of the awards. In the event that the stock price hurdle is not met at the time the PSUs vest, the maximum PSU opportunity shall be limited to target (100%) performance. The number of PSUs outstanding and for which compensation cost has been recognized is based on the number of awards that we believe are probable of vesting as of September 30, 2023. No PSUs were granted during the three and nine months ended September 30, 2022.

For the portion of the PSUs subject to the stock price hurdle, the fair value was determined using a Monte Carlo simulation model. The assumptions used to estimate the fair value of PSUs subject to the stock price hurdle granted during the three and nine months ended September 30, 2023 and 2022, are as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Risk-free interest rate	4.59 %	— %	4.59 %	— %
Contractual term (in years)	3.37	—	3.37	—
Expected volatility	80.00 %	— %	80.00 %	— %
Dividend yield	— %	— %	— %	— %

The PSU activity is summarized in the following table:

	Number of PSUs	Weighted Average Grant Date Fair Value	Weighted Average Remaining Contractual Term (Years)	Aggregate Fair Value (in millions)
Outstanding as of December 31, 2022	—	\$ —	—	\$ —
Granted	4,641,564	15.74		
Vested	—	—		
Forfeited	—	—		
Outstanding as of September 30, 2023	4,641,564	\$ 15.74	3.25	\$ 73.05
Expected to vest after September 30, 2023	4,641,564	\$ 15.74	3.25	\$ 73.05

Stock-Based Compensation Expense

Total stock-based compensation expense for stock option awards, RSUs, and PSUs, which are included in the condensed consolidated financial statements, is as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Cost of revenue	\$ 680	\$ 239	\$ 1,462	\$ 590
Research and development	9,534	4,932	21,168	8,998
Sales and marketing	2,000	344	3,523	920
General and administrative	4,763	4,490	12,396	12,053
Stock-based compensation, net of amounts capitalized	\$ 16,977	\$ 10,005	\$ 38,549	\$ 22,561
Capitalized stock-based compensation—Intangibles and fixed assets	1,116	488	2,711	1,135
Total stock-based compensation	\$ 18,093	\$ 10,493	\$ 41,260	\$ 23,696

Unrecognized Stock-Based Compensation

A summary of the Company's remaining unrecognized compensation expense and the weighted-average remaining amortization period as of September 30, 2023, related to its non-vested stock option awards, RSUs, and PSUs is presented below (in millions, except time period amounts):

	Unrecognized Expense	Weighted- Average Amortization Period (Years)
Restricted stock units	\$ 126.6	1.7
Performance-based restricted stock units	70.5	1.7
Stock options	32.4	1.3

Employee Stock Purchase Plan

In August 2021, the Company's board of directors adopted the Employee Stock Purchase Plan (the "ESPP"), which was subsequently approved by the Company's stockholders in September 2021, and became effective upon the closing of the Business Combination. The ESPP is intended to qualify as an "employee stock purchase plan" within the meaning of Section 423 of the U.S. Internal Revenue Code of 1986, as amended (the "Code"). The number of shares of common stock initially reserved for issuance under the ESPP was 5,354,000 shares. The ESPP provides for an annual increase on January 1 of each year, beginning on January 1, 2022, and continuing through and including January 1, 2031, equal to the lesser of (i) 1% of the fully diluted shares of common stock outstanding on the last day of the prior fiscal year, (ii) 10,708,000 shares, or (iii) a lesser number of shares determined by the Company's board of directors prior to such increase. The board of directors elected not to approve the annual increase of ESPP shares on January 1, 2023.

Under the terms of the ESPP, eligible employees can elect to acquire shares of the Company's common stock through periodic payroll deductions during a series of offering periods. Purchases under the ESPP are affected on the last business day of each offering period at a 15% discount to the lower of closing price on that day or the closing price on the first day of the offering period. As of September 30, 2023, no shares of common stock had been issued under the ESPP and no offering period had been set by the board of directors.

12. INCOME TAXES

Income tax expense was less than \$0.1 million for the three and nine months ended September 30, 2023, due to the Company's international operations. Income tax expense was zero for the three and nine months ended September 30, 2022. The effective tax rate for each period differs from the statutory rate primarily as a result of not recognizing a deferred tax asset for losses due to having a full valuation allowance against deferred tax assets.

The realization of tax benefits of deferred tax assets is dependent upon future levels of taxable income, of an appropriate character, in the periods the items are expected to be deductible or taxable. Based on the available objective evidence, the Company does not believe it is more likely than not that the net deferred tax assets will be realizable. Accordingly, the Company has provided a full valuation allowance against the net deferred tax assets as of September 30, 2023, and December 31, 2022. The Company intends to maintain the remaining valuation allowance until sufficient positive evidence exists to support a reversal of, or decrease in, the valuation allowance.

13. LEASES

The Company has operating leases for its various facilities, including its two primary locations in College Park, Maryland, and Bothell, Washington. The College Park, Maryland facility is used for research and development and corporate functions and is leased from UMD. Refer to Note 14 for further information. The Bothell, Washington facility is used for manufacturing, research and development, and general office space. Both the College Park, Maryland, and Bothell, Washington, leases expire in 2030. As of September 30, 2023 and December 31, 2022, the weighted-average remaining lease term was 6.7 years and 7.9 years, respectively, and the weighted-average discount rate was 9.8% and 11.9%, respectively.

The Bothell, Washington facility lease includes a landlord-provided tenant improvement allowance to offset a portion of the costs of the construction of leasehold improvements. The Company determined that the leasehold improvements will be Company-owned, and as such, reflected the lease incentive as a reduction of lease payments used to measure the operating lease liability and ROU asset as of the lease commencement date.

The components of lease cost were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Operating lease cost ⁽¹⁾				
Fixed lease cost	\$ 365	\$ 190	\$ 1,085	\$ 572
Short-term cost	35	18	117	48
Total operating lease cost	\$ 400	\$ 208	\$ 1,202	\$ 620

(1) The lease costs are reflected in the condensed consolidated statements of operations as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Cost of revenue	\$ 53	\$ 12	\$ 85	\$ 40
Research and development	129	153	462	458
Sales and marketing	22	9	51	26
General and administrative	196	34	604	96
Total operating lease cost	\$ 400	\$ 208	\$ 1,202	\$ 620

Supplemental cash flow and other information related to operating leases was as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Cash payments (receipts) included in the measurement of operating lease liabilities, net	\$ (616)	\$ 161	\$ (284)	\$ 482

As of September 30, 2023, maturities of operating lease liabilities are as follows (in thousands):

	Amount
Year Ending December 31,	
2023	\$ 244
2024	1,882
2025	2,361
2026	2,414
2027	2,449
Thereafter	6,385
Total lease payments	\$ 15,735
Less: imputed interest	(4,439)
Less: lease incentives	(4,101)
Present value of operating lease liabilities	\$ 7,195

14. RELATED PARTY TRANSACTIONS

Transactions with UMD and Duke

As described in Note 6, the Company entered into a License Agreement and Option Agreement with UMD and Duke whereby the Company, in the normal course of business, has licensed certain intellectual property and, in the case of the amendments to the Option Agreements, has purchased research and development services. The Company considers these agreements to be related party transactions because the Company's Co-founder and Chief Technology Officer serves as a professor at Duke and the Company's Co-founder and Chief Scientist served as a professor at UMD. During 2021, the Company's Chief Scientist moved to Duke and each, in their role as professors at Duke, are leading the research subject to the License Agreement and Option Agreement with Duke as of September 30, 2023.

In addition, the Company has an operating lease for office space with UMD, which expires in 2030. Future minimum lease payments as of September 30, 2023 are \$5.8 million. The lease costs and cash flow related to the operating lease were as follows (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Fixed lease cost	\$ 191	\$ 190	\$ 572	\$ 572
Lease payments	\$ 166	\$ 161	\$ 498	\$ 482

A summary of the weighted-average remaining lease term and weighted-average discount rate is presented below:

	September 30, 2023	December 31, 2022
Weighted-average remaining lease term (in years)	7.2	7.9
Weighted-average discount rate	11.9 %	11.9 %

In September 2021, the Company entered into a contract with UMD to provide certain quantum computing services and facility access (the "UMD Quantum Agreement") related to the National Quantum Lab at UMD in exchange for payments totaling \$14.0 million over three years. Over the term of the contract, the Company estimates that it will make payments to UMD of approximately \$1.4 million, including a contribution of \$1.0 million to establish the IonQ Endowed Professorship in the College of Computer, Mathematical and Natural Sciences at UMD. The pledge and other estimated payments to UMD will not be an exchange for distinct goods or services under the provisions of ASC 606 and therefore are considered a reduction of the transaction price for the UMD Quantum Agreement. The transaction price is currently estimated at \$12.6 million, reflecting this reduction.

In July 2022, the Company entered into an agreement to provide customized quantum computing hardware to UMD for a transaction price of \$0.7 million.

The Company's results from transactions with related parties, as reflected in the condensed consolidated statements of operations are detailed below. Except as noted below, all transactions in the table below relate to the Company's arrangements with UMD (in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
Revenue	\$ 1,296	\$ 1,014	\$ 3,308	\$ 3,008
Cost of revenue	51	13	83	39
Research and development ⁽¹⁾	243	274	789	814
Sales and marketing ⁽²⁾	12	30	43	99
General and administrative	14	29	88	87

- (1) Included in research and development are expenses attributable to Duke of \$0.1 million for each of the three months ended September 30, 2023 and 2022, and \$0.4 million for each of the nine months ended September 30, 2023 and 2022.
- (2) Included in sales and marketing are expenses attributable to Duke of zero for each of the three months ended September 30, 2023 and 2022, and less than \$0.1 million and zero for the nine months ended September 30, 2023 and 2022, respectively.

The Company has the following balances related to transactions with related parties, as reflected in the condensed consolidated balance sheets. Except as noted below, all transactions in the table below relate to the Company's arrangements with UMD (in thousands):

	September 30, 2023	December 31, 2022
Assets		
Prepaid expenses and other current assets (\$520 and \$520 attributable to Duke)	\$ 520	\$ 529
Operating lease right-of-use asset	3,529	3,753
Other noncurrent assets (\$935 and \$1,325 attributable to Duke)	935	1,325
Liabilities		
Accounts payable (\$7 and zero attributable to Duke)	\$ 63	\$ 29
Current operating lease liabilities	647	591
Unearned revenue	1,957	3,514
Non-current operating lease liabilities	3,255	3,459

15. GEOGRAPHIC INFORMATION

Revenue generated for customers located in the United States was approximately 82% and 78% of revenue for the three months ended September 30, 2023 and 2022, respectively, and 85% and 83% of revenue for the nine months ended September 30, 2023 and 2022, respectively.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations.

This Quarterly Report on Form 10-Q contains statements that may constitute "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"), that involve substantial risks and uncertainties. All statements contained in this Quarterly Report on Form 10-Q other than statements of historical fact, including statements regarding our future results of operations and financial position, our business strategy and plans, and our objectives for future operations, are forward-looking statements. The words "believes," "expects," "intends," "estimates," "projects," "anticipates," "will," "plan," "may," "should," or similar language are intended to identify forward-looking statements.

It is routine for our internal projections and expectations to change throughout the year, and any forward-looking statements based upon these projections or expectations may change prior to the end of the next quarter or year. Readers of this Quarterly Report on Form 10-Q are cautioned not to place undue reliance on any such forward-looking statements. As a result of a number of known and unknown risks and uncertainties, our actual results or performance may be materially different from those expressed or implied by these forward-looking statements. Risks and uncertainties are identified under "Risk Factors" in Part II, Item 1A herein and in our other filings with the Securities and Exchange Commission (the "SEC"). All forward-looking statements included herein are made only as of the date hereof. Unless otherwise required by law, we do not undertake, and specifically disclaim, any obligation to update any forward-looking statement, whether as a result of new information, future events, or otherwise after the date of such statement.

You should read the following discussion and analysis of our financial condition and results of operations together with our unaudited condensed consolidated financial statements and related notes included elsewhere in this Quarterly Report on Form 10-Q, and our audited consolidated financial statements and related notes for the year ended December 31, 2022, filed with the SEC on March 30, 2023. Unless the context otherwise requires, the terms "IonQ," "Legacy IonQ" "we," "us," "our" and similar terms refer to IonQ Quantum, Inc. prior to the consummation of the Business Combination and IonQ, Inc. and its wholly owned subsidiaries after the consummation of the Business Combination. References to "dMY" refer to the predecessor company prior to the consummation of the Business Combination.

Overview

We are developing quantum computers designed to solve some of the world's most complex problems, and transform business, society and the planet for the better. We believe that our proprietary technology, our architecture, and the technology exclusively available to us through license agreements will offer us advantages both in terms of research and development, as well as the commercial value of our intended product offerings.

Today, we sell access to several quantum computers of various qubit capacities and are in the process of researching and developing technologies for quantum computers with increasing computational capabilities. We currently make access to our quantum computers available via three major cloud platforms, Amazon Web Services' ("AWS") Amazon Braket, Microsoft's Azure Quantum and Google's Cloud Marketplace, and also to select customers via our own cloud service. This cloud-based approach enables the broad availability of quantum-computing-as-a-service ("QCaaS").

We supplement our QCaaS offering with professional services focused on assisting our customers in applying quantum computing to their businesses. We also expect to sell full quantum computing systems to customers, either over the cloud or for local access.

We are still in the early stages of commercial growth. Since our inception we have incurred significant operating losses. Our ability to generate revenue sufficient to achieve profitability will depend heavily on the successful development and further commercialization of our quantum computing systems. Our net losses were \$115.9 million and \$29.9 million for the nine months ended September 30, 2023 and 2022, respectively. As of September 30, 2023, we had an accumulated deficit of \$310.2 million. We expect to continue to incur significant losses for the foreseeable future as we prioritize reaching the technical milestones necessary to achieve an increasingly higher number of stable qubits and higher levels of fidelity than presently exists—prerequisites for quantum computing to reach broad quantum advantage.

Business and Technical Highlights

- We announced a new \$25.5 million deal with existing customer US Air Force Research Lab to deploy two barium-based trapped ion quantum computing systems for quantum networking research and application development.
- We unveiled two future enterprise-grade quantum computers: IonQ Forte Enterprise, a #AQ 35 quantum computer, and IonQ Tempo, a #AQ 64 quantum computer expected to deliver quantum advantage for certain applications. Both systems will feature modular rack-mounted form factors designed to fit seamlessly into customers' data centers.
- We were awarded an extension to our existing contract with ZapataAI and the US Defense Advanced Research Projects Agency (DARPA), to help establish the next generation of benchmarking for quantum computers.
- We were honored to rank 32nd in the 2023 Deloitte Technology Fast 500™ List of the Fastest-Growing Companies in North America, recognizing the significant business growth of IonQ and the broader quantum industry in recent years.
- We announced at our September Analyst Day that we now believe we will be able to reach #AQ 64 and commercial advantage using error mitigation—the same technique we are already employing today—rather than needing to implement full error correction. Error mitigation requires fewer qubits than error correction, and makes us even more confident in our ability to reach #AQ 64 in the near-term.
- We achieved #AQ 29 on Next Generation Barium Qubits to Deliver Industry Leading Performance, marking a key milestone in our journey towards developing scalable and reliable systems capable of commercial quantum advantage.
- We intend to achieve an #AQ 64 system by the end of 2025. We believe that in reaching this #AQ milestone, our systems will deliver quantum advantage for certain use cases and classical computers will no longer be able to fully simulate an IonQ system.

Impact of the Macroeconomic Climate on Our Business

The recent trends towards rising inflation may materially adversely affect our business and corresponding financial position and cash flows. Inflationary factors, interest rates and overhead costs may adversely affect our operating results. High interest and inflation rates also present a recent challenge impacting the U.S. economy and could make it more difficult for us to obtain traditional financing on acceptable terms, if at all, in the future. Although we do not believe that inflation has had a material impact on our financial position or results of operations to date, we may experience increases in the near future (especially if inflation rates remain high or continue to rise) on our operating costs, including our labor, due to supply chain constraints, consequences associated with bank failures, the Russia-Ukraine war and the Israel-Hamas war, and employee availability and wage increases, which may result in additional stress on our working capital resources.

The Merger Agreement

On March 7, 2021, Legacy IonQ, dMY and Ion Trap Acquisition Inc. (the “Merger Sub”) entered into an Agreement and Plan of Merger (the “Merger Agreement”). Pursuant to the Merger Agreement, at the closing, the Merger Sub was merged with and into Legacy IonQ, with Legacy IonQ continuing as the surviving corporation following the merger, being a wholly owned subsidiary of dMY and the separate corporate existence of the Merger Sub ceased (the “Business Combination”). Commensurate with the Business Combination, dMY changed its name to IonQ, Inc. and Legacy IonQ changed its name to IonQ Quantum, Inc. IonQ became the successor registrant with the SEC, meaning that Legacy IonQ's financial statements for previous periods have been disclosed in the registrant's periodic reports filed with the SEC.

Key Components of Results of Operations

Revenue

We have generated limited revenues since our inception. We derive revenue from providing access to QCaaS, consulting services related to co-developing algorithms on our quantum computing systems, and from contracts associated with the design, development, construction and sale of specialized quantum computing systems together with related services. In arrangements with the cloud service providers, the cloud service provider is considered the customer and we do not have any contractual relationships with the cloud service providers' end users.

We have determined that our QCaaS contracts represent a combined, stand-ready performance obligation to provide access to our quantum computing systems together with related maintenance and support. The transaction price generally includes a variable fee based on usage of our quantum computing systems and may include a fixed fee for a minimum volume of usage to be made available over a defined period of access. Fixed fee arrangements may also include a variable component whereby customers pay an amount for usage over contractual minimums contained in the contracts. We have determined that contracts that contain consulting services related to co-developing quantum computing algorithms and the ability to use our quantum computing systems to run such algorithms represent a combined performance obligation that is satisfied over-time with revenue recognized based on the efforts incurred to date relative to the total expected effort.

Certain of our contracts contain multiple performance obligations, most commonly in contracts for the sale of specialized quantum computing systems together with related maintenance and support. Such contracts may also include access to our QCaaS. A contract's transaction price is allocated to each distinct performance obligation and recognized as revenue when or as the performance obligation is satisfied. When there are multiple performance obligations in a contract, we allocate the transaction price to each performance obligation based on its standalone selling price when available. We determine standalone selling price based on the observable price of a product or service when we sell the products or services separately in similar circumstances and to similar customers. When the standalone selling price is not known, due to it being either highly variable or uncertain, we allocate the transaction price using the residual approach.

For contracts with a fixed transaction price, the fixed fee is recognized on a straight-line basis over the access period or associated measure of progress for our consulting services contracts. For contracts without fixed fees, variable usage fees are billed and recognized during the period of such usage. Performance obligations are satisfied over-time if the customer receives the benefits as we perform the work, if the customer controls the asset as it is being produced (continuous transfer of control), or if the product being produced for the customer has no alternative use and we have a contractual right to payment for performance to date. Revenue is recognized on performance obligations satisfied over time based on the efforts incurred to date relative to the total expected effort.

We are currently focused on marketing our QCaaS and consulting services and have entered into, and are continuing to enter into, new contracts with customers. We have also engaged with certain prospects who are interested in purchasing entire quantum computers, either over the cloud or for local access.

Operating Costs and Expenses

Cost of revenue

Cost of revenue primarily consists of expenses related to delivering our services, including personnel-related expenses, allocated facility and other costs for customer facing functions, and costs associated with maintaining our in-service quantum computing systems to ensure proper calibration as well as costs incurred for maintaining the cloud on which the QCaaS resides. Cost of revenue also includes hardware costs for construction of specialized quantum computing systems. Personnel-related expenses include salaries, benefits, and stock-based compensation. Cost of revenue excludes depreciation and amortization related to our quantum computing systems and related software.

Research and development

Research and development expenses consist of personnel-related expenses, including salaries, benefits and stock-based compensation, and allocated facility and other costs for our research and development functions. Unlike a standard computer, design and development efforts continue throughout the useful life of our quantum computing systems to ensure proper calibration and optimal functionality. Research and development expenses also include purchased hardware and software costs related to quantum computing systems constructed for research purposes that are not probable of providing future economic benefit and have no alternate future use as well as costs associated with third-party research and development arrangements.

Sales and marketing

Sales and marketing expenses consist of personnel-related expenses, including salaries, commissions, benefits and stock-based compensation, costs for direct advertising, marketing and promotional expenditures and allocated facility and other costs for our sales and marketing functions. We expect to continue to make the necessary sales and marketing investments to enable us to increase our market penetration and expand our customer base.

General and administrative

General and administrative expenses consist of personnel-related expenses, including salaries, benefits and stock-based compensation, and allocated facility and other costs for our corporate, executive, finance, and other administrative functions. General and administrative expenses also include expenses for outside professional services, including legal, auditing and accounting services, recruitment expenses, information technology, travel expenses, certain non-income taxes, insurance, and other administrative expenses.

We expect our general and administrative expenses to increase for the foreseeable future as we scale headcount with the growth of our business, and as a result of operating as a public company, including compliance with the rules and regulations of the SEC, NYSE, legal, audit, additional insurance expenses, investor relations activities, and other administrative and professional services. As a result, we expect that our general and administrative expenses will increase in absolute dollars but may fluctuate as a percentage of total revenue over time.

Depreciation and amortization

Depreciation and amortization expense results from depreciation and amortization of our property and equipment, including our quantum computing systems, and intangible assets that are recognized over their estimated lives.

Nonoperating Costs and Expenses

Change in fair value of warrant liabilities

The change in fair value of warrant liabilities consists of mark-to-market fair value adjustments recorded associated with the public warrants assumed as part of the Business Combination.

Interest income, net

Interest income, net consists of income earned on our money market funds and other available-for-sale investments.

Other income (expense), net

Other income (expense), net consists of gains and losses that arise from fluctuations in foreign currency exchange rates, realized losses on our available-for-sale investments, and certain other expenses.

Income tax expense

Income tax expense consists of income taxes related to foreign jurisdictions in which we conduct business.

Results of Operations

The following table sets forth our statements of operations for the periods indicated:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
	(in thousands)		(in thousands)	
Revenue	\$ 6,136	\$ 2,763	\$ 15,936	\$ 7,324
Costs and expenses:				
Cost of revenue (excluding depreciation and amortization) ⁽¹⁾	2,008	733	4,945	2,043
Research and development ⁽¹⁾	24,599	13,292	60,701	30,282
Sales and marketing ⁽¹⁾	5,047	1,969	11,289	5,971
General and administrative ⁽¹⁾	13,927	10,149	35,438	26,901
Depreciation and amortization	2,749	1,531	6,869	4,248
Total operating costs and expenses	48,330	27,674	119,242	69,445
Loss from operations	(42,194)	(24,911)	(103,306)	(62,121)
Change in fair value of warrant liabilities	(7,640)	(1,151)	(26,787)	28,358
Interest income, net	5,007	2,059	14,115	3,926
Other income (expense), net	55	20	150	(27)
Loss before benefit for income taxes	(44,772)	(23,983)	(115,828)	(29,864)
Income tax expense	(39)	—	(39)	—
Net loss	\$ (44,811)	\$ (23,983)	\$ (115,867)	\$ (29,864)

- (1) Cost of revenue, research and development, sales and marketing, and general and administrative expenses for the periods include stock-based compensation expense as follows:

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2023	2022	2023	2022
	(in thousands)		(in thousands)	
Cost of revenue	\$ 680	\$ 239	\$ 1,462	\$ 590
Research and development	9,534	4,932	21,168	8,998
Sales and marketing	2,000	344	3,523	920
General and administrative	4,763	4,490	12,396	12,053

Comparison of the Three Months Ended September 30, 2023 and 2022

Revenue

	Three Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
Revenue	\$ 6,136	\$ 2,763	\$ 3,373	122 %

Revenue increased by \$3.4 million, or 122%, to \$6.1 million for the three months ended September 30, 2023, from \$2.8 million for the three months ended September 30, 2022. The increase was primarily driven by new revenue contracts under which we provided services during the three months ended September 30, 2023.

Cost of revenue

	Three Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
Cost of revenue (excluding depreciation and amortization)	\$ 2,008	\$ 733	\$ 1,275	174 %

Cost of revenue increased by \$1.3 million, or 174%, to \$2.0 million for the three months ended September 30, 2023, from \$0.7 million for the three months ended September 30, 2022. The increase was driven primarily by the increase in labor costs to service contracts for the three months ended September 30, 2023.

Research and development

	Three Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
Research and development	\$ 24,599	\$ 13,292	\$ 11,307	85 %

Research and development expense increased by \$11.3 million, or 85%, to \$24.6 million for the three months ended September 30, 2023, from \$13.3 million for the three months ended September 30, 2022. The increase was driven by a \$9.7 million increase in payroll-related expenses, including an increase in stock-based compensation of \$4.6 million, as a result of increased headcount, and a \$1.6 million increase in materials, supplies and equipment costs.

Sales and marketing

	Three Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
Sales and marketing	\$ 5,047	\$ 1,969	\$ 3,078	156 %

Sales and marketing expense increased by \$3.1 million, or 156%, to \$5.0 million for the three months ended September 30, 2023, from \$2.0 million for the three months ended September 30, 2022. The increase was due to an increase of \$2.7 million of payroll-related expenses, including an increase in stock-based compensation of \$1.7 million, as a result of increased headcount, and increased costs to promote our services and other marketing initiatives of approximately \$0.4 million.

General and administrative

	Three Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
General and administrative	\$ 13,927	\$ 10,149	\$ 3,778	37%

General and administrative expenses increased by \$3.8 million, or 37%, to \$13.9 million for the three months ended September 30, 2023, from \$10.1 million for the three months ended September 30, 2022. The increase was primarily driven by an increase of \$2.5 million in professional services fees as we scale our business as a public company and an increase of \$0.9 million in payroll-related expenses, including an increase in stock-based compensation of \$0.3 million, due to increased headcount.

Depreciation and amortization

	Three Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
Depreciation and amortization	\$ 2,749	\$ 1,531	\$ 1,218	80 %

Depreciation and amortization expenses increased by \$1.2 million, or 80%, to \$2.7 million for the three months ended September 30, 2023, from \$1.5 million for the three months ended September 30, 2022. The increase was primarily driven by an increase of \$0.4 million due to amortization of capitalized internally developed software and an increase of \$0.7 million in depreciation expense associated with capitalized quantum computing system costs.

Change in fair value of warrant liabilities

	Three Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
Change in fair value of warrant liabilities	\$ (7,640)	\$ (1,151)	\$ (6,489)	(564)%

The change in fair value of warrant liabilities decreased by \$6.5 million, or 564%, to a loss of \$7.6 million for the three months ended September 30, 2023, from a loss of \$1.2 million for the three months ended September 30, 2022. The decrease was due to mark-to-market adjustments based on changes in the trading price for our public warrants.

Interest income, net

	Three Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
Interest income, net	\$ 5,007	\$ 2,059	\$ 2,948	143 %

Interest income, net increased by \$2.9 million, or 143%, to \$5.0 million for the three months ended September 30, 2023, from \$2.1 million for the three months ended September 30, 2022. The increase was primarily driven by interest income earned on our cash equivalents and available-for-sale investments due to higher interest rates.

Comparison of the Nine Months Ended September 30, 2023 and 2022

Revenue

	Nine Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
Revenue	\$ 15,936	\$ 7,324	\$ 8,612	118 %

Revenue increased by \$8.6 million, or 118%, to \$15.9 million for the nine months ended September 30, 2023, from \$7.3 million for the nine months ended September 30, 2022. The increase was primarily driven by new revenue contracts under which we provided services during the nine months ended September 30, 2023.

Cost of revenue

	Nine Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
Cost of revenue (excluding depreciation and amortization)	\$ 4,945	\$ 2,043	\$ 2,902	142 %

Cost of revenue increased by \$2.9 million, or 142%, to \$4.9 million for the nine months ended September 30, 2023, from \$2.0 million for the nine months ended September 30, 2022. The increase was driven primarily by the increase in labor costs to service contracts for the nine months ended September 30, 2023.

Research and development

	Nine Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
Research and development	\$ 60,701	\$ 30,282	\$ 30,419	100 %

Research and development expense increased by \$30.4 million, or 100%, to \$60.7 million for the nine months ended September 30, 2023, from \$30.3 million for the nine months ended September 30, 2022. The increase was primarily driven by a \$27.3 million increase in payroll-related expenses, including an increase in stock-based compensation of \$12.2 million, as a result of increased headcount, and a \$1.0 million increase in materials, supplies and equipment costs.

Sales and marketing

	Nine Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
Sales and marketing	\$ 11,289	\$ 5,971	\$ 5,318	89 %

Sales and marketing expense increased by \$5.3 million, or 89%, to \$11.3 million for the nine months ended September 30, 2023, from \$6.0 million for the nine months ended September 30, 2022. The increase was due to an increase of \$4.5 million of payroll-related expenses, including an increase in stock-based compensation of \$2.6 million, as a result of increased headcount, and increased costs to promote our services and other marketing initiatives of approximately \$0.8 million.

General and administrative

	Nine Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
General and administrative	\$ 35,438	\$ 26,901	\$ 8,537	32 %

General and administrative expenses increased by \$8.5 million, or 32%, to \$35.4 million for the nine months ended September 30, 2023, from \$26.9 million for the nine months ended September 30, 2022. The increase was primarily driven by an increase of \$5.9 million in payroll-related expenses, including an increase in stock-based compensation of \$2.5 million, due to increased headcount, offset by a decrease of \$2.2 million in one-time stock-based compensation costs incurred in the nine months ended September 30, 2022. The remaining increase is primarily due to an increase of \$3.8 million in professional services fees as we scale our business as a public company.

Depreciation and amortization

	Nine Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
Depreciation and amortization	\$ 6,869	\$ 4,248	\$ 2,621	62 %

Depreciation and amortization expenses increased by \$2.6 million, or 62%, to \$6.9 million for the nine months ended September 30, 2023, from \$4.2 million for the nine months ended September 30, 2022. The increase was primarily driven by an increase of \$0.9 million due to amortization of capitalized internally developed software and an increase of \$1.2 million in depreciation expense associated with capitalized quantum computing system costs.

Change in fair value of warrant liabilities

	Nine Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
Change in fair value of warrant liabilities	\$ (26,787)	\$ 28,358	\$ (55,145)	(194)%

The change in fair value of warrant liabilities decreased by \$55.1 million, or 194%, to a loss of \$26.8 million for the nine months ended September 30, 2023, from a gain of \$28.4 million for the nine months ended September 30, 2022. The decrease was due to mark-to-market adjustments based on changes in the trading price for our public warrants.

Interest income, net

	Nine Months Ended September 30,		\$ Change	% Change
	2023	2022		
	(in thousands)			
Interest income, net	\$ 14,115	\$ 3,926	\$ 10,189	260 %

Interest income, net increased by \$10.2 million, or 260%, to \$14.1 million for the nine months ended September 30, 2023, from \$3.9 million for the nine months ended September 30, 2022. The increase was primarily driven by interest income earned on our cash equivalents and available-for-sale investments due to higher interest rates.

Liquidity and Capital Resources

As of September 30, 2023, we had cash, cash equivalents and available-for-sale securities of \$485.1 million. Excluded from our available liquidity is \$2.4 million of restricted cash, which is recorded in other noncurrent assets in our condensed consolidated balance sheets. We believe that our cash, cash equivalents and investments as of September 30, 2023, will be sufficient to meet our working capital and capital expenditure needs for the next 12 months. We believe we will meet longer term expected future cash requirements and obligations through a combination of cash flows from operating activities and available funds from our cash, cash equivalents and investment balances. However, this determination is based upon internal projections and is subject to changes in market and business conditions. We have incurred significant losses since our

inception and as of September 30, 2023, we had an accumulated deficit of \$310.2 million. During the nine months ended September 30, 2023, we incurred net losses of \$115.9 million. We expect to incur significant losses and higher operating expenses for the foreseeable future.

Future Funding Requirements

We expect our principal sources of liquidity will continue to be our cash, cash equivalents and investments and any additional capital we may obtain through additional equity or debt financings. Our future capital requirements will depend on many factors, including investments in growth and technology. We may, in the future, enter into arrangements to acquire or invest in complementary businesses, services, and technologies, which may require us to seek additional equity or debt financing.

Our primary uses of cash and investments are to fund our operations as we continue to grow our business. We require a significant amount of cash for expenditures as we invest in ongoing research and development and commercialization of our products. Until such time as we can generate significant revenue from commercializing our quantum computing technology, if ever, we expect to finance our liquidity needs through our cash, cash equivalents and investments, as well as equity or debt financings or other capital sources, including potential collaborations and other similar arrangements. However, we may be unable to raise additional funds or enter into such other arrangements when needed on favorable terms or at all. High interest and inflation rates present a recent challenge impacting the U.S. economy and could make it more difficult for us to obtain traditional financing on acceptable terms, if at all, in the future. To the extent that we raise additional capital through the sale of equity or convertible debt securities, the ownership interest of our stockholders will be or could be diluted, and the terms of these securities may include liquidation or other preferences that adversely affect the rights of our stockholders. Debt financing and equity financing, if available, may involve agreements that include covenants limiting or restricting our ability to take specific actions, such as incurring additional debt, making capital expenditures, or declaring dividends. If we raise funds through collaborations, or other similar arrangements with third parties, we may have to relinquish valuable rights to our quantum computing technology on terms that may not be favorable to us and/or may reduce the value of our common stock. If we are unable to raise additional funds through equity or debt financings when needed, we may be required to delay, limit, reduce or terminate our quantum computing development efforts. Our future capital requirements and the adequacy of available funds will depend on many factors, including those set forth in the section titled “Risk Factors.”

Other than operating expenses and our continued investment in our quantum computers, cash requirements for fiscal year 2023 are expected to consist primarily of capital expenditures for corporate facilities.

Our material cash requirements as of September 30, 2023, include operating lease commitments, including the lease of our headquarters in College Park, Maryland and our manufacturing, research and development and general office space in Bothell, Washington. As of September 30, 2023, we have total operating lease obligations of \$15.7 million, with \$1.5 million payable within 12 months.

Cash flows

The following table summarizes our cash flows for the period indicated:

	Nine Months Ended September 30,	
	2023	2022
	(in thousands)	
Net cash used in operating activities	\$ (52,181)	\$ (29,785)
Net cash provided by (used in) investing activities	44,580	(314,207)
Net cash provided by financing activities	784	2,165

Cash flows from operating activities

Our cash flows from operating activities are significantly affected by the growth of our business, primarily related to research and development, sales and marketing, and general and administrative activities. Our operating cash flows are also affected by our working capital needs to support growth in personnel-related expenditures and fluctuations in accounts payable and other current assets and liabilities.

Net cash used in operating activities during the nine months ended September 30, 2023, was \$52.2 million, resulting primarily from a net loss of \$115.9 million, adjusted for non-cash activity, primarily related to the loss recorded as a result of mark-to-market activity for our public warrants, stock-based compensation and other working capital activities. The increase in net cash used in operations from the prior year period was primarily related to increased research and development activities, increased compensation costs as a result of hiring personnel and increased costs incurred as a public company.

Net cash used in operating activities during the nine months ended September 30, 2022, was \$29.8 million, resulting primarily from a net loss of \$29.9 million, adjusted for non-cash activity, primarily related to the gain recorded as a result of mark-to-market activity for our public warrants offset by stock-based compensation and other working capital activities.

Cash flows from investing activities

Net cash provided by investing activities during the nine months ended September 30, 2023, was \$44.6 million, primarily resulting from maturities of available-for-sale securities of \$285.7 million, offset by purchases of available-for-sale securities of \$230.4 million, additions of \$6.5 million to property and equipment primarily related to the development of our quantum computing systems, and additions of \$3.1 million related to capitalized software development costs.

Net cash used in investing activities during the nine months ended September 30, 2022, was \$314.2 million, primarily resulting from purchases of available-for-sale securities of \$488.9 million and additions of \$8.4 million to property and equipment primarily related to the development of our quantum computing systems, offset by cash received from maturities of available-for-sale investments of \$185.2 million.

Cash flows from financing activities

Net cash provided by financing activities during the nine months ended September 30, 2023, was \$0.8 million, primarily resulting from proceeds from stock options exercised.

Net cash provided by financing activities during the nine months ended September 30, 2022, was \$2.2 million, primarily resulting from proceeds from stock options exercised and tax withholding receipts related to restricted stock units.

Critical Accounting Estimates

This discussion and analysis of financial condition and results of operations is based upon the Company's condensed consolidated financial statements, which have been prepared in accordance with U.S. GAAP. The preparation of these financial statements requires us to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities. We also make estimates and assumptions on revenue generated and reported expenses incurred during the reporting periods. Our estimates are based on our historical experience and on various other factors that we believe are reasonable under the circumstances. The results of these estimates form the basis for making judgments about the carrying value of assets and liabilities that are not readily apparent from other sources. Actual results may differ from these estimates.

There have been no material changes to our critical accounting estimates from those described under "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our Annual Report.

Critical accounting estimates are defined as those reflective of significant judgments, estimates and uncertainties, which may result in materially different results under different assumptions and conditions. Within our Annual Report on Form 10-K, we have disclosed our critical accounting estimates that we believe to have the greatest potential impact on our consolidated financial statements. Historically, our assumptions, judgments and estimates relative to our critical accounting estimates have not differed materially from actual results.

Recently Issued and Adopted Accounting Standards

See Note 2, Summary of Significant Accounting Policies, in the notes to our condensed consolidated financial statements included in Part I, Item I of this Quarterly Report on Form 10-Q for a discussion of recent accounting pronouncements.

Emerging Growth Company Status and Smaller Reporting Company Status

Section 102(b)(1) of the JOBS Act exempts emerging growth companies from being required to comply with new or revised financial accounting standards until private companies are required to comply with the new or revised financial accounting standards. The JOBS Act provides that a company can choose not to take advantage of the extended transition period and comply with the requirements that apply to non-emerging growth companies, and any such election to not take advantage of the extended transition period is irrevocable. During the extended transition period, it may be difficult or impossible to compare our financial results with the financial results of another public company that complies with public company effective dates for accounting standard updates because of the potential differences in accounting standards used.

As a result of the market value of the Company's common stock held by non-affiliates as of June 30, 2023, exceeding \$700.0 million, we will be a large accelerated filer under the Exchange Act as of December 31, 2023, and will no longer qualify as an emerging growth company. The Company was also a smaller reporting company as defined in the Exchange Act until June 30, 2023. However, we may continue to use the

scaled disclosures permitted for a smaller reporting company through our annual report on Form 10-K for the fiscal year ended December 31, 2023 and must begin providing non-scaled larger company disclosure in our first quarterly report in our next fiscal year (i.e., the quarterly report for the three-month period ended March 31, 2024).

As a large accelerated filer, we will be subject to certain disclosure and compliance requirements that apply to other public companies but did not previously apply to us due to our status as an emerging growth company. These requirements include, but are not limited to:

- the requirement that our independent registered public accounting firm attest to the effectiveness of our internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act of 2002 (the “Sarbanes-Oxley Act”);
- the requirement that we provide three years of audited financial statements and “Management’s Discussion and Analysis of Financial Condition and Results of Operations;”
- compliance with any requirements that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or supplement to the auditors' report providing additional information about the audit and the financial statements;
- the requirement that we provide more detailed disclosures regarding executive compensation;
- compliance with the required public company effective dates for any new or revised accounting standards;
- the requirement that we hold a non-binding advisory vote on executive compensation and obtain stockholder approval of any golden parachute payments not previously approved.

We expect that compliance with these additional requirements will substantially increase our legal and financial compliance costs.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

We are exposed to market risk related to changes in interest rates and concentration of credit. For a discussion of quantitative and qualitative disclosures about market risk, see Item 7A of Part II of our Annual Report. No material changes related to our market risks have occurred since December 31, 2022.

Item 4. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

We maintain “disclosure controls and procedures,” as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended, or the Exchange Act, that are designed to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is (1) recorded, processed, summarized and reported, within the time periods specified in the SEC’s rules and forms and (2) accumulated and communicated to our management, including our principal executive officer and principal financial officer, to allow timely decisions regarding required disclosure. Management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving their objectives and management necessarily applies its judgment in evaluating the cost-benefit relationship of possible controls and procedures.

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act), as of the end of the period covered by this Quarterly Report on Form 10-Q. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that as of September 30, 2023, our disclosure controls and procedures were effective at a reasonable assurance level.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) during the period covered by this Quarterly Report on Form 10-Q that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

From time to time, we may become involved in legal proceedings relating to claims arising from the ordinary course of business. Future litigation may be necessary to defend ourselves. The results of any current or future litigation cannot be predicted with certainty, and regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

In May 2022, a securities class action complaint captioned *Leacock v. IonQ, Inc. et al.*, Case No. 8:22-cv-01306, was filed by a stockholder of the Company in the United States District Court for the District of Maryland (the “Leacock Litigation”) against the Company and certain of the Company’s current officers. In June 2022, a securities class action complaint captioned *Fisher v. IonQ, Inc.*, Case No. 8:22-cv-01306-DLB (the “Fisher Litigation”) was filed by a stockholder against the Company and certain of the Company’s current officers (“IonQ Defendants”). Both the Leacock Litigation and Fisher Litigation, which have been consolidated into a single action, allege violations of Section 10(b) of the Exchange Act, and Rule 10b-5 promulgated thereunder, and Section 20(a) of the Exchange Act and seek damages. In September 2022, the Court appointed lead plaintiffs and counsel for lead plaintiffs, and ordered lead plaintiffs to file a consolidated amended complaint. The consolidated amended complaint was filed on November 22, 2022. As part of the consolidated amended complaint, certain members of the Company’s board of directors as well as other dMY-related defendants (“Additional Defendants”) have been added as defendants to the case. On February 7, 2023, the IonQ Defendants and the Additional Defendants each filed a motion to dismiss the consolidated amended complaint. On March 23, 2023, lead plaintiffs filed their omnibus opposition to the motions to dismiss. On April 26, 2023, the IonQ Defendants and the Additional Defendants each filed a reply in support of the motions to dismiss. On September 29, 2023, the District Court of Maryland issued an order dismissing plaintiffs’ claims against the IonQ Defendants and the Additional Defendants with prejudice and directed the clerk to close the case. On October 26, 2023, the plaintiffs filed a motion for post-judgment relief, seeking to amend their consolidated amended complaint. IonQ’s response to the plaintiffs’ motion will be due on November 9, 2023 and the plaintiffs reply will be due on November 27, 2023. Both the IonQ Defendants and Additional Defendants believe that the allegations in the complaints are without merit and intend to defend the matters vigorously.

Please refer to Note 8, Commitments and Contingencies, to the condensed consolidated financial statements included in this Quarterly Report on Form 10-Q for further details on current legal proceedings.

Item 1A. Risk Factors.

RISK FACTORS

Investing in our securities involves a high degree of risk. Before you make a decision to buy our securities, you should carefully consider the risks and uncertainties described below together with all of the other information contained in this Quarterly Report on Form 10-Q. If any of the events or developments described below were to occur, our business, prospects, operating results and financial condition could suffer materially, the trading price of our common stock could decline, and you could lose all or part of your investment. The risks and uncertainties described below are not the only ones we face. Additional risks and uncertainties not presently known to us or that we currently believe to be immaterial may also adversely affect our business.

Summary Risk Factors

Our business is subject to a number of risks of which you should be aware before making a decision to invest in our securities. These risks include, among others, the following:

- We are an early-stage company and have a limited operating history, which makes it difficult to forecast our future results of operations.
- We have a history of operating losses and expect to incur significant expenses and continuing losses for the foreseeable future.
- We may not be able to scale our business quickly enough to meet customer and market demand, which could result in lower profitability or cause us to fail to execute on our business strategies.
- We may not manage our growth effectively.
- Our management has limited experience in operating a public company.
- Our estimates of market opportunity and forecasts of market growth may prove to be inaccurate.
- Even if the market in which we compete achieves the forecasted growth, our business could fail to grow at similar rates, if at all.
- Our operating and financial results forecast relies in large part upon assumptions and analyses we developed. If these assumptions or analyses prove to be incorrect, our actual operating results may be materially different from our forecasted results.
- We may need additional capital to pursue our business objectives and respond to business opportunities, challenges or unforeseen circumstances, and we cannot be sure that additional financing will be available.
- We have not produced a scalable quantum computer and face significant barriers in our attempts to produce quantum computers.
- The quantum computing industry is competitive on a global scale and we may not be successful in competing in this industry or establishing and maintaining confidence in our long-term business prospects among current and future partners and customers.
- Even if we are successful in developing quantum computing systems and executing our strategy, competitors in the industry may achieve technological breakthroughs that render our quantum computing systems obsolete or inferior to other products.
- We may be negatively impacted by any early obsolescence of our quantum computing technology.
- We may be unable to reduce the cost per qubit sufficiently, which may prevent us from pricing our quantum systems competitively.
- The quantum computing industry is in its early stages and volatile, and if it does not develop, if it develops slower than we expect, if it develops in a manner that does not require use of our quantum computing solutions, if it encounters negative publicity or if our solution does not drive commercial engagement, the growth of our business will be harmed.
- If our computers fail to achieve a broad quantum advantage, our business, financial condition and future prospects may be harmed.
- We could suffer disruptions, outages, defects and other performance and quality problems with our quantum computing systems or with the public cloud and internet infrastructure on which they rely.
- We have and may continue to face supply chain issues that could delay the introduction of our product and negatively impact our business and operating results.
- If we cannot successfully execute on our strategy or achieve our objectives in a timely manner, our business, financial condition and results of operations could be harmed.
- Our products may not achieve market success, but will still require significant costs to develop.

- We are highly dependent on our key employees who have specialized knowledge, and our ability to attract and retain senior management and other key employees is critical to our success.
- We may not be able to accurately estimate the future supply and demand for our quantum computers, which could result in a variety of inefficiencies in our business and hinder our ability to generate revenue.
- Much of our revenue is concentrated in a few customers, and if we lose any of these customers through contract terminations, acquisitions, or other means, our revenue may decrease substantially.
- Our systems depend on the use of a particular isotope of an atomic element that provides qubits for our ion trap technology. If we are unable to procure these isotopically enriched atomic samples, or are unable to do so on a timely and cost-effective basis, and in sufficient quantities, we may incur significant costs or delays, which could negatively affect our operations and business.
- If our quantum computing systems are not compatible with some or all industry-standard software and hardware in the future, our business could be harmed.
- If we are unable to maintain our current strategic partnerships or we are unable to develop future collaborative partnerships, our future growth and development could be negatively impacted.
- Our business depends on our customers' abilities to implement useful quantum algorithms and sufficient quantum resources for their business.
- Our future growth and success depend in part on our ability to sell effectively to government entities and large enterprises.
- Contracts with government and state agencies are subject to a number of challenges and risks.
- Our future growth and success depend on our ability to sell effectively to large customers.
- If our information technology systems, data, or physical facilities where our quantum computers are stored, or those of third parties upon which we rely, are or were compromised, we could experience adverse business consequences resulting from such compromise.
- Unfavorable conditions in our industry or the global economy, could limit our ability to grow our business and negatively affect our results of operations.
- Government actions and regulations, such as tariffs and trade protection measures, may adversely impact our business, including our ability to obtain products from our suppliers.
- Because our success depends, in part, on our ability to expand sales internationally, our business will be susceptible to risks associated with international operations.
- Licensing of intellectual property is of critical importance to our business.
- If we are unable to obtain and maintain patent protection for our products and technology, or if the scope of the patent protection obtained is not sufficiently broad or robust, our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to successfully commercialize our products and technology may be adversely affected. Moreover, our trade secrets could be compromised, which could cause us to lose the competitive advantage resulting from these trade secrets.
- We may face patent infringement and other intellectual property claims that could be costly to defend, result in injunctions and significant damage awards or other costs and limit our ability to use certain key technologies in the future or require development of non-infringing products, services, or technologies.
- Some of our in-licensed intellectual property, including the intellectual property licensed from the University of Maryland and Duke University, has been conceived or developed through government-funded research and thus may be subject to federal regulations providing for certain rights for the U.S. government or imposing certain obligations on us and compliance with such regulations may limit our exclusive rights and our ability to contract with non-U.S. manufacturers.
- If our operating and financial performance in any given period does not meet the guidance provided to the public or the expectations of investment analysts, the market price of our common stock may decline.
- Our quarterly operating results may fluctuate significantly and could fall below the expectations of securities analysts and investors due to several factors, some of which are beyond our control, resulting in a decline in our stock price.

Risks Related to Our Financial Condition and Status as an Early Stage Company

We are an early-stage company and have a limited operating history, which makes it difficult to forecast our future results of operations.

As a result of our limited operating history, our ability to accurately forecast our future results of operations is limited and subject to a number of uncertainties, including our ability to plan for and model future growth. Our ability to generate revenues will largely be dependent on our ability to develop and produce quantum computers with increasing numbers of algorithmic qubits. As a result, our scalable business model has not been formed and our technical roadmap may not be realized as quickly as expected, or even at all. The development of our scalable business model will likely require the incurrence of a substantially higher level of costs than incurred to date, while our revenues will not substantially increase until more powerful, scalable computers are produced, which requires a number of technological advancements that may not occur on the currently anticipated timetable or at all. As a result, our historical results should not be considered indicative of our future performance. Further, in future periods, our growth could slow or decline for a number of reasons, including but not limited to slowing demand for our service offerings, increased competition, changes to technology, inability to scale up our technology, a decrease in the growth of the overall market, or our failure, for any reason, to continue to take advantage of growth opportunities.

We have also encountered, and will continue to encounter, risks and uncertainties frequently experienced by growing companies in rapidly changing industries. If our assumptions regarding these risks and uncertainties and our future growth are incorrect or change, or if we do not address these risks successfully, our operating and financial results could differ materially from our expectations, and our business could suffer. Our success as a business ultimately relies upon fundamental research and development breakthroughs in the coming years and decade. There is no certainty these research and development milestones will be achieved as quickly as expected, or even at all.

We have a history of operating losses and expect to incur significant expenses and continuing losses for the foreseeable future.

We have historically experienced net losses from operations. For the nine months ended September 30, 2023, we incurred a loss from operations of \$103.3 million. As of September 30, 2023, we had an accumulated deficit of \$310.2 million. We believe that we will continue to incur losses each year until at least the time we begin significant production and delivery of our quantum computers, which is not expected to occur until 2025, at the earliest, and may occur later, or never. Even with significant production, such production may never become profitable.

We expect the rate at which we will incur operating losses to be significantly higher in future periods as we, among other things, continue to incur significant expenses in connection with the design, development and construction of our quantum computers, and as we expand our research and development activities, invest in manufacturing capabilities, build up inventories of components for our quantum computers, increase our sales and marketing activities, develop our distribution infrastructure, and increase our general and administrative functions to support our growing operations and costs of being a public company. We may find that these efforts are more expensive than we currently anticipate or that these efforts may not result in revenues, which would further increase our losses. If we are unable to achieve and/or sustain profitability, or if we are unable to achieve the growth that we expect from these investments, it could have a material adverse effect on our business, financial condition or results of operations. Our business model is unproven and may never allow us to cover our costs.

We may not be able to scale our business quickly enough to meet customer and market demand, which could result in lower profitability or cause us to fail to execute on our business strategies.

In order to grow our business, we will need to continually evolve and scale our business and operations to meet customer and market demand. Quantum computing technology has never been sold at large-scale commercial levels. Evolving and scaling our business and operations places increased demands on our management as well as our financial and operational resources to:

- effectively manage organizational change;
- design scalable processes;
- accelerate and/or refocus research and development activities;
- expand manufacturing, supply chain and distribution capacity;
- increase sales and marketing efforts;
- broaden customer-support and services capabilities;
- maintain or increase operational efficiencies;
- scale support operations in a cost-effective manner;
- implement appropriate operational and financial systems; and
- maintain effective financial disclosure controls and procedures.

Commercial production of quantum computers may never occur. We have no experience in producing large quantities of our products and are currently constructing advanced generations of our products. As noted above, there are significant technological and logistical challenges associated with developing, producing, marketing, selling and distributing products in the advanced technology industry, including our products, and we may not be able to resolve all of the difficulties that may arise in a timely or cost-effective manner, or at all. We may not be able to cost-effectively manage production at a scale or quality consistent with customer demand in a timely or economical manner.

Our ability to scale is dependent also upon components we must source from the optical, electronics and semiconductor industries. Shortages or supply interruptions in any of these components will adversely impact our ability to deliver revenues.

The stability of ion traps may prove poorer than hoped, or more difficult to manufacture. It may also prove more difficult or even impossible to reliably entangle/connect ion traps together. Both of these factors would adversely impact scalability and costs of the ion trap system.

If commercial production of our quantum computers commences, our products may contain defects in design and manufacture that may cause them to not perform as expected or that may require repair, recalls and design changes. Our quantum computers are inherently complex and incorporate technology and components that have not been used for other applications and that may contain defects and errors, particularly when first introduced. We have a limited frame of reference from which to evaluate the long-term performance of our products. There can be no assurance that we will be able to detect and fix any defects in our quantum computers prior to the sale to potential consumers. If our products fail to perform as expected, customers may delay deliveries, terminate further orders or initiate product recalls, each of which could adversely affect our sales and brand and could adversely affect our business, prospects and results of operations.

If we cannot evolve and scale our business and operations effectively, we may not be able to execute our business strategies in a cost-effective manner and our business, financial condition, profitability and results of operations could be adversely affected.

We may not manage growth effectively.

If we fail to manage growth effectively, our business, results of operations and financial condition could be harmed. We anticipate that a period of significant expansion will be required to address potential growth. This expansion will place a significant strain on our management, operational and financial resources. Expansion will require significant cash investments and management resources and there is no guarantee that they will generate additional sales of our products or services, or that we will be able to avoid cost overruns or be able to hire additional personnel to support them. In addition, we will also need to ensure our compliance with regulatory requirements in various jurisdictions applicable to the sale, installation and servicing of our products. To manage the growth of our operations and personnel, we must establish appropriate and scalable operational and financial systems, procedures and controls and establish and maintain a qualified finance, administrative and operations staff. We may be unable to acquire the necessary capabilities and personnel required to manage growth or to identify, manage and exploit potential strategic relationships and market opportunities.

Our management has limited experience in operating a public company.

Our executive officers have limited experience in the management of a publicly traded company. Our management team may not successfully or effectively manage reporting obligations under federal securities laws. Their limited experience in dealing with the increasingly complex laws pertaining to public companies could be a significant disadvantage in that it is likely that an increasing amount of their time may be devoted to these activities, which will result in less time being devoted to our management and growth. The development and implementation of the standards and controls necessary for us to achieve the level of accounting standards required of a public company in the United States may require costs greater than expected. We have and we may be required to continue expand our employee base and hire additional employees to support our operations as a public company, which will continue to increase our operating costs in future periods.

Our estimates of market opportunity and forecasts of market growth may prove to be inaccurate.

Market opportunity estimates and growth forecasts, including those we have generated, are subject to significant uncertainty and are based on assumptions and estimates that may not prove to be accurate. The variables that go into the calculation of our market opportunity are subject to change over time, and there is no guarantee that any particular number or percentage of companies covered by our market opportunity estimates will purchase our products at all or generate any particular level of revenue for us. In addition, alternatives to quantum computing may present themselves and if they did, could substantially reduce the market for quantum computing services. Any expansion in our market depends on a number of factors, including the cost, performance, and perceived value associated with quantum computing solutions.

The methodology and assumptions used to estimate market opportunities may differ materially from the methodologies and assumptions previously used to estimate the total addressable market. To estimate the size of our market opportunities and our growth rates, we have relied on market reports by leading research and consulting firms. These estimates of the total addressable market and growth forecasts are subject to significant uncertainty, are based on assumptions and estimates that may not prove to be accurate and are based on data published by third parties

that we have not independently verified. Advances in classical computing may prove more robust for longer than currently anticipated. This could adversely affect the timing of any quantum advantage being achieved, if at all.

Even if the market in which we compete achieves the forecasted growth, our business could fail to grow at similar rates, if at all.

Our success will depend upon our ability to expand, scale our operations, and increase our sales capability. Even if the market in which we compete meets the size estimates and growth forecasted, our business could fail to grow at similar rates, if at all.

Our growth is dependent upon our ability to successfully scale up manufacturing of our products in sufficient quantity and quality, in a timely or cost-effective manner. Our growth is also dependent upon our ability to successfully market and sell quantum computing technology. We do not have experience with the mass distribution and sale of quantum computing technology. Our growth and long-term success will depend upon the development of our sales and delivery capabilities.

Unforeseen issues associated with scaling up and constructing quantum computing technology at commercially viable levels, and selling our technology, could negatively impact our business, financial condition and results of operations.

Moreover, because of our unique technology, our customers will require particular support and service functions, some of which are not currently available. If we experience delays in adding such support capacity or servicing our customers efficiently, or experience unforeseen issues with the reliability of our technology, it could overburden our servicing and support capabilities. Similarly, increasing the number of our customers, products or services, for example by entering into government contracts and expanding to new geographies, has required and may continue to require us to rapidly increase the availability of these services. Failure to adequately support and service our customers may inhibit our growth and ability to expand computing targets globally. There can be no assurance that our projections on which such targets are based will prove accurate or that the pace of growth or coverage of our customer infrastructure network will meet customer expectations. Failure to grow at rates similar to that of the quantum computing industry may adversely affect our operating results and ability to effectively compete within the industry.

Our operating and financial results forecast relies in large part upon assumptions and analyses we have developed. If these assumptions or analyses prove to be incorrect, our actual operating results may be materially different from our forecasted results.

Our projected financial and operating information reflect current estimates of future performance, which may never occur. Whether actual operating and financial results and business developments will be consistent with our expectations and assumptions as reflected in our forecasts depends on a number of factors, many of which are outside our control, including, but not limited to:

- success and timing of development activity;
- customer acceptance of our quantum computing systems;
- breakthroughs in classical computing or other computing technologies that could eliminate the advantages of quantum computing systems rendering them less practical to customers;
- competition, including from established and future competitors;
- whether we can obtain sufficient capital to sustain and grow our business;
- our ability to manage our growth;
- our ability to retain existing key management, integrate recent hires and attract, retain and motivate qualified personnel; and
- the overall strength and stability of domestic and international economies.

Unfavorable changes in any of these or other factors, many of which are beyond our control, could materially and adversely affect our business, financial condition and results of operations.

We may need additional capital to pursue our business objectives and respond to business opportunities, challenges or unforeseen circumstances, and we cannot be sure that additional financing will be available.

Our business and our future plans for expansion are capital-intensive and the specific timing of cash inflows and outflows may fluctuate substantially from period to period. Our operating plan may change because of factors currently unknown, and we may need to seek additional funds sooner than planned, through public or private equity or debt financings or other sources, such as strategic collaborations. Such financings may result in dilution to our stockholders, issuance of securities with priority as to liquidation and dividend and other rights more favorable than common stock, imposition of debt covenants and repayment obligations or other restrictions that may adversely affect our business. In addition, we may seek additional capital due to favorable market conditions or strategic considerations even if we believe that we have sufficient funds for

current or future operating plans. Weakness and volatility in capital markets and the economy, in general or as a result of bank failures or macroeconomic conditions such as high inflation and interest rates, could limit our access to capital markets and increase our costs of borrowing. There can be no assurance that financing will be available to us on favorable terms, or at all. The inability to obtain financing when needed may make it more difficult for us to operate our business or implement our growth plans.

Our ability to use net operating loss carryforwards and other tax attributes may be limited.

We have incurred losses during our history, do not expect to become profitable in the near future and may never achieve profitability. To the extent that we continue to generate taxable losses, unused losses will carry forward to offset future taxable income, if any, until such unused losses expire, if at all. As of December 31, 2022, we had U.S. federal and state net operating loss carryforwards of approximately \$96.3 million and \$69.5 million, respectively.

Our net operating loss carryforwards are subject to review and possible adjustment by the IRS, and state tax authorities. Under Sections 382 and 383 of the Internal Revenue Code of 1986, as amended (the “Code”), our federal net operating loss carryforwards and other tax attributes may become subject to an annual limitation in the event of certain cumulative changes in the ownership of our stock. An “ownership change” pursuant to Section 382 of the Code generally occurs if one or more stockholders or groups of stockholders who own at least 5% of a company’s stock increase their ownership by more than 50 percentage points over their lowest ownership percentage within a rolling three-year period. Our ability to utilize our net operating loss carryforwards and other tax attributes to offset future taxable income or tax liabilities may be limited as a result of ownership changes, including changes in connection with our Business Combination with dMY or other transactions. Similar rules may apply under state tax laws. We have not yet determined the amount of the cumulative change in our ownership resulting from our Business Combination with dMY or other transactions, or any resulting limitations on our ability to utilize our net operating loss carryforwards and other tax attributes. If we earn taxable income, such limitations could result in increased future income tax liability and our future cash flows could be adversely affected. We have recorded a full valuation allowance related to our net operating loss carryforwards and other deferred tax assets due to the uncertainty of the ultimate realization of the future benefits of those assets.

Risks Related to Our Business and Industry

We have not produced a scalable quantum computer and face significant barriers in our attempts to produce quantum computers. If we cannot successfully overcome those barriers, our business will be negatively impacted and could fail.

Producing quantum computers is a difficult undertaking. There are significant engineering challenges that we must overcome to build our quantum computers. We are still in the development stage and face significant challenges in completing development of our quantum computers and in producing quantum computers in commercial volumes. Some of the development challenges that could prevent the introduction of our quantum computers include, but are not limited to, failure to find scalable ways to flexibly manipulate qubits, failure to transition quantum systems to leverage low-cost, commodity optical technology, and failure to realize multicore quantum computer technology.

Additional development challenges we face include:

- gate fidelity, error correction and miniaturization may not commercialize from the lab and scale as hoped or at all;
- it could prove more challenging and take materially longer than expected to operate parallel gates within a single ion trap and maintain gate fidelity;
- the photonic interconnect between ion traps could prove more challenging and take longer to perfect than currently expected. This would limit our ability to scale to a sufficiently large number of algorithmic qubits in a single system;
- it could take longer to tune the qubits in a single ion trap, as well as preserve the stability of the qubits within a trap as we seek to maximize the total number of qubits within one trap;
- the gate speed in our technology could prove more difficult to improve than expected;
- it could take longer to incorporate modular architectures for additional cross-processor computational strength than currently expected, limiting our ability to realize the benefits of multicore technology; and
- the scaling of fidelity with qubit number could prove poorer than expected, limiting our ability to achieve larger algorithmic qubits.

In addition, we will need to develop the manufacturing process necessary to make these quantum computers in high volume. We have not yet validated a manufacturing process or acquired the tools or processes necessary to produce high volumes of our quantum computers that meet all commercial requirements. If we are not able to overcome these manufacturing hurdles in building our quantum computers, our business is likely to fail.

Even if we complete development and achieve volume production of our quantum computers, if the cost, performance characteristics or other specifications of the quantum computer fall short of our projections, our business, financial condition and results of operations would be adversely affected.

The quantum computing industry is competitive on a global scale and we may not be successful in competing in this industry or establishing and maintaining confidence in our long-term business prospects among current and future partners and customers.

The markets in which we operate are rapidly evolving and highly competitive. As these markets continue to mature and new technologies and competitors enter such markets, we expect competition to intensify. Our current competitors include:

- large, well-established tech companies that generally compete in all of our markets, including Google, Microsoft, Amazon, Intel and IBM;
- countries such as China, Russia, Canada, Australia and the United Kingdom, and those in the European Union and we believe additional countries in the future;
- less-established public and private companies with competing technology, including companies located outside the United States; and
- new or emerging entrants seeking to develop competing technologies.

We compete based on various factors, including technology, price, performance, multi-cloud availability, brand recognition and reputation, customer support and differentiated capabilities, including ease of administration and use, scalability and reliability, data governance and security. Many of our competitors have substantially greater brand recognition, customer relationships, and financial, technical and other resources, including an experienced sales force and sophisticated supply chain management. They may be able to respond more effectively than us to new or changing opportunities, technologies, standards, customer requirements and buying practices. In addition, many countries are focused on developing quantum computing solutions either in the private or public sector and may subsidize quantum computers, which may make it difficult for us to compete. Many of these competitors do not face the same challenges we do in growing our business. In addition, other competitors might be able to compete with us by bundling their other products in a way that does not allow us to offer a competitive solution.

Additionally, we must be able to achieve our objectives in a timely manner or quantum computing may lose ground to competitors, including competing technologies. Because there are a large number of market participants, including certain sovereign nations, focused on developing quantum computing technology, we must dedicate significant resources to achieving any technical objectives on the timelines established by our management team. Any failure to achieve objectives in a timely manner could adversely affect our business, operating results and financial condition.

For all of these reasons, competition may negatively impact our ability to maintain and grow consumption of our platform or put downward pressure on our prices and gross margins, any of which could materially harm our reputation, business, results of operations, and financial condition.

An element of our business is currently dependent upon our relationship with our cloud providers. There are no assurances that we will be able to commercialize quantum computers from our relationships with cloud providers.

We currently offer our QCaaS on public clouds provided by AWS's Amazon Braket, Microsoft's Azure Quantum, and the Google Cloud Marketplace. The companies that own these public clouds have internal quantum computing efforts that are competitive to our technology. There is risk that one or more of these public cloud providers could use their respective control of their public clouds to embed innovations or privileged interoperating capabilities in competing products, bundle competing products, provide us with unfavorable pricing, leverage their public cloud customer relationships to exclude us from opportunities, and treat us and our end users differently with respect to terms and conditions or regulatory requirements than they would treat their similarly situated customers. Further, they have the resources to acquire or partner with existing and emerging providers of competing technology and thereby accelerate adoption of those competing technologies. All of the foregoing could make it difficult or impossible for us to provide products and services that compete favorably with those of the public cloud providers.

Any material change in our contractual and other business relationships with our public cloud providers could result in harm to our brand and reputation and reduced use of our systems, which could have a material adverse effect on our business, financial condition and results of operations.

Even if we are successful in developing quantum computing systems and executing our strategy, competitors in the industry may achieve technological breakthroughs that render our quantum computing systems obsolete or inferior to other products.

Our continued growth and success depend on our ability to innovate and develop quantum computing technology in a timely manner and effectively market these products. Without timely innovation and development, our quantum computing solutions could be rendered obsolete or less competitive by changing customer preferences or because of the introduction of a competitor's newer technologies. We believe that many competing technologies will require a technological breakthrough in one or more problems related to science, fundamental physics or manufacturing. While it is uncertain whether such technological breakthroughs will occur in the next several years, that does not preclude the possibility that such technological breakthroughs could eventually occur. Any technological breakthroughs that render our technology obsolete or inferior to other products could have a material effect on our business, financial condition or results of operations.

We may be negatively impacted by any obsolescence of earlier generations of our quantum computing technology.

We depreciate the cost of our quantum computing systems over their expected useful lives. However, product cycles or quantum computing systems may change periodically due to changes in innovation in the industry, and we may decide to update our products or production processes more quickly than expected. Moreover, improvements in engineering and production expertise and efficiency may result in our ability to alter the way in which we deliver our products.

We may be unable to reduce the cost per qubit sufficiently, which may prevent us from pricing our quantum systems competitively.

Our projections are dependent on the cost per qubit decreasing over the next several years as our quantum computers advance. These cost projections are based on economies of scale due to demand for our computer systems, technological innovation and negotiations with third-party parts suppliers. If these cost savings do not materialize, the cost per qubit may be higher than projected, making our quantum computing solution less competitive than those produced by our competitors, which could have a material adverse effect on our business, financial condition or results of operations.

The quantum computing industry is in its early stages and volatile, and if it does not develop, if it develops slower than we expect, if it develops in a manner that does not require use of our quantum computing solutions, if it encounters negative publicity or if our solution does not drive commercial engagement, the growth of our business will be harmed.

The nascent market for quantum computers is still rapidly evolving, characterized by rapidly changing technologies, competitive pricing and competitive factors, evolving government regulation and industry standards, and changing customer demands and behaviors. If the market for quantum computers in general does not develop as expected, or develops more slowly than expected, our business, prospects, financial condition and operating results could be harmed.

In addition, our growth and future demand for our products is highly dependent upon the adoption by developers and customers of quantum computers, as well as on our ability to demonstrate the value of quantum computing to our customers. Delays in future generations of our quantum computers or technical failures at other quantum computing companies could limit market acceptance of our solution. Negative publicity concerning our solution or the quantum computing industry as a whole could limit market acceptance of our solution. We believe quantum computing will solve many large-scale problems. However, such problems may never be solvable by quantum computing technology. If our clients and partners do not perceive the benefits of our solution, or if our solution does not drive member engagement, then our market may not develop at all, or it may develop slower than we expect. If any of these events occur, it could have a material adverse effect on our business, financial condition or results of operations. If progress towards quantum advantage ever slows relative to expectations, it could adversely impact revenues and customer confidence to continue to pay for testing, access and "quantum readiness." This would harm or even eliminate revenues in the period before quantum advantage.

If our computers fail to achieve a broad quantum advantage, our business, financial condition and future prospects may be harmed.

Quantum advantage refers to the moment when a quantum computer can compute faster than traditional computers, while quantum supremacy is achieved once quantum computers are powerful enough to complete calculations that traditional supercomputers cannot perform at all. Broad quantum advantage is when quantum advantage is seen in many applications and developers prefer quantum computers to a traditional computer. No current quantum computers, including our quantum hardware, have reached a broad quantum advantage, and they may never reach such advantage. Achieving a broad quantum advantage will be critical to the success of any quantum computing company, including us. However, achieving quantum advantage would not necessarily lead to commercial viability of the technology that accomplished such advantage, nor would it mean that such system could outperform classical computers in tasks other than the one used to determine a quantum advantage.

Quantum computing technology, including broad quantum advantage, may take decades to be realized, if ever. If we cannot develop quantum computers that have quantum advantage, customers may not continue to purchase our products and services. If other companies'

quantum computers reach a broad quantum advantage prior to the time ours reaches such capabilities, it could lead to a loss of customers. If any of these events occur, it could have a material adverse effect on our business, financial condition or results of operations.

We could suffer disruptions, outages, defects and other performance and quality problems with our quantum computing systems or with the public cloud and internet infrastructure on which they rely.

Our business depends on our quantum computing systems to be available. We have experienced, and may in the future further experience, disruptions, outages, defects and other performance and quality problems with our systems. We have also experienced, and may in the future further experience, disruptions, outages, defects and other performance and quality problems with the public cloud and internet infrastructure on which our systems rely. These problems can be caused by a variety of factors, including failed introductions of new functionality, vulnerabilities and defects in proprietary and open-source software, hardware components, human error or misconduct, capacity constraints, design limitations or denial of service attacks or other security-related incidents. We do not have a contractual right with our public cloud providers that compensates us for any losses due to availability interruptions in the public cloud.

Any disruptions, outages, defects and other performance and quality problems with our quantum computing system or with the public cloud and internet infrastructure on which it relies, could result in reduced use of our systems, increased expenses, including service credit obligations, and harm to our brand and reputation, any of which could have a material adverse effect on our business, financial condition and results of operations.

We have and may continue to face supply chain issues that could delay the introduction of our product and negatively impact our business and operating results.

We are reliant on third-party suppliers for components necessary to develop and manufacture our quantum computing solutions. As our business grows, we must continue to scale and adapt our supply chain or it could have an adverse impact on our business. Any of the following factors (and others) could have an adverse impact on the availability of these components necessary to our business:

- our inability to enter into agreements with suppliers on commercially reasonable terms, or at all;
- difficulties of suppliers ramping up their supply of materials to meet our requirements;
- a significant increase in the price of one or more components, including due to industry consolidation occurring within one or more component supplier markets or as a result of decreased production capacity at manufacturers;
- any reductions or interruption in supply, including disruptions on our global supply chain as a result of the global chip shortage, or the Russia-Ukraine war and any indirect effects thereof;
- financial problems of either manufacturers or component suppliers;
- significantly increased freight charges, or raw material costs and other expenses associated with our business;
- other factors beyond our control or that we do not presently anticipate, could also affect our suppliers' ability to deliver components to us on a timely basis;
- a failure to develop our supply chain management capabilities and recruit and retain qualified professionals;
- a failure to adequately authorize procurement of inventory by our contract manufacturers; or
- a failure to appropriately cancel, reschedule, or adjust our requirements based on our business needs.

We have experienced supply chain issues in the past as a result of COVID-19. If any of the aforementioned factors were to materialize, it could cause us to delay or halt production of our quantum computing solutions and/or entail higher manufacturing costs, any of which could materially adversely affect our business, operating results, and financial condition and could materially damage customer relationships.

If we cannot successfully execute on our strategy, including in response to changing customer needs and new technologies and other market requirements, or achieve our objectives in a timely manner, our business, financial condition and results of operations could be harmed.

The quantum computing market is characterized by rapid technological change, changing user requirements, uncertain product lifecycles and evolving industry standards. We believe that the pace of innovation will continue to accelerate as technology changes and different approaches to quantum computing mature on a broad range of factors, including system architecture, error correction, performance and scale, ease of programming, user experience, markets addressed, types of data processed, and data governance and regulatory compliance. Our future success depends on our ability to continue to innovate and increase customer adoption of our quantum computer. If we are unable to enhance our quantum computing system to keep pace with these rapidly evolving customer requirements, or if new technologies emerge that are able to

deliver competitive products at lower prices, more efficiently, with better functionality, more conveniently, or more securely than our platform, our business, financial condition and results of operations could be adversely affected.

Our products may not achieve market success, but will still require significant costs to develop.

We believe that we must continue to dedicate significant resources to our research and development efforts before knowing whether there will be market acceptance of our quantum computing technologies. Furthermore, the technology for our products is new, and the performance of these products is uncertain. Our quantum computing technologies could fail to attain sufficient market acceptance, if at all, for many reasons, including:

- pricing and the perceived value of our systems relative to its cost;
- delays in releasing quantum computers with sufficient performance and scale to the market;
- failure to produce products of consistent quality that offer functionality comparable or superior to existing or new products;
- ability to produce products fit for their intended purpose;
- failures to accurately predict market or customer demands;
- defects, errors or failures in the design or performance of our quantum computing systems;
- negative publicity about the performance or effectiveness of our systems;
- strategic reaction of companies that market competitive products; and
- the introduction or anticipated introduction of competing technology.

To the extent we are unable to effectively develop and market a quantum computing system to address these challenges and attain market acceptance, our business, operating results and financial condition may be adversely affected.

In earlier stages of our life cycle, we were highly dependent on our key employees, including our founders. As we are evolving from being a science company to an engineering company, our ability to attract and retain senior management and other key employees, such as quantum physicists and other key technical employees, is critical to our success. If we fail to retain talented, highly-qualified senior management, engineers and other key employees or attract them when needed, such failure could negatively impact our business.

Our future success is highly dependent on our ability to attract and retain our executive officers, key employees and other qualified personnel, including our employees who have specialized knowledge. As we build our brand and become more well known, there is increased risk that competitors or other companies may seek to hire our personnel. The loss of the services provided by these individuals could adversely impact the achievement of our business strategy. These individuals could leave our employment at any time, as they are “at will” employees. A loss of one of our key employees, particularly to a competitor, could also place us at a competitive disadvantage. Effective succession planning is important to our long-term success, and failure to ensure effective transfer of knowledge and smooth transitions involving key employees could hinder our strategic planning and execution.

Our future success also depends on our continuing ability to attract, develop, motivate and retain highly qualified and skilled employees. The market for highly skilled workers and leaders in the quantum computing industry is extremely competitive. In particular, hiring qualified personnel specializing in engineering, software development and sales, as well as other technical staff and research and development personnel is critical to our business and the development of our quantum computing systems. Some of these professionals are hard to find and we may encounter significant competition in our efforts to hire them. Many of the other companies with which we compete for qualified personnel have greater financial and other resources than we do. The effective operation of our supply chain, including the acquisition of critical components and materials, the development of our quantum computing technologies, the commercialization of our quantum computing technologies and the effective operation of our managerial and operating systems all depend upon our ability to attract, train and retain qualified personnel in the aforementioned specialties. Additionally, changes in immigration and work permit laws and regulations or the administration or interpretation of such laws or regulations could impair our ability to attract and retain highly qualified employees. If we cannot attract, train and retain qualified personnel, in this competitive environment, we may experience delays in the development of our quantum computing technologies and be otherwise unable to develop and grow our business as projected, or even at all.

We may not be able to accurately estimate the future supply and demand for our quantum computers, which could result in a variety of inefficiencies in our business and hinder our ability to generate revenue. If we fail to accurately predict our manufacturing requirements, we could incur additional costs or experience delays.

It is difficult to predict our future revenues and appropriately budget for our expenses, and we may have limited insight into trends that may emerge and affect our business. We anticipate being required to provide forecasts of our demand to our current and future suppliers prior to the scheduled delivery of products to potential customers. Currently, there is very little historical basis for making judgments on the demand for our quantum computers or our ability to develop, manufacture, and deliver quantum computers, or our profitability, if any, in the future. If we overestimate our requirements, our suppliers may have excess inventory, which indirectly would increase our costs. If we underestimate our requirements, our suppliers may have inadequate inventory, which could interrupt manufacturing of our products and result in delays in shipments and revenues. In addition, lead times for materials and components that our suppliers order may vary significantly and depend on factors such as the specific supplier, contract terms and demand for each component at a given time. If we fail to order sufficient quantities of product components in a timely manner, the delivery of quantum computers and related compute time to our potential customers could be delayed, which would harm our business, financial condition and operating results.

Our systems depend on the use of a particular isotope of an atomic element that provides qubits for our ion trap technology. If we are unable to procure these isotopically enriched atomic samples, or are unable to do so on a timely and cost-effective basis, and in sufficient quantities, we may incur significant costs or delays, which could negatively affect our operations and business.

There are limited suppliers to sources of isotopically enriched materials that may be necessary for the production of our ion trap technology. We currently purchase such materials through the National Isotope Development Center managed by the U.S. Department of Energy Isotope Program. We do not have any supplier agreements with the U.S. Department of Energy, and purchase the materials through a standard ordering process. While we are currently looking to engage additional suppliers, there is no guarantee we will be able to establish or maintain relationships with such additional suppliers on terms satisfactory to us. Reliance on any single supplier increases the risks associated with being unable to obtain the necessary atomic samples because the supplier may have laboratory constraints, can be subject to unanticipated shutdowns and/or may be affected by natural disasters and other catastrophic events. Some of these factors may be completely out of our and our suppliers' control. Failure to acquire sufficient quantities of the necessary isotopically enriched atomic samples in a timely or cost-effective manner could materially harm our business.

If our quantum computing systems are not compatible with some or all industry-standard software and hardware in the future, our business could be harmed.

Programming for quantum computing requires unique tools, software, hardware, and development environments. We have focused our efforts on creating quantum computing hardware, the operating system for such hardware and a suite of low-level software programs that optimize execution of quantum algorithms on our hardware. Further up the software stack, we rely on third parties to create higher level quantum programming languages, SDKs, and application libraries. Such third-party software and programming is essential to operating our quantum computing products and services. Our quantum computing solutions are designed today to be compatible with most major quantum SDKs, including Qiskit, Cirq, Q# QDK, and OpenQASM, all of which are open source. If a proprietary (not open source) software toolset became the standard for quantum application development in the future by a competitor, usage of our hardware might be limited as a result, which would have a negative impact on us. Similarly, if a piece of hardware or other quantum tool became a necessary component for quantum computing (for instance, quantum networking) and we cannot integrate with it (as we have thus far), the result might have a negative impact on us and our anticipated growth.

If our customers are unable to achieve compatibility between other software and hardware and our hardware, it could impact our relationships with such customers or with customers, generally, if the incompatibility is more widespread. In addition, the mere announcement of an incompatibility problem relating to our products with higher level software tools could cause us to suffer reputational harm and/or lead to a loss of customers. Any adverse impacts from the incompatibility of our quantum computing solutions could adversely affect our business, operating results and financial condition.

If we are unable to maintain our current strategic partnerships or we are unable to develop future collaborative partnerships, our future growth and development could be negatively impacted.

We have entered into, and may enter into, strategic partnerships to develop and commercialize our current and future research and development programs with other companies to accomplish one or more of the following:

- obtain expertise in relevant markets;
- obtain sales and marketing services or support;
- obtain equipment and facilities;

- develop relationships with potential future customers; and
- generate revenue.

We may not be successful in establishing or maintaining suitable partnerships, and we may not be able to negotiate collaboration agreements having terms satisfactory to us, or at all. Failure to make or maintain these arrangements or a delay or failure in a collaborative partner's performance under any such arrangements could harm our business and financial condition.

Our business depends on our customers' abilities to implement useful quantum algorithms and sufficient quantum resources for their business. If they are unable to do so due to the nature of their algorithmic challenge or other technical or personnel dilemmas, our growth may be negatively impacted.

We have entered into, and may enter into, contracts, partnerships and other arrangements with customers to develop, test and run quantum algorithms specific to their business. The success of these contracts and partnerships is dependent on our customer's ability to implement useful and scalable algorithms for their portfolio. These arrangements are also dependent on the availability of time and resources to develop and optimize these algorithms. The development and optimization of these algorithms is reliant on employing sufficient talent familiar with quantum computing, a unique skill that requires special training and education. If the market fails to train a sufficient number of engineers, researchers and other key quantum personnel, our customers may not find sufficient talent to partner with us to solve these problems. To the extent our customers are unable to effectively develop or utilize resources to advance algorithmic-use cases, our business, operating results and financial condition may be adversely impacted.

Much of our revenue is concentrated in a few customers, and if we lose any of these customers through contract terminations or acquisitions, our revenue may decrease substantially.

We have a high degree of revenue concentration, and we expect to continue to experience significant revenue concentration for the foreseeable future. Our customers' demand for our products may fluctuate due to factors beyond our control. A disruption in our relationship with any of our customers could adversely affect our business. Our inability to meet our customers' requirements or to qualify our products with them could adversely impact our revenue. The loss of, or restrictions on our ability to sell to, one or more of our major customers, or any significant reduction in orders from customers could have a material adverse effect on our operating results and financial condition.

Our future growth and success depends in part on our ability to sell effectively to government entities and large enterprises.

Our customers and potential customers include domestic and international government agencies and large enterprises. Therefore, our future success will depend on our ability to effectively sell our products to such customers. Sales to these end-customers involve risks that may not be present (or that are present to a lesser extent) with sales to non-governmental agencies or smaller customers. These risks include, but are not limited to, (i) increased purchasing power and leverage held by such customers in negotiating contractual arrangements with us and (ii) longer sales cycles and the associated risk that substantial time and resources may be spent on a potential end-customer that elects not to purchase our solutions. Sales to government agencies are typically under fixed fee development contracts, which involve additional risks. In addition, government contracts generally include the ability of government agencies to terminate early which, if exercised, would result in a lower contract value and lower than anticipated revenues generated by such arrangement. Additionally, such government contracts may suspend us from doing business with foreign governments or prevent us from selling our products in certain countries.

Government agencies and large organizations often undertake a significant evaluation process that results in a lengthy sales cycle. Our contracts with government agencies are typically structured in phases, with each phase subject to satisfaction of certain conditions. As a result, the actual scope of work performed pursuant to any such contracts, in addition to related contract revenue, could be less than total contract value. In addition, product purchases by such organizations are frequently subject to budget constraints, multiple approvals and unanticipated administrative, processing and other delays. Finally, these organizations typically have longer implementation cycles, require greater product functionality and scalability, require a broader range of services, demand that vendors take on a larger share of risks, require acceptance provisions that can lead to a delay in revenue recognition and expect greater payment flexibility. All of these factors can add further risk to business conducted with these potential customers and could lead to lower revenue results than originally anticipated.

Additionally, changes in government defense spending could have adverse consequences on our financial position, results of operations and business. Certain current contracts and our anticipated future revenues from the U.S. government are expected to result from contracts awarded under various U.S. government programs. Cost cutting, including through consolidation and elimination of duplicative organizations, has become a major initiative for certain departments within the U.S. government. The funding of our programs is subject to the overall U.S. government budget and appropriation decisions and processes, which are driven by numerous factors, including geo-political events and macroeconomic conditions. The overall level of U.S. defense spending increased in recent years for numerous reasons.

Significant reduction in defense spending could have long-term consequences for our size and structure. In addition, reduction in government priorities and requirements could impact the funding, or the timing of funding, of our programs, which could negatively impact our results of operations and financial condition.

Contracts with domestic and international government and state agencies are subject to a number of challenges and risks.

Contracts with domestic and international government and state agencies are subject to a number of challenges and risks. The bidding process for government contracts can be highly competitive, expensive and time-consuming, often requiring significant upfront time and expense without any assurance that these efforts will generate revenue.

We also must comply with both local and international laws and regulations relating to the formation, administration, and performance of contracts, which provide public sector customers rights, many of which are not typically found in commercial contracts. For example, in 2021, the U.S. House of Representatives introduced the Quantum Cybersecurity Preparedness Act, signaling fresh focus on the need for U.S. investment in quantum computing—both to protect against quantum-powered attacks from foreign actors and to develop quantum computing strength on the domestic front. In May 2022, the Biden administration announced directives to support U.S. leadership in quantum computing, and in September 2022, the National Security Administration (NSA) shared guidance on the importance of cybersecurity readiness against would-be adversaries developing quantum systems. In September 2023, the U.S. Department of Defense increased its funding for the CHIPS Act, which will directly advance U.S. technology in many areas, including quantum. Any changes to government regulations as a result of this demonstrated focus on quantum computing could affect our ability to enter into, or the profitability of, contracts with government entities.

In addition, our perceived relationship with the U.S. government could adversely affect our business prospects in certain non-U.S. geographies or with certain non-U.S. governments. Conversely, our perceived relationship with non-U.S. governments or government entities could adversely affect our business prospects with the U.S. government.

Accordingly, our business, financial condition, results of operations, and growth prospects may be adversely affected by certain events or activities, including, but not limited to:

- changes in government fiscal or procurement policies, or decreases in government funding available for procurement of goods and services generally, or for our federal government contracts specifically;
- changes in government programs or applicable requirements;
- restrictions in the grant of personnel security clearances to our employees;
- ability to maintain facility clearances required to perform on classified contracts for U.S. government and foreign government agencies, as applicable;
- changes in the political environment, including before or after a change to the leadership within the government administration, and any resulting uncertainty or changes in policy or priorities and resultant funding;
- changes in the government's attitude towards us as a company or our technology;
- appeals, disputes, or litigation relating to government procurement, including but not limited to bid protests by unsuccessful bidders on potential or actual awards of contracts to us or our partners by the government;
- the adoption of new laws or regulations or changes to existing laws or regulations;
- budgetary constraints, including automatic reductions as a result of "sequestration," operating under continuing resolutions, disruptions from government shutdowns, or similar measures and constraints imposed by any lapses in appropriations for the federal government or certain of its departments and agencies;
- influence by, or competition from, third parties with respect to pending, new, or existing contracts with government customers;
- changes in legal obligations or political or social attitudes with respect to security or data privacy issues;
- potential delays or changes in the government appropriations or procurement processes, including as a result of events such as war, incidents of terrorism, natural disasters, and public health concerns; and
- increased or unexpected costs or unanticipated delays caused by other factors outside of our control.

Any such event or activity, among others, could cause governments and governmental agencies to delay or refrain entering into contracts with us and/or purchasing our computers in the future, reduce the size or timing of payment with respect to our services to or purchases from existing or new government customers, or otherwise have an adverse effect on our business, results of operations, financial condition, and growth prospects.

If our information technology systems, data, or physical facilities where our quantum computers are stored, or those of third parties upon which we rely, are or were compromised, we could experience adverse business consequences resulting from such compromise.

In the ordinary course of business, we collect, receive, store, process, generate, use, transfer, disclose, make accessible, protect, secure, dispose of, transmit, and share (collectively, “Processing”) personal data and other sensitive information, including intellectual property, proprietary and confidential business data, trade secrets, sensitive third-party data, business plans, transactions, and financial information of our own, our partners, our customers, or other third parties (collectively, “Sensitive Data”).

We and the third parties upon which we rely may process Sensitive Data, and, as a result, we and the third parties upon which we rely face a variety of evolving threats to our information technology systems, data, or physical facilities where our quantum computers are stored, including but not limited to ransomware attacks, which could cause security incidents. Additionally, Sensitive Data could be leaked, disclosed or revealed as a result of or in connection with our employee’s, personnel’s, or vendor’s use of generative AI technologies. Cyber-attacks, malicious internet-based activity, online and offline fraud, and other similar activities threaten the confidentiality, integrity, and availability of our Sensitive Data and information technology systems, and those of the third parties upon which we rely. Such threats are prevalent and continue to rise, are increasingly difficult to detect, and come from a variety of sources, including traditional computer “hackers,” threat actors, “hacktivists,” organized criminal threat actors, personnel (such as through theft or misuse), sophisticated nation states, and nation-state-supported actors. U.S. law enforcement agencies have indicated to us that quantum computing technology is of particular interest to certain threat actors, including nation state and other malicious actors, who may steal our Sensitive Data, including our intellectual property or other proprietary or confidential information, including our trade secrets.

Some actors now engage and are expected to continue to engage in cyber-attacks, including without limitation nation-state and nation-state-supported actors for geopolitical reasons and in conjunction with military conflicts and defense activities. During times of war and other major conflicts, we, the third parties upon which we rely, and our customers may be vulnerable to a heightened risk of these attacks, including retaliatory cyber-attacks, that could materially disrupt our systems and operations, supply chain, and ability to distribute our services.

We and the third parties upon which we rely may be subject to a variety of evolving threats, including but not limited to social-engineering attacks (including through deep fakes, which may be increasingly more difficult to identify as fake, and phishing attacks), malicious code (such as viruses and worms), malware (including as a result of advanced persistent threat intrusions), denial-of-service attacks (such as credential stuffing), credential harvesting, personnel misconduct or error, ransomware attacks, supply-chain attacks, software bugs, server malfunctions, software or hardware failures, loss of data or other information technology assets, adware, telecommunications failures, earthquakes, fires, floods, and other similar threats.

In particular, severe ransomware attacks are becoming increasingly prevalent and could lead to significant interruptions in our operations, loss of Sensitive Data and income, reputational harm, and diversion of funds.

Extortion payments may alleviate the negative impact of a ransomware attack, but we may be unwilling or unable to make such payments due to, for example, applicable laws or regulations prohibiting such payments.

Additionally, we are incorporated into the supply chain of a large number of companies worldwide and, as a result, if our services are compromised, a significant number or, in some instances, all of our customers and their data could be simultaneously affected. The potential liability and associated consequences we could suffer as a result of such a large-scale event could be catastrophic and result in irreparable harm.

Remote work has become more common and has increased risks to our information technology systems and data, as more of our employees utilize network connections, computers, and devices outside our premises or network, including working at home, while in transit and in public locations. Additionally, future or past business transactions (such as acquisitions or integrations) could expose us to additional cybersecurity risks and vulnerabilities, as our systems could be negatively affected by vulnerabilities present in acquired or integrated entities’ systems and technologies. Furthermore, we may discover security issues that were not found during due diligence of such acquired or integrated entities, and it may be difficult to integrate companies into our information technology environment and security program.

In addition, our reliance on third-party service providers could introduce new cybersecurity risks and vulnerabilities, including supply-chain attacks, and other threats to our business operations. Our platform is built to be accessed through third-party cloud providers, such as AWS’s Amazon Braket, Microsoft’s Azure Quantum, and Google’s Cloud Marketplace, and we rely on these and other third-party service providers and technologies to operate critical business systems to process Sensitive Data in a variety of contexts, including, without limitation, other cloud-based infrastructure, data center facilities, encryption and authentication technology, employee email, content delivery to customers, and other functions. We may also rely on third-party service providers to provide other products, services, parts, or otherwise to operate our business. Our ability to monitor these third parties’ information security practices is limited. Although we understand our third-party cloud providers have implemented security measures designed to protect against various cybersecurity risks and vulnerabilities, these and other third parties may nevertheless not have adequate information security measures in place. If our third-party service providers experience a security incident or other interruption, we could experience adverse consequences. While we may be entitled to damages if our third-party service

providers fail to satisfy their privacy or security-related obligations to us, any award may be insufficient to cover our damages, or we may be unable to recover such award. In addition, supply-chain attacks have increased in frequency and severity, and we cannot guarantee that third parties' infrastructure in our supply chain or our third-party partners' supply chains have not been compromised.

Any of the previously identified or similar threats could cause a security incident or other interruption that could result in unauthorized, unlawful, or accidental acquisition, modification, destruction, loss, alteration, encryption, disclosure of, or access to our Sensitive Data (including proprietary information and intellectual property) or our information technology systems, or those of the third parties upon whom we rely. A security incident or other interruption could disrupt our ability (and that of third parties upon whom we rely) to provide our services.

We may expend significant resources or modify our business activities to try to protect against security incidents. Additionally, certain data privacy and security obligations may require us to implement and maintain specific security measures or industry-standard or reasonable security measures to protect our information technology systems and Sensitive Data.

While we have implemented security measures designed to protect against security incidents, there can be no assurance that these measures will be effective. We take steps to detect and remediate vulnerabilities in our information technology systems (including in our services), but we may not be able to detect and remediate all vulnerabilities because the threats and techniques used to exploit vulnerabilities change frequently and, are often sophisticated in nature. Therefore, such vulnerabilities could be exploited but, may not be detected until after a security incident has occurred. These vulnerabilities pose material risks to our business. Further, we may experience delays in developing and deploying remedial measures designed to address any such identified vulnerabilities. As a result, we may be unable to implement adequate preventative and responsive measures to stop or mitigate security breaches before or while they are occurring.

Applicable data privacy and security obligations may require us to notify relevant stakeholders of security incidents. Such disclosures are costly, and the disclosure or the failure to comply with such requirements could lead to adverse consequences.

If we (or a third party upon whom we rely) experience a security incident or are perceived to have experienced a security incident, we may experience adverse consequences. These consequences may include: exposure of Sensitive Data (including intellectual property or confidential or proprietary information); government enforcement actions (for example, investigations, fines, penalties, audits, and inspections); additional reporting requirements and/or oversight; restrictions on Processing Sensitive Data (including personal data); litigation (including class claims); indemnification obligations; negative publicity; reputational harm; monetary fund diversions; interruptions in our operations (including availability of data); financial loss; and other similar harms. Security incidents and attendant consequences may cause customers to stop using our services, deter new customers from using our services, and negatively impact our ability to grow and operate our business. Our efforts to prevent and overcome these challenges could increase our expenses and may not be successful.

Our contracts may not contain limitations of liability, and even where they do, there can be no assurance that limitations of liability in our contracts are sufficient to protect us from liabilities, damages, or claims related to our data privacy and security obligations. We cannot be sure that our insurance coverage will be adequate or sufficient to protect us from or to mitigate liabilities arising out of our privacy and security practices, that such coverage will continue to be available on commercially reasonable terms or at all, or that such coverage will pay future claims.

In addition to experiencing a security incident, third parties may gather, collect, or infer sensitive information about us from public sources, data brokers, or other means that reveals competitively sensitive details about our organization and could be used to undermine our competitive advantage or market position.

Unfavorable conditions in our industry or the global economy, could limit our ability to grow our business and negatively affect our results of operations.

Our results of operations may vary based on the impact of changes in our industry or the global economy on the company or our customers and potential customers. The global economy, including credit and financial markets, has experienced extreme volatility and disruptions, including severely diminished liquidity and credit availability, declines in consumer confidence, declines in economic growth, increases in unemployment rates, increases in inflation rates, higher interest rates and uncertainty about economic stability. For example, the COVID-19 pandemic resulted in widespread unemployment, economic slowdown and extreme volatility in the capital markets and any future public health crises could result in similar impacts on the global economy. Similarly, the Russia-Ukraine war has created extreme volatility in the global capital markets and is expected to have further global economic consequences, including disruptions of the global supply chain and energy markets, and further acts of war, terror, or responses to each could result in similar or increased impacts on the global economy. Increased inflation rates can adversely affect us by increasing our costs, including labor and employee benefit costs. Employee salaries and benefits expenses have increased as a result of economic growth, increased demand for business services, increased competition for trained and talented employees, among other wage-inflationary pressures and we cannot assure that they will not continue to rise. In addition, higher inflation also could increase our customers' operating costs, which could result in reduced budgets for our customers and potentially less demand for our

platform and the development of quantum technologies. Any significant increases in inflation and related increase in interest rates could have a material adverse effect on our business, results of operations and financial condition.

In addition, in challenging economic times, our current or potential future customers may experience cash flow problems and as a result may modify, delay or cancel plans to purchase our products and services. Additionally, if our customers are not successful in generating sufficient revenue or are unable to secure financing, they may not be able to pay, or may delay payment of, accounts receivable due to us. Moreover, our key suppliers may reduce their output or become insolvent, thereby adversely impacting our ability to manufacture our products. Furthermore, uncertain economic conditions may make it more difficult for us to raise funds through borrowings or private or public sales of debt or equity securities. We cannot predict the timing, location, strength or duration of any economic slowdown, instability or recovery, generally or within any particular industry.

Government actions and regulations, such as tariffs and trade protection measures, may adversely impact our business, including our ability to obtain products from our suppliers.

Political challenges between the United States and countries in which our suppliers are located, including China, and changes to trade policies, including tariff rates and customs duties, trade relations between the United States and China and other macroeconomic issues could adversely impact our business. Specifically, United States-China trade relations remain uncertain. The United States administration has announced tariffs on certain products imported into the United States with China as the country of origin, and China has imposed tariffs in response to the actions of the United States. The U.S. government continues to add additional entities, in China and elsewhere, to restricted party lists impacting the ability of U.S. companies to provide items, and in certain cases services, to these entities and, in some cases, receive items or services from these entities. There is also a possibility of future tariffs, trade protection measures or other restrictions imposed on our products or on our customers by the United States, China or other countries that could have a material adverse effect on our business. In addition, the Chinese government exercises significant control over China's economy through the allocation of resources, control of the incurrence and payment of foreign currency-denominated obligations, setting of monetary policy and provision of preferential treatment to particular industries or companies. Changes in any of these policies, laws and regulations could adversely affect the overall economy in China or our Chinese suppliers, which could harm our business through higher supply costs, reduced availability or both.

Also, due to concerns with the security of products and services from certain telecommunications equipment and services companies based in China, U.S. Congress has enacted bans on the use of certain Chinese-origin components or systems either in items sold to the U.S. government or in the internal networks of government contractors and subcontractors (even if those networks are not used for government-related projects). Further, the Chinese government has responded to these U.S. actions by indicating its intention to develop an unreliable entity list, which may limit the ability of companies on the list to engage in business with Chinese counterparties.

In June 2022, the import restrictions contained in the Uyghur Forced Labor Prevention Act ("UFLPA") became effective. The UFLPA creates a rebuttable presumption that any goods mined, produced or manufactured, wholly or in part in the Xinjiang Uyghur Autonomous Region ("XUAR") of China, or produced by a listed entity, were made with forced labor and would therefore not be entitled to entry at any U.S. port. Importers are required to present clear and convincing evidence that such goods are not made with forced labor. While we do not source items from the XUAR or from listed parties, and we have increased our supply chain diligence, there is risk that our ability to import components and products may be adversely affected by the UFLPA.

Given the relatively fluid regulatory environment in China and the United States and uncertainty regarding how the U.S. government or Chinese and other foreign governments will act with respect to tariffs and international trade agreements and policies, a trade war, further governmental action related to tariffs or international trade policies, or additional tax or other regulatory changes in the future could directly and adversely impact our financial results and results of operations. We cannot predict what actions may ultimately be taken with respect to trade relations between the United States and China or other countries, what products may be subject to such actions or what actions may be taken by the other countries in retaliation. If we are unable to obtain or use components for inclusion in our products, if component prices increase significantly or if we are unable to export or sell our products to any of our customers, our business, liquidity, financial condition, and/or results of operations would be materially and adversely affected.

Acquisitions, divestitures, strategic investments and strategic partnerships could disrupt our business and harm our financial condition and operating results.

We have pursued and we may continue to pursue growth opportunities by acquiring complementary businesses, solutions or technologies through strategic transactions, investments or partnerships. The identification of suitable acquisition, strategic investment or strategic partnership candidates can be costly and time consuming and can distract our management team from our current operations. If such strategic transactions require us to seek additional debt or equity financing, we may not be able to obtain such financing on terms favorable to us or at all, and such transactions may adversely affect our liquidity and capital structure. Any strategic transaction might not strengthen our competitive position, may increase some of our risks, and may be viewed negatively by our customers, partners or investors. Even if we successfully complete a strategic transaction, we may not be able to effectively integrate the acquired business, technology, systems, control environment, solutions, personnel or operations into our business. We may experience unexpected changes in how we are required to account for strategic transactions pursuant to

U.S. GAAP and may not achieve the anticipated benefits of any strategic transaction. We may incur unexpected costs, claims or liabilities that we incur during the strategic transaction or that we assume from the acquired company, or we may discover adverse conditions post acquisition for which we have limited or no recourse.

Risks Related to Our International Expansion and Future Operations

Because our success depends, in part, on our ability to expand sales internationally, our business will be susceptible to risks associated with international operations.

We currently maintain offices and/or have personnel in the United States, Canada, and Israel, and recently expanded into Germany and Switzerland. We expect to continue to expand our international operations by developing our sales and operations presence in these and other international markets, which may include opening offices in new jurisdictions. Any additional international expansion efforts that we are undertaking and may undertake may not be successful. In addition, conducting international operations subjects us to new risks, some of which we have not generally faced in the United States or other countries where we currently operate. These risks include, among other things:

- lack of familiarity and burdens of complying with foreign laws, legal standards, privacy and cybersecurity standards, regulatory requirements, tariffs and other barriers, and the risk of penalties to our customers and individual members of management or employees if our practices are deemed to not be in compliance;
- practical difficulties of enforcing intellectual property rights in countries with varying laws and standards and reduced or varied protection for intellectual property rights in some countries;
- an evolving legal framework and additional legal or regulatory requirements for data privacy and cybersecurity, which may necessitate the establishment of systems to maintain data in local markets, requiring us to invest in additional data centers and network infrastructure, and the implementation of additional employee data privacy documentation (including locally compliant data privacy notice and policies), all of which may involve substantial expense and may cause us to need to divert resources from other aspects of our business, all of which may adversely affect our business;
- unexpected changes in regulatory requirements, taxes, trade laws, tariffs, export quotas, custom duties or other trade restrictions;
- difficulties in managing systems integrators and partners;
- increased or unexpected supply chain challenges or delays;
- differing technology standards;
- different pricing environments, longer sales cycles, longer accounts receivable payment cycles and difficulties in collecting accounts receivable;
- increased financial accounting and reporting burdens and complexities;
- difficulties in managing and staffing international operations including the proper classification of independent contractors and other contingent workers, differing employer/employee relationships and local employment laws;
- increased costs involved with recruiting and retaining an expanded employee population, including highly skilled workers and leaders in the quantum computing industry, outside the United States through cash and equity-based incentive programs, and unexpected legal costs and regulatory restrictions in issuing our shares to employees outside the United States;
- global political and regulatory changes that may lead to restrictions on immigration and travel for our employees;
- fluctuations in exchange rates that may decrease the value of our foreign-based revenue or increase the cost of our foreign operations;
- global public health threats or geopolitical events such as the Russia-Ukraine war;
- potentially adverse tax consequences, including the complexities of foreign value added tax (or other tax) systems, restrictions on the repatriation of earnings, and transfer pricing requirements; and
- permanent establishment risks and complexities in connection with international payroll, tax and social security requirements for international employees.

Additionally, operating in international markets also requires significant management attention and financial resources. We cannot be certain that the investment and additional resources required in establishing operations in other countries will produce desired levels of revenue or profitability.

Compliance with laws and regulations applicable to our global operations also substantially increases our cost of doing business in foreign jurisdictions. We have limited experience in marketing, selling and supporting our platform outside of the United States. Our limited experience in operating our business internationally increases the risk that any potential future expansion efforts that we may undertake will not be successful. If we invest substantial time and resources to expand our international operations and are unable to do so successfully, in a timely manner, our business, financial condition, revenues, results of operations or cash flows will suffer. We may be unable to keep current with changes in government requirements as they change from time to time. Failure to comply with these regulations could harm our business. In many countries, it is common for others to engage in business practices that are prohibited by our internal policies and procedures or other regulations applicable to us. Although we have implemented policies and procedures designed to ensure compliance with these laws and policies, there can be no assurance that all of our employees, contractors, partners and agents will comply with these laws and policies. Violations of laws or key control policies by our employees, contractors, partners or agents could result in delays in revenue recognition, financial reporting misstatements, enforcement actions, reputational harm, disgorgement of profits, fines, civil and criminal penalties, damages, injunctions, other collateral consequences or the prohibition of the importation or exportation of our solutions and could harm our business, financial condition, revenues, results of operations or cash flows.

Our international sales and operations subject us to additional risks and costs, including the ability to engage with customers in new geographies and exposure to foreign currency exchange rate fluctuations, that can adversely affect our business, financial condition, revenues, results of operations or cash flows.

We are continuing to expand our international operations as part of our growth strategy. However, there are a variety of risks and costs associated with our international sales and operations, which include making investments prior to the sales or use of quantum computers, the cost of conducting our business internationally and hiring and training international employees and the costs associated with complying with local law. Furthermore, we cannot predict the rate at which our quantum computers will be accepted in international markets by potential customers.

Our sales, support and engineering organization outside the United States is substantially smaller than our U.S. sales organization. We believe our ability to attract new customers to subscribe to our platform or to attract existing customers to renew or expand their use of our platform is directly correlated to the level of engagement we obtain with the customer. To the extent we are unable to effectively engage with non-U.S. customers due to our limited sales force capacity, we may be unable to effectively grow in international markets.

As our international operations expand, our exposure to the effects of fluctuations in currency exchange rates grows. While we have primarily transacted with customers in U.S. dollars, historically, we expect to continue to expand the number of transactions with our customers that are denominated in foreign currencies in the future. Additionally, fluctuations in the value of the U.S. dollar and foreign currencies may make our subscriptions more expensive for international customers, which could harm our business. Additionally, we incur expenses for employee compensation and other operating expenses for our non-U.S. employees in the local currency for such locations. Fluctuations in the exchange rates between the U.S. dollar and other currencies could result in an increase to the U.S. dollar equivalent of such expenses. These fluctuations could cause our results of operations to differ from our expectations or the expectations of our investors. Additionally, such foreign currency exchange rate fluctuations could make it more difficult to detect underlying trends in our business and results of operations. We may attempt to mitigate a portion of these risks through foreign currency hedging based on our judgment of the appropriate trade-offs among risk, opportunity, and exposure. Any future hedging activities may not offset the full, or in some cases any, adverse financial impact resulting from unfavorable movement in foreign currency exchange rates, which could adversely affect our financial condition and results of operations.

Our international operations may subject us to greater than anticipated tax liabilities.

The amount of taxes we may pay in different jurisdictions depends on the application of the tax laws of various jurisdictions, including the United States, to our international business activities, changes in tax rates, new or revised tax laws or interpretations of existing tax laws and policies, and our ability to operate our business in a manner consistent with our corporate structure and intercompany arrangements. The taxing authorities of the jurisdictions in which we operate may challenge our methodologies for pricing intercompany transactions pursuant to any future intercompany arrangement or disagree with our determinations as to the income and expenses attributable to specific jurisdictions. If such a challenge or disagreement were to occur, and our position was not sustained, we could be required to pay additional taxes, interest and penalties, which could result in one-time tax charges, higher effective tax rates, reduced cash flows, and lower overall profitability of our operations. Our financial statements could fail to reflect adequate reserves to cover such a contingency. Similarly, a taxing authority could assert that we are subject to tax in a jurisdiction where we believe we have not established a taxable connection, often referred to as a “permanent establishment” under international tax treaties, and such an assertion, if successful, could increase our expected tax liability in one or more jurisdictions.

Risks Related to Litigation and Government Regulation

Our business is exposed to risks associated with litigation, investigations and regulatory proceedings.

We may face legal, administrative and regulatory proceedings, claims, demands and/or investigations involving stockholder, consumer, competition and/or other issues relating to our business. Litigation and regulatory proceedings are inherently uncertain, and adverse rulings could occur, including monetary damages, or an injunction stopping us from engaging in certain business practices, or requiring other remedies, such as compulsory licensing of patents. For example, on January 12, 2021, dMY Technology Group, Inc. II, dMY Sponsor II, LLC, dMY, and dMY Sponsor III, LLC (“Sponsor”) accepted service of a lawsuit where they were named as counterclaim defendants in an underlying action by and between GTY Technology Holdings, Inc. (“GTY”), dMY Technology Holdings Inc., dMY Sponsor, LLC, dMY Sponsor II, LLC, dMY Technology Group Inc. II, dMY and Sponsor (collectively “dMY Defendants”) and Carter Glatt (“Glatt”) and Captains Neck Holdings LLC (“Captains Neck”), an entity of which Mr. Glatt is a member. The underlying lawsuit, filed by dMY Technology Group, Inc. and dMY Sponsor, LLC, seeks a declaratory judgment that Glatt and Captains Neck are not entitled to membership units of dMY Sponsor LLC, which was formed by Harry L. You, the co-founder and former President and Chief Financial Officer of GTY when Glatt was still working at GTY. The underlying lawsuit contains claims arising from Glatt’s termination of employment from GTY, including theft and misappropriation of confidential GTY information, breach of contract, breach of the duties of loyalty and fiduciary duty and conversion. Glatt responded to the underlying lawsuit by adding members of the Sponsor and officers of dMY as additional counterclaim defendants (collectively with the dMY Defendants Glatt and Captains Neck, the “Counterclaim Defendants”) and adding Dune Acquisition Holdings LLC, a newly formed special purpose acquisition company, as a counterclaimant and asserting claims for breach of contract, fraudulent misrepresentation, negligent misrepresentation, tortious interference with business relations, quantum meruit and unjust enrichment. dMY and the Company have never employed Glatt nor maintained any business agreements with him. The Counterclaim Defendants have denied the claims against them and have filed a motion to dismiss the suit.

In May 2022, a securities class action complaint captioned Leacock v. IonQ, Inc. et al., Case No. 8:22-cv-01306, was filed by a stockholder of the Company in the United States District Court for the District of Maryland (the “Leacock Litigation”) against the Company and certain of the Company’s current officers. In June 2022, a securities class action complaint captioned Fisher v. IonQ, Inc., Case No. 8:22-cv-01306-DLB (the “Fisher Litigation”) was filed by a stockholder against the Company and certain of the Company’s current officers (“IonQ Defendants”). Both the Leacock Litigation and Fisher Litigation, which have been consolidated into a single action, allege violations of Section 10(b) of the Exchange Act, and Rule 10b-5 promulgated thereunder, and Section 20(a) of the Exchange Act and seek damages. In September 2022, the Court appointed lead plaintiffs and counsel for lead plaintiffs, and ordered lead plaintiffs to file a consolidated amended complaint. The consolidated amended complaint was filed on November 22, 2022. As part of the consolidated amended complaint, certain members of the Company’s board of directors as well as other dMY-related defendants (“Additional Defendants”) have been added as defendants to the case. On February 7, 2023, the IonQ Defendants and the Additional Defendants each filed a motion to dismiss the consolidated amended complaint. On March 23, 2023, lead plaintiffs filed their omnibus opposition to the motions to dismiss. On April 26, 2023, the IonQ Defendants and the Additional Defendants each filed a reply in support of the motions to dismiss. On September 29, 2023, the District Court of Maryland issued an order dismissing plaintiffs’ claims against the IonQ Defendants and the Additional Defendants with prejudice and directed the clerk to close the case. On October 26, 2023, the plaintiffs filed a motion for post-judgment relief, seeking to amend their consolidated amended complaint. IonQ’s response to the plaintiffs’ motion will be due on November 9, 2023 and the plaintiffs reply will be due on November 27, 2023. Both the IonQ Defendants and Additional Defendants believe that the allegations in the complaints are without merit and intend to defend the matters vigorously.

These proceedings and any additional investigations, inquiries or litigation by various regulators may harm our reputation regardless of the outcome of any such action. The outcome of any litigation, regardless of its merits, is inherently uncertain. Any claims and lawsuits, and the disposition of such claims and lawsuits, could be time-consuming and expensive to resolve, divert management attention and resources, and lead to attempts on the part of other parties to pursue similar claims. Negative perceptions of our business may result in additional regulation, enforcement actions by the government and increased litigation, or harm to our ability to attract or retain customers or strategic partners, any of

which may affect our business. Any damage to our reputation, including from publicity from legal proceedings against us or companies that work within our industry, governmental proceedings, unfavorable media coverage or class action could adversely affect our business, financial condition and results of operations.

An unfavorable outcome or settlement or any other legal, administrative and regulatory proceeding may result in a material adverse impact on our business, results of operations, financial position and overall trends. In addition, regardless of the outcome, litigation can be costly, time-consuming, and disruptive to our operations. Any claims or litigation, even if fully indemnified or insured, could damage our reputation and make it more difficult to compete effectively or to obtain adequate insurance in the future. In addition, the laws and regulations our business is subject to are complex and change frequently. We may be required to incur significant expense to comply with changes in, or remedy violations of, these laws and regulations.

Furthermore, while we maintain insurance for certain potential liabilities, such insurance does not cover all types and amounts of potential liabilities and is subject to various exclusions as well as caps on amounts recoverable. Even if we believe a claim is covered by insurance, insurers may dispute our entitlement to recovery for a variety of potential reasons, which may affect the timing and, if the insurers prevail, the amount of our recovery.

We may become subject to product liability claims, which could harm our financial condition and liquidity if we are not able to successfully defend or insure against such claims.

We may become subject to product liability claims, even those without merit, which could harm our business prospects, operating results, and financial condition. We may face inherent risk of exposure to claims in the event our quantum computers do not perform as expected or malfunction. A successful product liability claim against us could require us to pay a substantial monetary award. Moreover, a product liability claim could generate substantial negative publicity about our quantum computers and business and inhibit or prevent commercialization of other future quantum computers, which would have material adverse effects on our brand, business, prospects and operating results. Any insurance coverage might not be sufficient to cover all potential product liability claims. Any lawsuit seeking significant monetary damages either in excess of our coverage, or outside of our coverage, may have a material adverse effect on our reputation, business and financial condition. We may not be able to secure additional product liability insurance coverage on commercially acceptable terms or at reasonable costs when needed, particularly if we do face liability for our products and are forced to make a claim under our policy.

We are subject to requirements relating to environmental and safety regulations and environmental remediation matters, which could adversely affect our business, results of operation and reputation.

We are subject to numerous federal, state and local environmental laws and regulations governing, among other things, solid and hazardous waste storage, treatment and disposal, and remediation of releases of hazardous materials. There are significant capital, operating and other costs associated with compliance with these environmental laws and regulations. Environmental laws and regulations may become more stringent in the future, which could increase costs of compliance or require us to manufacture with alternative technologies and materials.

Federal, state and local authorities also regulate a variety of matters, including, but not limited to, health, safety and permitting in addition to the environmental matters discussed above. New legislation and regulations may require us to make material changes to our operations, resulting in significant increases to the cost of production.

Our manufacturing process will have hazards such as but not limited to hazardous materials, machines with moving parts, and high voltage and/or high current electrical systems typical of large manufacturing equipment and related safety incidents. There may be safety incidents that damage machinery or product, slow or stop production, or harm employees. Consequences may include litigation, regulation, fines, increased insurance premiums, mandates to temporarily halt production, workers' compensation claims, or other actions that impact the company brand, finances, or ability to operate.

Contracts with U.S. government entities subject us to risks, including early termination, audits, investigations, sanctions and penalties.

As part of our business strategy, we have entered into and may enter into additional contracts with state and federal government entities, which subjects our business to statutes and regulations applicable to companies doing business with the government, including the Federal Acquisition Regulation. These government contracts customarily contain provisions that give the government substantial rights and remedies, many of which are not typically found in commercial contracts and which are unfavorable to contractors. For instance, most U.S. government agencies include provisions that allow the government to unilaterally terminate or modify contracts for convenience, and in that event, the counterparty to the contract may generally recover only its incurred or committed costs and settlement expenses and profit on work completed prior to the termination. If the government terminates a contract for default, the defaulting party may be liable for any extra costs incurred by the government in procuring undelivered items from another source.

In addition, government contracts normally contain additional requirements that may increase our costs of doing business, reduce our profits, and expose us to liability for failure to comply with these terms and conditions. These requirements include, for example:

- specialized disclosure and accounting requirements unique to government contracts;
- financial and compliance audits that may result in potential liability for price adjustments, recoupment of government funds after such funds have been spent, civil and criminal penalties, or administrative sanctions such as suspension or debarment from doing business with the U.S. government;
- public disclosures of certain contract and company information; and
- mandatory socioeconomic compliance requirements, including labor requirements, non-discrimination and affirmative action programs and environmental compliance requirements.

Government contracts are also generally subject to greater scrutiny by the government, which can initiate reviews, audits and investigations regarding our compliance with government contract requirements. In addition, if we fail to comply with government contracting laws, regulations and contract requirements, our contracts may be subject to termination, and we may be subject to financial and/or other liability under our contracts, the Federal Civil False Claims Act (including treble damages and other penalties), or criminal law. In particular, the False Claims Act's "whistleblower" provisions also allow private individuals, including present and former employees, to sue on behalf of the U.S. government. Any penalties, damages, fines, suspension, or damages could adversely affect our ability to operate our business and our financial results.

We are subject to stringent and evolving U.S. and foreign laws, regulations, rules, contractual obligations, policies and other obligations related to data privacy and security. Our actual or perceived failure to comply with such obligations could lead to adverse business consequences.

Our data storage and processing activities, including the establishment and operation of future quantum data centers, may subject us to numerous data privacy and security obligations, such as various laws, regulations, guidance, industry standards, external and internal privacy and security policies, contractual requirements, and other obligations relating to data privacy, data sovereignty, and security. Laws and regulations governing privacy, data protection, and data sovereignty are rapidly evolving, extensive, complex, and include inconsistencies and uncertainties that may conflict with other rules or our practices. Further, new laws, rules, and regulations could be enacted with which we are not familiar or with which our current practices do not comply.

In the United States, federal, state, and local governments have enacted numerous data privacy and security laws, including data breach notification laws, personal data privacy laws, consumer protection laws (e.g., Section 5 of the Federal Trade Commission Act), and other similar laws (e.g., wiretapping laws). For example, the California Consumer Privacy Act of 2018 ("CCPA") applies to personal information of California consumers, business representatives and employees, and requires businesses to provide specific disclosures in privacy notices and honor requests of California residents to exercise certain privacy rights. The CCPA provides for civil penalties of up to \$7,500 per violation and allows private litigants affected by certain data breaches to recover significant statutory damages. In addition, the California Privacy Rights Act of 2020 ("CPRA") expands the CCPA's requirements, including by adding a new right for individuals to correct their personal information and establishing a new regulatory agency to implement and enforce the law. Other states, such as Virginia and Colorado, have also passed comprehensive privacy laws, and similar laws are being considered in several other states, as well as at the federal and local levels.

Our employees and personnel use generative artificial intelligence ("AI") technologies to perform their work, and the disclosure and use of personal information in generative AI technologies is subject to various privacy laws and other privacy obligations. Additionally, several states and localities have enacted measures related to the use of artificial intelligence and machine learning in products and services. These developments may further complicate compliance efforts, and may increase legal risk and compliance costs for us, the third parties upon whom we rely, and our customers.

Outside the United States, an increasing number of laws, regulations, and industry standards may govern data privacy and security. For example, the European Union's General Data Protection Regulation ("EU GDPR"), the United Kingdom's General Data Protection Regulation ("UK GDPR"), Brazil's General Data Protection Law (Lei Geral de Proteção de Dados Pessoais, or "LGPD") (Law No. 13,709/2018), and China's Personal Information Protection Law ("PIPL") impose strict requirements for processing personal data.

For example, under the EU GDPR, companies may face temporary or definitive bans on data processing and other corrective actions; fines of up to 20 million Euros or 4% of annual global revenue, whichever is greater; or private litigation related to processing of personal data brought by classes of data subjects or consumer protection organizations authorized at law to represent their interests. Additionally, we also target customers in Asia and may be subject to new and emerging data privacy regimes in Asia, including China's PIPL, Japan's Act on the Protection of Personal Information, and Singapore's Personal Data Protection Act.

In addition, we may be unable to transfer personal data from Europe and other jurisdictions to the United States or other countries due to data localization requirements or limitations on cross-border data flows. Europe and other jurisdictions have enacted laws requiring data to be localized or limiting the transfer of personal data to other countries. In particular, the European Economic Area (“EEA”) and the United Kingdom (“UK”) have significantly restricted the transfer of personal data to the United States and other countries whose privacy laws it believes are inadequate. Other jurisdictions may adopt similarly stringent interpretations of their data localization and cross-border data transfer laws. Although there are currently various mechanisms that may be used to transfer personal data from the EEA and UK to the United States in compliance with law, such as the EEA and UK’s standard contractual clauses, these mechanisms are subject to legal challenges, and there is no assurance that we can satisfy or rely on these measures to lawfully transfer personal data to the United States. If there is no lawful manner for us to transfer personal data from the EEA, the UK, or other jurisdictions to the United States, or if the requirements for a legally-compliant transfer are too onerous, we could face significant adverse consequences, including the interruption or degradation of our operations, the need to relocate part of or all of our business or data processing activities to other jurisdictions at significant expense, increased exposure to regulatory actions, substantial fines and penalties, the inability to transfer data and work with partners, vendors and other third parties, and injunctions against our processing or transferring of personal data necessary to operate our business. Additionally, companies that transfer personal data out of the EEA and UK to other jurisdictions, particularly to the United States, are subject to increased scrutiny from regulators, individual litigators, and activist groups. Some European regulators have ordered certain companies to suspend or permanently cease certain transfers of personal data out of Europe for allegedly violating the EU GDPR’s cross-border data transfer limitations.

In addition to data privacy and security laws, we are contractually subject to industry standards adopted by industry groups and may become subject to such obligations in the future. We are also bound by other contractual obligations related to data privacy and security, and our efforts to comply with such obligations may not be successful. For example, certain privacy laws, such as the EU GDPR, UK GDPR and CCPA, require our customers to impose specific contractual restrictions on their service providers. Additionally, some of our customers may require us to host personal data locally.

We publish privacy policies, marketing materials, and other statements, such as compliance with certain certifications or self-regulatory principles, regarding data privacy and security. If these policies, materials or statements are found to be deficient, lacking in transparency, deceptive, unfair, or misrepresentative of our practices, we may be subject to investigation, enforcement actions by regulators, or other adverse consequences.

Obligations related to data privacy and security are quickly changing, becoming increasingly stringent, and creating regulatory uncertainty. Additionally, these obligations may be subject to differing applications and interpretations, which may be inconsistent or conflict among jurisdictions. Preparing for and complying with these obligations requires us to devote significant resources and may necessitate changes to our services, information technologies, systems, and practices and to those of any third parties that process personal data on our behalf.

We may at times fail (or be perceived to have failed) in our efforts to comply with our data privacy and security obligations. Moreover, despite our efforts, our personnel or third parties on whom we rely may fail to comply with such obligations, which could negatively impact our business operations. If we or the third parties on which we rely fail, or are perceived to have failed, to address or comply with applicable data privacy and security obligations, we could face significant consequences, including but not limited to: government enforcement actions (e.g., investigations, fines, penalties, audits, inspections, and similar); litigation (including class-action claims); additional reporting requirements and/or oversight; bans on processing personal data; and orders to destroy or not use personal data. Any of these events could have a material adverse effect on our reputation, business, or financial condition, including but not limited to: loss of customers; inability to process personal data or to operate in certain jurisdictions; interruptions or stoppages in our business operations or data collection; limited ability to develop or commercialize our products; expenditure of time and resources to defend any claim or inquiry; adverse publicity; or substantial changes to our business model or operations.

We are subject to U.S. and foreign anti-corruption, anti-bribery and similar laws, and non-compliance with such laws can subject us to criminal or civil liability and harm our business.

We are subject to the U.S. Foreign Corrupt Practices Act of 1977, as amended, the U.S. domestic bribery statute contained in 18 U.S.C. § 201, the U.S. Travel Act, and other anti-bribery, and anti-corruption laws in countries in which we conduct activities. Anti-corruption and anti-bribery laws have been enforced aggressively in recent years and are interpreted broadly to generally prohibit companies, their employees, and their third-party intermediaries from authorizing, promising, offering, providing, soliciting, or accepting, directly or indirectly, improper payments or benefits to or from any person whether in the public or private sector. We may engage with partners and third-party intermediaries to market our services and to obtain necessary permits, licenses, and other regulatory approvals. In addition, we or our third-party intermediaries may have direct or indirect interactions with officials and employees of government agencies or state-owned or affiliated entities. We can be held liable for the corrupt or other illegal activities of these third-party intermediaries, and of our employees, representatives, contractors, partners, and agents, even if we do not explicitly authorize such activities. We cannot provide any assurance that all of our employees and agents will not take actions in violation of our policies and applicable law, for which we may be ultimately held responsible.

Detecting, investigating, and resolving actual or alleged violations of anti-corruption laws can require a significant diversion of time, resources, and attention from senior management. In addition, noncompliance with anti-corruption or anti-bribery laws could subject us to whistleblower complaints, investigations, sanctions, settlements, prosecution, enforcement actions, fines, damages, other civil or criminal penalties, injunctions, suspension or debarment from contracting with certain persons, reputational harm, adverse media coverage, and other collateral consequences.

We are subject to governmental export and import controls that could impair our ability to compete in international markets due to licensing requirements and subject us to liability if we are not in compliance with applicable laws.

Our products and technologies are subject to U.S. export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. Customs regulations, and various economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls. U.S. export control and economic sanctions laws include restrictions or prohibitions on the sale or supply of certain products, technologies, and services to U.S. government embargoed or sanctioned countries, governments, persons and entities. In addition, certain products and technology may be subject to export licensing or approval requirements. Exports of our products and technology must be made in compliance with export control and sanctions laws and regulations. If we fail to comply with these laws and regulations, we and certain of our employees could be subject to substantial civil or criminal penalties, including the possible loss of export or import privileges; fines, which may be imposed on us and responsible employees or managers; and, in extreme cases, the incarceration of responsible employees or managers.

In addition, changes in our products or technologies or changes in applicable export or import laws and regulations may create delays in the introduction and sale of our products and technologies in international markets or, in some cases, prevent the export or import of our products and technologies to certain countries, governments or persons altogether. Any change in export or import laws and regulations, shift in the enforcement or scope of existing laws and regulations, or change in the countries, governments, persons or technologies targeted by such laws and regulations, could also result in decreased use of our products and technologies, or in our decreased ability to export or sell our products and technologies to existing or potential customers. Any decreased use of our products and technologies or limitation on our ability to export or sell our products and technologies would likely adversely affect our business, financial condition and results of operations.

We expect to incur significant costs in complying with these regulations. Regulations related to quantum computing are currently evolving and we may face additional risks associated with changes to these regulations.

Risks Related to our Intellectual Property

Licensing of intellectual property is of critical importance to our business. For example, we license patents (some of which are foundational patents) and other intellectual property from the University of Maryland and Duke University on an exclusive basis. If the license agreement with these universities terminates, or if any of the other agreements under which we acquired or licensed, or will acquire or license, material intellectual property rights is terminated, we could lose the ability to develop and operate our business.

We are heavily reliant upon licenses to certain patent rights and other intellectual property from third parties that are important or necessary to the development of our products. In particular, our quantum computing technology is dependent on our license agreement with University of Maryland and Duke University, or the Universities. Significant intellectual property developed by our co-founders, Jungsang Kim, our Chief Technology Officer, and Christopher Monroe, our Chief Scientist, has been and is required to be assigned to the Universities as a result of Dr. Kim and Dr. Monroe's employment by the Universities, and certain such intellectual property is licensed pursuant to the license agreement with the Universities. Pursuant to the license agreement with the universities, we were granted an exclusive, worldwide, royalty-free, sublicenseable license for certain patents, know-how (on a non-exclusive basis) and other intellectual property to develop, manufacture and commercialize products for use in certain licensed fields, the scope of which includes the application of the licensed intellectual property in ion trap quantum computing.

Our existing license agreement with the Universities imposes, and we expect that any future license agreements will impose, upon us various commercial and development obligations. If we fail to comply with our obligations under these agreements, or we are subject to an insolvency-related event, the licensor may have the right to terminate these agreements, in which event we would not be able to develop, market or otherwise commercialize products covered by these agreements, including if any of the foregoing were to occur with respect to our license agreement with the Universities. Our business could significantly suffer, for example, if any current or future licenses terminate, if the licensors fail to abide by the terms of the license, if the licensed patents or other rights are found to be invalid or unenforceable, or if we are unable to enter into necessary licenses on acceptable terms.

Licensing of intellectual property is of critical importance to our business and involves complex legal, business and scientific issues, and certain provisions in intellectual property license agreements may be susceptible to multiple interpretations. Disputes may arise between us and our licensors regarding intellectual property subject to a license agreement, including:

- the scope of rights granted under the license agreement and other interpretation-related issues;
- whether and the extent to which our technology and processes infringe on intellectual property of the licensor that is not subject to the licensing agreement;
- our right to sublicense patent and other rights to third parties;
- our diligence obligations with respect to the use of the licensed technology in relation to our development and commercialization of our product and technology, and what activities satisfy those diligence obligations;
- the ownership of inventions and know-how resulting from the joint creation or use of intellectual property by our licensors and the company;
- our right to transfer or assign the license; and
- the effects of termination.

The resolution of any contract interpretation disagreement that may arise could narrow what we believe to be the scope of our rights to the relevant intellectual property or technology, or increase what we believe to be our financial or other obligations under the relevant agreement, either of which could harm our business, financial condition and results of operations. Moreover, if disputes over intellectual property that we have licensed prevent or impair our ability to maintain our current licensing arrangements on acceptable terms, we may be unable to successfully develop and commercialize our products or technology.

While we would expect to exercise all rights and remedies available to us, including seeking to cure any breach by us, and otherwise seek to preserve our rights under the license agreement, we may not be able to do so in a timely manner, at an acceptable cost or at all.

If we are unable to obtain and maintain patent protection for our products and technology, or if the scope of the patent protection obtained is not sufficiently broad or robust, our competitors could develop and commercialize products and technology similar or identical to ours, and our ability to successfully commercialize our products and technology may be adversely affected. Moreover, our trade secrets could be compromised, which could cause us to lose the competitive advantage resulting from these trade secrets.

Our success depends, in significant part, on our ability to obtain, maintain, enforce and defend patents and other intellectual property rights, including trade secrets, with respect to our products and technology and to operate our business without infringing, misappropriating, or otherwise violating the intellectual property rights of others. We may not be able to prevent unauthorized use of our intellectual property. We rely upon a combination of the intellectual property protections afforded by patent, copyright, trademark and trade secret laws in the United States and other jurisdictions, as well as license agreements and other contractual protections, to establish, maintain and enforce rights in our proprietary technologies. In addition, we seek to protect our intellectual property rights through nondisclosure and invention assignment agreements with our employees and consultants, and through non-disclosure agreements with business partners and other third parties. Our trade secrets may also be compromised, which could cause us to lose the competitive advantage from such trade secrets. Despite our efforts to protect our proprietary rights, third parties may attempt to copy or otherwise obtain and use our intellectual property. Monitoring unauthorized use of our intellectual property is difficult and costly, and the steps we have taken or will take to prevent misappropriation may not be sufficient. Any enforcement efforts we undertake, including litigation, could be time-consuming and expensive and could divert management's attention, which could harm our business, results of operations and financial condition. In addition, existing intellectual property laws and contractual remedies may afford less protection than needed to safeguard our intellectual property portfolio.

Patent, copyright, trademark and trade secret laws vary significantly throughout the world. A number of foreign countries do not protect intellectual property rights to the same extent as do the laws of the United States. Therefore, our intellectual property rights may not be as strong or as easily enforced outside of the United States and efforts to protect against the unauthorized use of our intellectual property rights, technology and other proprietary rights may be more expensive and difficult outside of the United States. Failure to adequately protect our intellectual property rights could result in our competitors using our intellectual property to offer products, potentially resulting in the loss of some of our competitive advantage and a decrease in our revenue, which would adversely affect our business, financial condition and operating results.

Our patent applications may not result in issued patents or our patent rights may be contested, circumvented, invalidated or limited in scope, any of which could have a material adverse effect on our ability to prevent others from interfering with our commercialization of our products.

Our patent applications may not result in issued patents, which may have a material adverse effect on our ability to prevent others from commercially exploiting products similar to ours. The status of patents involves complex legal and factual questions and the breadth of claims

allowed is uncertain. As a result, we cannot be certain that the patent applications that we file will result in patents being issued, or that our patents and any patents that may be issued to us will afford protection against competitors with similar technology. Numerous patents and pending patent applications owned by others exist in the fields in which we have developed and are developing our technology. In addition to those who may have patents or patent applications directed to relevant technology with an effective filing date earlier than any of our existing patents or pending patent applications, any of our existing or pending patents may also be challenged by others on the basis that they are otherwise invalid or unenforceable. Furthermore, patent applications filed in foreign countries are subject to laws, rules and procedures that differ from those of the United States, and thus we cannot be certain that foreign patent applications related to issued U.S. patents will be issued.

Even if our patent applications succeed and we are issued patents in accordance with them, it is still uncertain whether these patents will be contested, circumvented, invalidated or limited in scope in the future. The rights granted under any issued patents may not provide us with meaningful protection or competitive advantages, and some foreign countries provide significantly less effective patent enforcement than in the United States. In addition, the claims under any patents that issue from our patent applications may not be broad enough to prevent others from developing technologies that are similar or that achieve results similar to ours. The intellectual property rights of others could also bar us from licensing and exploiting any patents that issue from our pending applications. In addition, patents issued to us may be infringed upon or designed around by others and others may obtain patents that we need to license or design around, either of which would increase costs and may adversely affect our business, prospects, financial condition and operating results.

We may face patent infringement and other intellectual property claims that could be costly to defend, result in injunctions and significant damage awards or other costs (including indemnification of third parties or costly licensing arrangements (if licenses are available at all)) and limit our ability to use certain key technologies in the future or require development of non-infringing products, services, or technologies, which could result in a significant expenditure and otherwise harm our business.

We may become subject to intellectual property disputes. Our success depends, in part, on our ability to develop and commercialize our products, services and technologies without infringing, misappropriating or otherwise violating the intellectual property rights of third parties. However, we may not be aware that our products, services or technologies are infringing, misappropriating or otherwise violating third-party intellectual property rights and such third parties may bring claims alleging such infringement, misappropriation or violation. For example, there may be issued patents of which we are unaware, held by third parties that, if found to be valid and enforceable, could be alleged to be infringed by our current or future products, services or technologies. There also may be pending patent applications of which we are not aware that may result in issued patents, which could be alleged to be infringed by our current or future products, services or technologies. Because patent applications can take years to issue and are often afforded confidentiality for some period of time there may currently be pending applications, unknown to us, that later result in issued patents that could cover our current or future products, services or technologies. Lawsuits can be time-consuming and expensive to resolve, and they divert management's time and attention. Numerous patents and pending patent applications owned by others exist in the fields in which we have developed and are developing our technology. Companies that have developed and are developing technology are often required to defend against litigation claims based on allegations of infringement, misappropriation or other violations of intellectual property rights. Our products, services or technologies may not be able to withstand any third-party claims against their use. In addition, many companies have the capability to dedicate substantially greater resources to enforce their intellectual property rights and to defend claims that may be brought against them. In a patent infringement claim against us, we may assert, as a defense, that we do not infringe the relevant patent claims, that the patent is invalid or both. The strength of our defenses will depend on the patents asserted, the interpretation of these patents, and our ability to invalidate the asserted patents. However, we could be unsuccessful in advancing non-infringement and/or invalidity arguments in our defense. In the United States, issued patents enjoy a presumption of validity, and the party challenging the validity of a patent claim must present clear and convincing evidence of invalidity, which is a high burden of proof. Conversely, the patent owner need only prove infringement by a preponderance of the evidence, which is a lower burden of proof. Our patent portfolio may not be large enough to deter patent infringement claims, and our competitors and others may now and in the future have significantly larger and more mature patent portfolios. Any litigation may also involve patent holding companies or other adverse patent owners that have no relevant solution revenue, and therefore, our patent portfolio may provide little or no deterrence as we would not be able to assert our patents against such entities or individuals. If a third party is able to obtain an injunction preventing us from accessing such third-party intellectual property rights, or if we cannot license or develop alternative technology for any infringing aspect of our business, we may be forced to limit or stop sales of our products, services or technologies or cease business activities related to such intellectual property.

Although we carry general liability insurance, our insurance may not cover potential claims of this type or may not be adequate to indemnify us for all liability that may be imposed. We cannot predict the outcome of lawsuits and cannot ensure that the results of any such actions will not have an adverse effect on our business, financial condition or results of operations. Any intellectual property litigation to which we might become a party, or for which we are required to provide indemnification, regardless of the merit of the claim or our defenses, may require us to do one or more of the following:

- cease selling or using solutions or services that incorporate the intellectual property rights that allegedly infringe, misappropriate or violate the intellectual property of a third party;
- make substantial payments for legal fees, settlement payments or other costs or damages;

- obtain a license, which may not be available on reasonable terms or at all, to sell or use the relevant technology;
- redesign the allegedly infringing solutions to avoid infringement, misappropriation or violation, which could be costly, time-consuming or impossible; or
- indemnify organizations using our platform or third-party service providers.

Even if the claims do not result in litigation or are resolved in our favor, these claims, and the time and resources necessary to resolve them, could divert the resources of our management and harm our business and operating results. Moreover, there could be public announcements of the results of hearings, motions or other interim proceedings or developments and if securities analysts or investors perceive these results to be negative, it could have a substantial adverse effect on the price of our common stock. The occurrence of infringement claims may grow as the market for our products, services and technologies grows. Accordingly, our exposure to damages resulting from infringement claims could increase and this could further exhaust our financial and management resources.

Some of our in-licensed intellectual property, including the intellectual property licensed from the Universities, has been conceived or developed through government-funded research and thus may be subject to federal regulations providing for certain rights for the U.S. government or imposing certain obligations on us, such as a license to the U.S. government under such intellectual property, “march-in” rights, certain reporting requirements and a preference for U.S.-based companies, and compliance with such regulations may limit our exclusive rights and our ability to contract with non-U.S. manufacturers.

Certain intellectual property rights that have been in-licensed pursuant to the license agreement with the Universities have been generated through the use of U.S. government funding and are therefore subject to certain federal regulations. As a result, the U.S. government may have certain rights to intellectual property embodied in our current or future product candidates pursuant to the Bayh-Dole Act of 1980, or the Patent and Trademark Law Amendment. These U.S. government rights include a non-exclusive, non-transferable, irrevocable worldwide license to use inventions for any governmental purpose. In addition, the U.S. government has the right, under certain limited circumstances, to require the licensor to grant exclusive, partially exclusive or non-exclusive licenses to any of these inventions to a third party if it determines that: (1) adequate steps have not been taken to commercialize the invention, (2) government action is necessary to meet public health or safety needs or (3) government action is necessary to meet requirements for public use under federal regulations (also referred to as “march-in rights”). The U.S. government also has the right to take title to these inventions if the licensor fails to disclose the invention to the government or fails to file an application to register the intellectual property within specified time limits. Intellectual property generated under a government funded program is also subject to certain reporting requirements, compliance with which may require us to expend substantial resources. In addition, the U.S. government requires that any products embodying any of these inventions or produced through the use of any of these inventions be manufactured substantially in the U.S., and the license agreement with the Universities requires that we comply with this requirement. This preference for U.S. industry may be waived by the federal agency that provided the funding if the owner or assignee of the intellectual property can show that reasonable but unsuccessful efforts have been made to grant licenses on similar terms to potential licensees that would be likely to manufacture the products substantially in the United States or that under the circumstances domestic manufacture is not commercially feasible. To the extent any of our owned or licensed future intellectual property is also generated through the use of U.S. government funding, the provisions of the Bayh-Dole Act may similarly apply.

Risks Related to an Investment in our Securities and Other General Matters

The market price of shares of our common stock or public warrants may be volatile, which could cause the value of your investment to decline.

If you purchase shares of our common stock, you may not be able to resell those shares at or above the price you paid. The market price of our common stock may be highly volatile and may fluctuate or decline significantly in response to numerous factors, some of which are beyond our control. It is possible that an active trading market will not be sustained. The securities markets have experienced and continue to experience significant volatility. Market volatility, as well as general economic, market or political conditions, could reduce the market price of shares of our common stock regardless of our operating performance. Our operating results could be below the expectations of public market analysts and investors due to a number of potential factors, including:

- variations in quarterly operating results or dividends, if any, to stockholders;
- additions or departures of key management personnel;
- publication of research reports about our industry;
- rumors and market speculation involving us or other companies in our industry, which may include short seller reports;
- litigation and government investigations;

- changes or proposed changes in laws or regulations or differing interpretations or enforcement of laws or regulations affecting our business;
- adverse market reaction to any indebtedness incurred or securities issued in the future;
- changes in market valuations of similar companies;
- announcements by competitors of significant contracts, acquisitions, dispositions, strategic partnerships, joint ventures, or capital commitments;
- the impact of any future bank failures, public health crises or geopolitical events such as the Russia-Ukraine war or Israel-Hamas war; and
- the impact of any of the foregoing on our management, employees, partners, customers, and operating results.

Following periods of volatility in the overall market and the market price of a company's securities, securities class action litigation has often been instituted against such company. Such litigation could result in substantial costs and a diversion of management's attention and resources. See also "*Risks Related to Litigation and Government Regulation—Our business is exposed to risks associated with litigation, investigations and regulatory proceedings.*"

If our operating and financial performance in any given period does not meet the guidance provided to the public or the expectations of investment analysts, the market price of our common stock may decline.

We have historically and may continue to, but are not obligated to, provide public guidance on our expected operating and financial results for future periods. Any such guidance will consist of forward-looking statements, subject to the risks and uncertainties described in this filing and in our other public filings and public statements. Our actual results may not always be in line with or exceed any guidance we have provided, especially in times of economic uncertainty, such as the current global economic uncertainty being experienced. If, in the future, our operating or financial results for a particular period do not meet any guidance provided or the expectations of investment analysts, or if we reduce our guidance for future periods, the market price of our common stock may decline as well. There can be no assurance that we will continue to issue public guidance in the future.

Our quarterly operating results may fluctuate significantly and could fall below the expectations of securities analysts and investors due to several factors, some of which are beyond our control, resulting in a decline in our stock price.

Our quarterly operating results may fluctuate significantly because of several factors, including:

- labor availability and costs for hourly and management personnel;
- profitability of our products, especially in new markets;
- changes in interest rates;
- impairment of long-lived assets;
- macroeconomic conditions, both nationally and locally;
- size and scope of our revenue arrangements with our customers;
- negative publicity relating to products we serve;
- changes in consumer preferences and competitive conditions;
- the loss of strategic relationships or existing contracts with any customer;
- lengthy customer sales cycle, leading to difficulty in forecasting the timing of purchasing decisions;
- expansion to new markets; and
- fluctuations in commodity prices.

Short sellers may engage in manipulative activity intended to drive down the market price of our common stock, which could also result in related regulatory and governmental scrutiny, among other effects.

Short selling is the practice of selling securities that the seller does not own but rather has borrowed or intends to borrow from a third party with the intention of later buying lower priced identical securities to return to the lender. Accordingly, it is in the interest of a short seller of our

common stock for the price to decline. At any time, short sellers may publish, or arrange for the publication of, opinions or characterizations that are intended to create negative market momentum. Issuers, like us, whose securities have historically had limited trading history or volumes and/or have been susceptible to relatively high volatility levels can be vulnerable to such short seller attacks. Short selling reports can cause increased volatility in an issuer's stock price, and result in regulatory and governmental inquiries. On May 3, 2022, a short seller report was published about us, which contained certain allegations against us. Any inquiry or formal investigation from a governmental organization or other regulatory body, including any inquiry from the SEC or the U.S. Department of Justice, could result in a material diversion of our management's time and could have a material adverse effect on our business and results of operations.

Our ability to timely raise capital in the future may be limited, or may be unavailable on acceptable terms, if at all. The failure to raise capital when needed could harm our business, operating results and financial condition. Debt or equity issued to raise additional capital may reduce the value of our common stock.

We cannot be certain when or if the operations of our business will generate sufficient cash to fund our ongoing operations or the growth of our business. We intend to make investments to support our current business and may require additional funds to respond to business challenges, including the need to develop or enhance our technology, improve our operating infrastructure or acquire complementary businesses and technologies. Additional financing may not be available on favorable terms, if at all. In addition, we may not be able to access a portion of our existing cash, cash equivalents and investments due to market conditions. For example, on March 10, 2023, the Federal Deposit Insurance Corporation ("FDIC") took control and was appointed receiver of Silicon Valley Bank ("SVB"). Similarly, on March 12, 2023, Signature Bank and Silvergate Capital Corp. were each swept into receivership. If other banks and financial institutions enter receivership or become insolvent in the future in response to financial conditions affecting the banking system and financial markets, our ability to access our existing cash, cash equivalents and investments may be threatened and could have a material adverse effect on our business and financial condition. Additionally, weakness and volatility in capital markets and the economy, in general or as a result of bank failures or macroeconomic conditions such as rising inflation, could limit our access to capital markets and increase our costs of borrowing. If adequate funds are not available on acceptable terms, we may be unable to invest in future growth opportunities, which could harm our business, operating results and financial condition. If we incur debt, the debt holders could have rights senior to holders of our common stock to make claims on our assets. The terms of any debt could restrict our operations, including our ability to pay dividends on our common stock. If we issue additional equity securities, stockholders will experience dilution, and the new equity securities could have rights senior to those of our common stock.

Because the decision to issue securities in the future offering will depend on numerous considerations, including factors beyond our control, we cannot predict or estimate the amount, timing or nature of any future issuances of debt or equity securities. As a result, stockholders will bear the risk of future issuances of debt or equity securities reducing the value of their common stock and diluting their interest.

There can be no assurance that we will be able to comply with the continued listing standards of the New York Stock Exchange ("NYSE").

If we fail to satisfy the continued listing requirements of NYSE, such as the corporate governance requirements or the minimum share price requirement, NYSE may take steps to delist our securities. Such a delisting would likely have a negative effect on the price of the securities and would impair your ability to sell or purchase the securities when you wish to do so. In the event of a delisting, we can provide no assurance that any action taken by us to restore compliance with listing requirements would allow our securities to become listed again, stabilize the market price or improve the liquidity of our securities, prevent our securities from dropping below the NYSE minimum share price requirement or prevent future non-compliance with NYSE's listing requirements. Additionally, if our securities are not listed on, or become delisted from the NYSE, for any reason, and are quoted on the OTC Bulletin Board, an inter-dealer automated quotation system for equity securities that is not a national securities exchange, the liquidity and price of our securities may be more limited than if we were quoted or listed on the NYSE or another national securities exchange. You may be unable to sell your securities unless a market can be established or sustained.

If we are unable to implement and maintain effective internal control over financial reporting, investors may lose confidence in the accuracy and completeness of financial reports, and the market price of our common stock may decline.

We are required to maintain internal controls over financial reporting and to report any material weaknesses in such internal controls. The process of designing, implementing, and testing the internal control over financial reporting required to comply with this obligation is time-consuming, costly, and complicated. There can be no assurance that the controls put in place will remain effective or that any additional controls needed will be designed and implemented timely to prevent material misstatements in our consolidated financial statements in future periods. If we identify material weaknesses in our internal control over financial reporting in the future, if we are unable to comply with the requirements of Section 404 of Sarbanes-Oxley Act of 2002 in a timely manner, or if we are unable to assert that our internal control over financial reporting is effective, we will be unable to certify that our internal control over financial reporting is effective. We cannot assure you that there will not be material weaknesses or significant deficiencies in our internal control over financial reporting in the future. Any failure to maintain internal control over financial reporting could severely inhibit our ability to accurately report our financial condition or results of operations. If we are unable to conclude that our internal control over financial reporting is effective, investors may lose confidence in the accuracy and completeness of our financial reports and the market price of our common stock could decline. We could become subject to investigations by the NYSE, the SEC or other regulatory authorities, which could require additional financial and management resources.

We will continue to incur significant increased expenses and administrative burdens as a public company, which could negatively impact our business, financial condition and results of operations.

We face increased legal, accounting, insurance, administrative and other costs and expenses as a public company that we did not incur as a private company. Sarbanes-Oxley, including the requirements of Section 404, as well as rules and regulations subsequently implemented by the SEC, the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 and the rules and regulations promulgated and to be promulgated thereunder, the Public Company Accounting Oversight Board (“PCAOB”) and the securities exchanges, impose additional reporting and other obligations on public companies. Compliance with public company requirements will continue to increase costs and make certain activities more time-consuming. A number of those requirements require us to carry out activities we have not done previously. For example, we adopted new internal controls and disclosure controls and procedures.

If any issues in complying with SEC reporting requirements are identified (for example, if we identify a material weakness or significant deficiency in the internal control over financial reporting), we could incur additional costs rectifying those issues, and the existence of those issues could harm our reputation or investor perceptions of us. Further, the costs to maintain our director and officer liability insurance may continue to rise to unprecedented levels. Risks associated with our status as a public company may make it more difficult to attract and retain qualified persons to serve on our Board or as executive officers. The additional reporting and other obligations imposed by these rules and regulations will increase legal and financial compliance costs and the costs of related legal, accounting and administrative activities. These increased costs will require us to divert a significant amount of money that could otherwise be used to expand our business and achieve strategic objectives. Advocacy efforts by stockholders and third parties may also prompt additional changes in governance and reporting requirements, which could further increase costs.

We will no longer qualify as an emerging growth company as of December 31, 2023 and, as a result, we will no longer be able to avail ourselves of certain reduced reporting requirements applicable to emerging growth companies.

As a result of the market value of our common stock held by non-affiliates as of June 30, 2023 (the last day of our second quarter) exceeding \$700.0 million, we will be classified as a “large accelerated filer” under the Exchange Act as of December 31, 2023, and will no longer qualify as an “emerging growth company.” The Company was also a smaller reporting company as defined in the Exchange Act until June 30, 2023. However, we may continue to use the scaled disclosures permitted for a smaller reporting company through our annual report on Form 10-K for the fiscal year ended December 31, 2023 and must begin providing non-scaled larger company disclosure in our first quarterly report in our next fiscal year (i.e., the quarterly report for the three-month period ended March 31, 2024).

As a large accelerated filer, we will be subject to certain disclosure and compliance requirements that apply to other public companies but did not previously apply to us due to our status as an emerging growth company. These requirements include, but are not limited to:

- the requirement that our independent registered public accounting firm attest to the effectiveness of our internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act of 2002 (the “Sarbanes-Oxley Act”);
- the requirement that we provide three years of audited financial statements and “Management’s Discussion and Analysis of Financial Condition and Results of Operations;”
- compliance with any requirements that may be adopted by the Public Company Accounting Oversight Board regarding mandatory audit firm rotation or supplement to the auditors' report providing additional information about the audit and the financial statements;
- the requirement that we provide more detailed disclosures regarding executive compensation;
- compliance with the required public company effective dates for any new or revised accounting standards;
- the requirement that we hold a non-binding advisory vote on executive compensation and obtain stockholder approval of any golden parachute payments not previously approved.

We expect that compliance with these additional requirements will substantially increase our legal and financial compliance costs. In addition, any failure to comply with these additional requirements in a timely manner, or at all, could have an adverse effect on our business and results of operations and could cause a decline in the price of our common stock.

We may issue additional shares of common stock or other equity securities without your approval, which would dilute your ownership interests and may depress the market price of our common stock.

As of September 30, 2023, we had warrants outstanding to purchase an aggregate of 13,531,767 shares of common stock. Pursuant to our employee benefit plans, we may issue an aggregate of up to 28,294,742 shares of common stock, which amount may be subject to increase from time to time. We may also issue additional shares of common stock or other equity securities of equal or senior rank in the future in connection with, among other things, future acquisitions or repayment of outstanding indebtedness, without stockholder approval, in a number of circumstances.

The issuance of additional shares or other equity securities of equal or senior rank would have the following effects:

- existing stockholders' proportionate ownership interest in us will decrease;
- the amount of cash available per share, including for payment of dividends, if any, may decrease;
- the relative voting strength of each previously outstanding share of common stock may be diminished; and
- the market price of our common stock may decline.

There is no guarantee that the public warrants will be in the money, and they may expire worthless.

The exercise price for our public warrants is \$11.50 per share of common stock. There is no guarantee that the public warrants will be in the money prior to their expiration, and as such, the public warrants may expire worthless. The public warrants expire on September 30, 2026.

We may amend the terms of the public warrants in a manner that may be adverse to holders with the approval by the holders of at least 50% of the then-outstanding public warrants. As a result, the exercise price of your public warrants could be increased, the exercise period could be shortened and the number of shares of our common stock purchasable upon exercise of a public warrant could be decreased, all without your approval.

Our public warrants are issued in registered form under the Warrant Agreement between the warrant agent and us. The Warrant Agreement provides that the terms of the public warrants may be amended without the consent of any holder to cure any ambiguity or correct any defective provision, but requires the approval by the holders of at least 50% of the then-outstanding public warrants to make any change that adversely affects the interests of the registered holders of public warrants. Accordingly, we may amend the terms of the public warrants in a manner adverse to a holder if holders of at least 50% of the then-outstanding public warrants approve of such amendment. Although our ability to amend the terms of the public warrants with the consent of at least 50% of the then-outstanding public warrants is unlimited, examples of such amendments could be amendments to, among other things, increase the exercise price of the warrants, convert the public warrants into cash or stock (at a ratio different than initially provided), shorten the exercise period or decrease the number of shares of our common stock purchasable upon exercise of a public warrant.

We may redeem unexpired public warrants prior to their exercise at a time that is disadvantageous to warrant holders, thereby making such warrants worthless.

We have the ability to redeem outstanding public warrants prior to their expiration, at a price of \$0.01 per warrant, provided that the last reported sales price of our common stock equals or exceeds \$18.00 per share (as adjusted for stock splits, stock dividends, reorganizations, recapitalizations and the like) for any 20 trading days within a 30-trading day period ending on the third trading day prior to the date on which we give proper notice of such redemption and provided certain other conditions are met. If and when the public warrants become redeemable by us, we may exercise our redemption right even if we are unable to register or qualify the underlying securities for sale under all applicable state securities laws. Redemption of the outstanding public warrants could force you (1) to exercise your public warrants and pay the exercise price therefor at a time when it may be disadvantageous for you to do so, (2) to sell your public warrants at the then-current market price when you might otherwise wish to hold your public warrants or (3) to accept the nominal redemption price which, at the time the outstanding public warrants are called for redemption, is likely to be substantially less than the market value of your public warrants.

In addition, we may redeem the public warrants after they become exercisable for a number of shares of common stock determined based on the redemption date and the fair market value of our common stock. Any such redemption may have similar consequences to a cash redemption described above. In addition, such redemption may occur at a time when the public warrants are "out-of-the-money," in which case, you would lose any potential embedded value from a subsequent increase in the value of our common stock had your public warrants remained outstanding.

We have no current plans to pay cash dividends on our common stock; as a result, stockholders may not receive any return on investment unless they sell their common stock for a price greater than the purchase price.

We have no current plans to pay dividends on our common stock. Any future determination to pay dividends will be made at the discretion of our Board, subject to applicable laws. It will depend on a number of factors, including our financial condition, results of operations, capital requirements, contractual, legal, tax and regulatory restrictions, general business conditions, and other factors that the Board may deem relevant. In addition, the ability to pay cash dividends may be restricted by the terms of debt financing arrangements, as any future debt financing arrangement likely will contain terms restricting or limiting the amount of dividends that may be declared or paid on our common stock. As a result, stockholders may not receive any return on an investment in our common stock unless they sell their shares for a price greater than what they paid for them.

Provisions in our organizational documents and certain rules imposed by regulatory authorities may delay or prevent an acquisition by a third party that could otherwise be in the interests of stockholders.

Our second amended and restated certificate of incorporation (“Certificate of Incorporation”) and amended and restated bylaws (“Bylaws”) contain several provisions that may make it more difficult or expensive for a third party to acquire control of us without the approval of the Board. These provisions, which may delay, prevent or deter a merger, acquisition, tender offer, proxy contest, or other transaction that stockholders may consider favorable, include the following:

- a classified board;
- advance notice for nominations of directors by stockholders and for stockholders to include matters to be considered at our annual meetings;
- certain limitations on convening special stockholder meetings;
- limiting the persons who may call special meetings of stockholders;
- limiting the ability of stockholders to act by written consent;
- restrictions on business combinations with an interested stockholder;
- in certain cases, the approval of holders representing at least 66 2/3% of the total voting power of the shares entitled to vote generally in the election of directors will be required for stockholders to adopt, amend or repeal the Bylaws, or amend or repeal certain provisions of the Certificate of Incorporation;
- no cumulative voting;
- the required approval of holders representing at least 66 2/3% of the total voting power of the shares entitled to vote at an election of the directors to remove directors; and
- the ability of the Board to designate the terms of and issue new series of preferred stock without stockholder approval, which could be used, among other things, to institute a rights plan that would have the effect of significantly diluting the stock ownership of a potential hostile acquirer, likely preventing acquisitions.

These provisions of our Certificate of Incorporation and Bylaws could discourage potential takeover attempts and reduce the price that investors might be willing to pay for shares of our common stock in the future, which could reduce the market price of our common stock.

The provision of our Certificate of Incorporation requiring exclusive venue in the Court of Chancery in the State of Delaware and the federal district courts of the United States for certain types of lawsuits may have the effect of discouraging lawsuits against directors and officers.

Our Certificate of Incorporation provides that, unless we consent in writing to the selection of an alternative forum, the Court of Chancery of the State of Delaware shall be the sole and exclusive forum for:

- any derivative action or proceeding brought on behalf of us;
- any action asserting a claim of breach of fiduciary duty owed by any director, officer, agent or other employee or stockholder to us or our stockholders;
- any action asserting a claim arising pursuant to any provision of the Delaware General Corporation Law (the “DGCL”), the Certificate of Incorporation or Bylaws or as to which the DGCL confers jurisdiction on the Court of Chancery of the State of Delaware;
- any claim or cause of action seeking to interpret, apply, enforce or determine the validity of the Certificate of Incorporation or the Bylaws; or
- any action asserting a claim governed by the internal affairs doctrine, in each case subject to such Court of Chancery having personal jurisdiction over the indispensable parties named as defendants therein. It further provides that, unless we consent in writing to the selection of an alternative forum, the federal district courts of the United States shall, to the fullest extent permitted by law, be the sole and exclusive forum for the resolutions of any complaint asserting a cause of action arising under the Securities Act. The exclusive forum clauses described above shall not apply to suits brought to enforce a duty or liability created by the Exchange Act, or any other claim for which the federal courts have exclusive jurisdiction. Although these provisions are expected to benefit us by providing increased consistency in the application of applicable law in the types of lawsuits to which they apply, the provisions may have the effect of discouraging lawsuits against directors and officers. The enforceability of similar choice of forum provisions in other companies’ certificates of incorporation have been challenged in legal proceedings and there is uncertainty as to whether a court would enforce such provisions. In addition, investors cannot waive compliance with the federal securities laws and the rules and regulations thereunder. It is possible that, in connection with any applicable action brought against us, a court could find the

choice of forum provisions contained in our Certificate of Incorporation to be inapplicable or unenforceable in such action. If so, we may incur additional costs associated with resolving such action in other jurisdictions, which could harm our business, financial condition or results of operations.

These provisions of our Certificate of Incorporation and Bylaws could discourage lawsuits against directors and officers, which could reduce the market price of our common stock.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds.

None.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

Securities Trading Plans of Directors and Executive Officers

During our last fiscal quarter, no director or officer, as defined in Rule 16a-1(f), adopted or terminated a "Rule 10b5-1 trading arrangement" or a "non-Rule 10b5-1 trading arrangement," each as defined in Regulation S-K Item 408.

Amended and Restated Bylaws

On November 3, 2023, the Board approved IonQ's Amended and Restated Bylaws (the "Amended Bylaws"), effective November 3, 2023. The Amended Bylaws incorporate certain amendments to align the Amended Bylaws with changes to the Delaware General Corporation Law and the laws of the state of Delaware and make certain other changes, including:

- provisions relating to delivery of notices and communications regarding adjourned stockholder meetings;
- updating the requirement that the stock list be produced at stockholder meetings; and
- updates relating to provision of flexibility related to the use of electronic means of communication for giving notice.

The Amended Bylaws also incorporate certain other amendments, including:

- updates to increase flexibility and otherwise improve corporate governance, including clarifying the default voting standards for actions at stockholder meetings, explicitly authorizing the use of board subcommittees, revising procedures for designating the chairperson of stockholder meetings and amending officer appointment provisions to allow greater flexibility to delegate appointment authority;
- updating and reorganizing of the Amended Bylaws' advance notice provisions to bring the bylaws in line with current best practices and address Rule 14a-19's "universal proxy" rules; and
- making certain other clarifying, conforming and ministerial changes.

The foregoing description of the Amended Bylaws does not purport to be a complete description of the Amended Bylaws and is qualified in its entirety by reference to the full text of the Amended Bylaws filed as Exhibit 3.2 to this Quarterly Report on Form 10-Q and incorporated by reference herein.

Item 6. Exhibits.**(a) Exhibits.**

The exhibits listed below are filed as part of this Quarterly Report on Form 10-Q.

Exhibit	Description Form	Incorporated by Reference		
		File Number	Exhibit	Filing Date
2.1+	<u>Agreement and Plan of Merger, dated as of March 7, 2021, by and among dMY Technology Group, Inc. III, IonQ, Inc. and IonQ Trap Acquisition Inc.</u>	8-K	001-39694	2.1 March 8, 2021
3.1	<u>Amended and Restated Certificate of Incorporation of IonQ, Inc.</u>	8-K	001-39694	3.1 October 4, 2021
3.2	<u>Amended and Restated Bylaws of IonQ, Inc.</u>			
10.1+	<u>Separation Agreement between IonQ, Inc. and Laurie Babinski dated September 8, 2023 and executed September 11, 2023</u>			
31.1	<u>Certification of Principal Executive Officer Pursuant to Securities Exchange Act Rules 13a-14(a) and 15(d)-14(a), as adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002</u>			
31.2	<u>Certification of Principal Financial and Accounting Officer Pursuant to Securities Exchange Act Rules 13a-14(a) and 15(d)-14(a), as adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002</u>			
32.1*	<u>Certification of Principal Executive Officer and Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002</u>			
101.INS	Inline XBRL Instance Document.			
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document.			
101.SCH	Inline XBRL Taxonomy Extension Schema Document.			
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document.			
101.LAB	Inline XBRL Taxonomy Extension Labels Linkbase Document.			
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document.			
104	Cover Page Interactive Data File (embedded within the Inline XBRL document).			

+ Certain of the exhibits and schedules to this Exhibit have been omitted in accordance with Regulation S-K Item 601. The Registrant agrees to furnish a copy of all omitted exhibits and schedules to the SEC upon its request.

* Furnished herewith and not deemed to be “filed” for purposes of Section 18 of the Exchange Act and shall not be deemed to be incorporated by reference into any filing under the Securities Act or the Exchange Act (whether made before or after the date of this Quarterly Report on Form 10-Q), irrespective of any general incorporation language contained in such filing.

SIGNATURES

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

IonQ, Inc.

Date: November 9, 2023

/s/ Peter Chapman

Name: Peter Chapman

Title: President and Chief Executive Officer
(Principal Executive Officer)

Date: November 9, 2023

/s/ Thomas Kramer

Name: Thomas Kramer

Title: Chief Financial Officer
(Principal Financial and Accounting Officer)

AMENDED AND RESTATED BYLAWS
OF
IONQ, INC.
(A DELAWARE CORPORATION)

ARTICLE I

OFFICES

Section 1. Registered Office. The registered office of IonQ, Inc. (the “*corporation*”) in the State of Delaware shall be as set forth in the Amended and Restated Certificate of Incorporation of the corporation, as the same may be amended or restated from time to time (the “*Certificate of Incorporation*”).

Section 2. Other Offices. The corporation may also have and maintain offices at such other places, both within and without the State of Delaware.

ARTICLE II

CORPORATE SEAL

Section 3. Corporate Seal. The Board of Directors of the corporation (the “*Board of Directors*”) may adopt a corporate seal. If adopted, the corporate seal shall consist of the name of the corporation and the inscription, “*Corporate Seal-Delaware.*” Said seal may be used by causing it or a facsimile thereof to be impressed or affixed or reproduced or otherwise.

ARTICLE III

STOCKHOLDERS’ MEETINGS

Section 4. Place of Meetings. Meetings of the stockholders of the corporation shall be held at such place, if any, either within or without the State of Delaware, as may be determined from time to time by the Board of Directors. The Board of Directors may, in its sole discretion, determine that the meeting shall not be held at any place, but may instead be held solely by means of remote communication as provided under the General Corporation Law of the State of Delaware (the “*DGCL*”) and Section 14 below.

Section 5. Advance Notice Procedures.

(a) *Annual Meetings of Stockholders.*

(i) The annual meeting of the stockholders of the corporation, for the purpose of election of directors and for such other business as may properly come before it, shall be held on such date and at such time as may be designated from time to time by the Board of Directors. The Board of Directors may postpone, reschedule or cancel any annual meeting of stockholders at any time, before or after the notice for such meeting has been given to the stockholders. Nominations of persons for election to the Board of Directors and proposals of business to be considered by the stockholders may be made at an annual meeting of stockholders only: (i) pursuant to the corporation's notice of meeting of stockholders (or any supplement thereto); (ii) by or at the direction of the Board of Directors or a duly authorized committee thereof; or (iii) by any stockholder of the corporation who (A) is a stockholder of record (and, with respect to any beneficial owner, if different, on whose behalf such business is proposed or such nomination or nominations are made, only if such beneficial owner was the beneficial owner of shares of the corporation) at the time of giving of the stockholder's notice provided for in Section 5(a)(ii) below, (B) is a stockholder of record on the record date for the determination of stockholders entitled to notice of the annual meeting, (C) is a stockholder of record on the record date for the determination of stockholders entitled to vote at the annual meeting, (D) is a stockholder of record at the time of the annual meeting, and (E) complies with the notice procedures set forth in this Section 5. For the avoidance of doubt, clause (iii) above shall be the exclusive means for a stockholder to make nominations and submit other business (other than matters properly included in the corporation's notice of meeting of stockholders and proxy statement under Rule 14a-8 under the Securities Exchange Act of 1934 (as amended and inclusive of the rules and regulations thereunder, the "**1934 Act**")) before an annual meeting of stockholders. At an annual meeting of the stockholders, only such business shall be conducted as is a proper matter for stockholder action under Delaware law, the Certificate of Incorporation and these Amended and Restated Bylaws ("**Bylaws**"), and only such nominations shall be made and such business shall be conducted as shall have been properly brought before the meeting in accordance with the procedures below.

(ii) For nominations for the election to the Board of Directors or other business to be properly brought before an annual meeting by a stockholder pursuant to clause (iii) of Section 5(a)(i), the stockholder must have given written notice to the Secretary of the corporation (the "**Secretary**") at the principal executive offices of the corporation on a timely basis. To be timely, a stockholder's notice must be received by the Secretary at the principal executive offices of the corporation no earlier than 8:00 a.m., Eastern Time, on the 120th day and no later than 5:00 p.m., Eastern Time, on the 90th day prior to the day of the first anniversary of the preceding year's annual meeting of stockholders as first specified in the corporation's notice of such annual meeting (without regard to any adjournment, rescheduling, postponement or other delay of such annual meeting occurring after such notice was first sent); *provided, however*, that, if no annual meeting of stockholders was held in the preceding year, or if the date of the annual meeting for the current year has been changed by more than 30 days from the first anniversary of the preceding year's annual meeting, then notice by the stockholder to be timely must be so received by the Secretary at the principal executive offices of the corporation no earlier than 8:00 a.m., Eastern Time, on the 120th day prior to the day of such annual meeting and no later than 5:00 p.m., Eastern Time, on the later of the 90th day prior to the day of such annual meeting or, if the first public announcement of the date of such annual meeting is less than 100 days prior to the date of such annual meeting, the 10th day following the day on which public announcement of the date of the annual meeting was first made by the corporation. In no event shall an

adjournment, rescheduling, postponement or other delay of an annual meeting, or the announcement thereof, commence a new time period (or extend any time period) for the giving of a stockholder's notice as described above. In no event may a stockholder provide notice with respect to a greater number of director candidates than there are director seats subject to election by stockholders at the annual meeting. In the event that the number of directors to be elected to the Board of Directors of the corporation is increased and there is no public announcement naming all of the nominees for director or specifying the size of the increased Board of Directors at least 10 days before the last day that a stockholder may deliver a notice of nomination pursuant to the foregoing provisions, then a stockholder's notice required by this Section 5(a)(ii) shall also be considered timely, but only with respect to any nominees for any new positions created by such increase, if it shall be received by the Secretary at the principal executive offices of the corporation no later than 5:00 p.m., Eastern Time, on the 10th day following the day on which such public announcement is first made by the corporation. "**Public announcement**" shall mean disclosure in a press release reported by a national news service or in a document publicly filed by the corporation with the Securities and Exchange Commission pursuant to Section 13, Section 14 or Section 15(d) of the 1934 Act or by such other means as is reasonably designed to inform the public or stockholders of the corporation in general of such information, including, without limitation, posting on the corporation's investor relations website.

(iii) Such stockholder's notice to the Secretary shall set forth:

(A) as to each nominee such stockholder proposes to nominate for election as a director at the meeting: (1) the name, age, business address and residence address of such nominee, (2) the principal occupation or employment of such nominee, (3) (a) the class or series and number of shares of each class or series of capital stock of the corporation that are owned of record or beneficially by such nominee, (b) any Derivative Instruments (as defined below) held or beneficially owned by such person, including the full notional amount of any securities that, directly or indirectly, underlie any Derivative Instrument and (c) any other agreement, arrangement or understanding that has been made the effect or intent of which is to create or mitigate loss to, manage risk or benefit of share price changes for, or increase or decrease the voting power of such person with respect to the corporation's securities, (4) the date or dates on which shares of capital stock of the corporation were acquired by such nominee and the investment intent of such acquisition and (5) all other information concerning such nominee as would be required to be disclosed in a proxy statement soliciting proxies for the election of such nominee as a director in an election contest (even if an election contest is not involved and whether or not proxies are being or will be solicited), or that is otherwise required to be disclosed pursuant to Section 14 of the 1934 Act, (6) such person's written consent to being named as a nominee of such stockholder, to being named in the corporation's proxy statement and form of proxy pursuant to Rule 14a-19 under the 1934 Act ("**Rule 14a-19**") and to serving as a director if elected, (7) any direct or indirect compensatory, payment, indemnification or other financial agreement, arrangement or understanding that such person has, or has had within the past three years, with any person or entity other than the corporation (including, without limitation, the amount of any payment or payments received or receivable thereunder), in each case in connection with candidacy or service as a director of the corporation (such agreement, arrangement or understanding, a "**Third-Party Compensation Arrangement**") and (8) a description of any other material relationships between such person and such person's respective affiliates and associates, or others acting in concert with them, on the one hand, and such

stockholder giving the notice and the beneficial owner, if any, on whose behalf the nomination is made, and their respective affiliates and associates, or others acting in concert with them, on the other hand, including, without limitation, all information that would be required to be disclosed pursuant to Item 404 under Regulation S-K if such stockholder, beneficial owner, affiliate or associate were the “registrant” for purposes of such rule and such person were a director or executive officer of such registrant;

(B) as to any other business that the stockholder proposes to bring before the annual meeting: (1) a brief description of the business desired to be brought before the annual meeting, (2) the text of the proposal or business (including the text of any resolutions proposed for consideration and, if applicable, the text of any proposed amendment to these Bylaws), (3) the reasons for conducting such business at the annual meeting, (4) any material interest in such business of such stockholder giving the notice and the beneficial owner, if any, on whose behalf the proposal is made, and their respective affiliates and associates, or others acting in concert with them and (5) all agreements, arrangements and understandings between such stockholder and the beneficial owner, if any, on whose behalf the proposal is made, and their respective affiliates or associates or others acting in concert with them, and any other person or persons (including their names) in connection with the proposal of such business by such stockholder; and

(C) as to the stockholder giving the notice and the beneficial owner, if any, on whose behalf the nomination or proposal is made: (1) the name and address of such stockholder, as they appear on the corporation’s books, of such beneficial owner, and of their respective affiliates or associates or others acting in concert with them, (2) the class or series and number of shares of stock of the corporation that are, directly or indirectly, held of record or owned beneficially by such stockholder, such beneficial owner or their respective affiliates or associates or others acting in concert with them and the date or dates on which such shares were acquired and the investment intent of such acquisition, (3) any agreement, arrangement or understanding (whether oral or in writing) between such stockholder, such beneficial owner or their respective affiliates or associates or others acting in concert with them, and any other person or persons (including, in each case, their names) with respect to such nomination or proposal, (4) any (a) agreement, arrangement or understanding (including, without limitation and regardless of the form of settlement, any derivative, long or short positions, profit interests, forwards, futures, swaps, options, warrants, convertible securities, stock appreciation or similar rights, hedging transactions and borrowed or loaned shares) that has been entered into by or on behalf of such stockholder, such beneficial owner or their respective affiliates or associates or others acting in concert with them with respect to the corporation’s securities (any of the foregoing, a “***Derivative Instrument***”) including the full notional amount of any securities that, directly or indirectly, underlie any Derivative Instrument; and (b) other agreement, arrangement or understanding that has been made the effect or intent of which is to create or mitigate loss to, manage risk or benefit of share price changes for, or increase or decrease the voting power of, such stockholder, such beneficial owner or their respective affiliates or associates or others acting in concert with them with respect to the corporation’s securities, (5) any proxy, contract, arrangement, understanding or relationship pursuant to which such stockholder, such beneficial owner or their respective affiliates or associates or others acting in concert with them has a right to vote any shares of any security of the corporation, (6) any rights to dividends on the corporation’s securities owned beneficially by such stockholder, such beneficial owner or their

respective affiliates or associates or others acting in concert with them that are separated or separable from the underlying security, (7) any proportionate interest in the corporation's securities or Derivative Instruments held, directly or indirectly, by a general or limited partnership in which such stockholder, such beneficial owner or their respective affiliates or associates or others acting in concert with them is a general partner or, directly or indirectly, beneficially owns an interest in a general partner of such general or limited partnership, (8) any performance-related fees (other than an asset-based fee) that such stockholder, such beneficial owner or their respective affiliates or associates or others acting in concert with them is entitled to based on any increase or decrease in the value of the corporation's securities or Derivative Instruments, including, without limitation, any such interests held by members of the immediate family of such persons sharing the same household, (9) any significant equity interests or any Derivative Instruments in any principal competitor of the corporation that are held by such stockholder, such beneficial owner or their respective affiliates or associates or others acting in concert with them, (10) any direct or indirect interest of such stockholder, such beneficial owner or their respective affiliates or associates or others acting in concert with them in any contract with the corporation, any affiliate of the corporation or any principal competitor of the corporation (in each case, including, without limitation, any employment agreement, collective bargaining agreement or consulting agreement), (11) any material pending or threatened legal proceeding in which such stockholder, such beneficial owner or their respective affiliates or associates or others acting in concert with them is a party or material participant involving the corporation or any of its officers, directors or affiliates, (12) any material relationship between such stockholder, such beneficial owner or their respective affiliates or associates or others acting in concert with them, on the one hand, and the corporation or any of its officers, directors or affiliates, on the other hand, (13) a representation and undertaking that the stockholder is a holder of record of stock of the corporation as of the date of submission of the stockholder's notice and intends to appear in person or by proxy at the annual meeting to bring such nomination or other business before the annual meeting, (14) a representation and undertaking as to whether such stockholder, such beneficial owner or their respective affiliates or associates or others acting in concert with them intends, or is part of a group that intends, to (a) deliver a proxy statement or form of proxy to holders of at least the percentage of the voting power of the corporation's then-outstanding stock required to elect such nominee or nominees or to approve or adopt the proposal (which representation and undertaking must include a statement as to whether such stockholder, such beneficial owner or their respective affiliates or associates or others acting in concert with them intends to solicit the requisite percentage of the voting power of the corporation's stock under Rule 14a-19) or (b) otherwise solicit proxies from stockholders in support of such proposal or nomination, (15) any other information relating to such stockholder, such beneficial owner or their respective affiliates or associates or others acting in concert with them, or director nominee or proposed business, that, in each case, would be required to be disclosed in a proxy statement or other filing required to be made in connection with the solicitation of proxies in support of such nominee (in a contested election of directors) or proposal pursuant to Section 14 of the 1934 Act, and (16) such other information relating to any proposed item of business as the corporation may reasonably require to determine whether such proposed item of business is a proper matter for stockholder action.

(iv) In addition to the requirements of this Section 5, to be timely, a stockholder's notice (and any additional information submitted to the corporation in connection therewith) must be further updated and supplemented (1) if necessary, so that the information provided or required

to be provided in such notice is true and correct as of the record date(s) for determining the stockholders entitled to notice of, and to vote at, the annual meeting and as of the date that is 10 Business Days (as defined below) prior to the annual meeting or any adjournment, rescheduling, postponement or other delay thereof, and (2) to provide any additional information that the corporation may reasonably request. Any such update and supplement or additional information (including, if requested pursuant to Section 5(a)(iii)(C)(16)) shall be received by the Secretary at the principal executive offices of the corporation (A) in the case of a request for additional information, promptly following a request therefor, which response must be received by the Secretary not later than such reasonable time as is specified in any such request from the corporation, or (B) in the case of any other update or supplement of any information, not later than five Business Days after the later of the record date(s) for the annual meeting (in the case of any update and supplement required to be made as of the record date(s)), and not later than eight Business Days prior to the date for the meeting or any adjournment, rescheduling, postponement or other delay thereof (in the case of any update or supplement required to be made as of 10 Business Days prior to the annual meeting or any adjournment, rescheduling, postponement or other delay thereof). No later than five Business Days prior to the annual meeting or any adjournment, rescheduling, postponement or other delay thereof, a stockholder nominating individuals for election as a director will provide the corporation with reasonable evidence that such stockholder has met the requirements of Rule 14a-19. The failure to timely provide such update, supplement, evidence or additional information shall result in the nomination or proposal no longer being eligible for consideration at the annual meeting. If the stockholder fails to comply with the requirements of Rule 14a-19 (including because the stockholder fails to provide the corporation with all information or notices required by Rule 14a-19), then the director nominees proposed by such stockholder shall be ineligible for election at the annual meeting and any votes or proxies in respect of such nomination shall be disregarded, notwithstanding that such proxies may have been received by the corporation and counted for the purposes of determining quorum. For the avoidance of doubt, the obligation to update and supplement, or provide additional information or evidence, as set forth in these Bylaws shall not limit the corporation's rights with respect to any deficiencies in any notice provided by a stockholder, extend any applicable deadlines pursuant to these Bylaws or enable or be deemed to permit a stockholder who has previously submitted notice pursuant to these Bylaws to amend or update any nomination or to submit any new nomination. No disclosure pursuant to these Bylaws will be required with respect to the ordinary course business activities of any broker, dealer, commercial bank, trust company or other nominee who is the stockholder submitting a notice pursuant to this Section 5 solely because such broker, dealer, commercial bank, trust company or other nominee has been directed to prepare and submit the notice required by these Bylaws on behalf of a beneficial owner. "**Business Day**" shall mean any day other than Saturday, Sunday or a day on which banks are closed in New York City, New York.

(b) Special Meetings of Stockholders. Except to the extent required by the DGCL, and subject to Section 6(a), special meetings of stockholders may be called only in accordance with the Certificate of Incorporation and these Bylaws. Only such business will be conducted at a special meeting of stockholders as has been brought before the special meeting pursuant to the corporation's notice of meeting. If the election of directors is included as business to be brought before a special meeting in the corporation's notice of meeting, then nominations of persons for election to the Board of Directors at such special meeting may be made by any stockholder who (i) is a stockholder of record at the time of giving of the notice contemplated by this Section 5(b),

(ii) is a stockholder of record on the record date for the determination of stockholders entitled to notice of the special meeting, (iii) is a stockholder of record on the record date for the determination of stockholders entitled to vote at the special meeting, (iv) is a stockholder of record at the time of the special meeting, and (v) complies with the procedures set forth in this Section 5(b) (with such procedures that the corporation deems to be applicable to such special meeting). For nominations to be properly brought by a stockholder before a special meeting pursuant to this Section 5(b), the stockholder's notice must be received by the Secretary at the principal executive offices of the corporation no earlier than 8:00 a.m., Eastern Time, on the 120th day prior to the day of the special meeting and no later than 5:00 p.m., Eastern Time, on the later of the 90th day prior to the day of such special meeting and the 10th day following the day on which public announcement of the date of the special meeting was first made. In no event will any adjournment, rescheduling, postponement or other delay of a special meeting or any announcement thereof commence a new time period (or extend any time period) for the giving of a stockholder's notice as described above. In no event may a stockholder provide notice with respect to a greater number of director candidates than there are director seats subject to election by stockholders at the special meeting. A stockholder's notice to the Secretary must comply with the applicable notice requirements of Section 5(a)(iii) and Section 5(a)(iv), with references therein to "annual meeting" deemed to mean "special meeting" for the purposes of this final sentence of this Section 5(b).

(c) *Other Requirements and Procedures.*

(i) To be eligible to be a nominee of any stockholder for election as a director of the corporation, the proposed nominee must provide to the Secretary, in accordance with the applicable time periods prescribed for delivery of notice under Section 5(a)(ii) or Section 5(b): (1) a signed and completed written questionnaire (in the form provided by the Secretary at the written request of the nominating stockholder, which form will be provided by the Secretary within 10 days of receiving such request) containing information regarding such nominee's background and qualifications and such other information as may reasonably be required by the corporation to determine the eligibility of such nominee to serve as a director of the corporation or to serve as an independent director of the corporation, (2) a written representation and undertaking that, unless previously disclosed to the corporation, such nominee is not, and will not become, a party to any voting agreement, arrangement, commitment, assurance or understanding with any person or entity as to how such nominee, if elected as a director, will vote on any issue, (3) a written representation and undertaking that, unless previously disclosed to the corporation, such nominee is not, and will not become, a party to any Third-Party Compensation Arrangement, (4) a written representation and undertaking that, if elected as a director, such nominee would be in compliance, and will continue to comply, with the corporation's corporate governance, conflict of interest, confidentiality, stock ownership and trading guidelines, and other policies and guidelines applicable to directors and in effect during such person's term in office as a director (and, if requested by any candidate for nomination, the Secretary will provide to such proposed nominee all such policies and guidelines then in effect), and (5) a written representation and undertaking that such nominee, if elected, intends to serve a full term on the Board of Directors.

(ii) At the request of the Board of Directors, any person nominated by the Board of Directors for election as a director must furnish to the Secretary the information that is required to be set forth in a stockholder's notice of nomination pertaining to such nominee.

(iii) A person shall not be eligible to be nominated by a stockholder for election or re-election as a director, or be seated as a director, unless the person is nominated and elected in accordance with the procedures set forth in this Section 5. Only such business shall be conducted at any meeting of the stockholders of the corporation as shall have been brought before the meeting in accordance with the procedures set forth in this Section 5.

(iv) Except as otherwise required by applicable law, the chairperson of the meeting shall have the power and duty to determine and declare whether a nomination or any other business proposed to be brought before the meeting was made, or proposed, as the case may be, in accordance with the procedures set forth in these Bylaws. If the chairperson of the meeting should so determine that any proposed nomination or business is not in compliance with these Bylaws, then the chairperson of the meeting will so declare to the meeting that such proposal or nomination shall not be presented for stockholder action at the meeting and shall be disregarded, or that such business shall not be transacted, notwithstanding that proxies in respect of such nomination or such business may have been solicited or received.

(v) Notwithstanding anything to the contrary in this Section 5, unless otherwise required by law, if the stockholder (or a qualified representative of the stockholder) does not appear in person at the meeting to present a nomination or other proposed business, such nomination shall be disregarded or such proposed business shall not be transacted, notwithstanding that proxies in respect of such nomination or such business may have been received by the corporation and counted for purposes of determining a quorum. For purposes of this Section 5, to be considered a qualified representative of the stockholder, a person must be a duly authorized officer, manager or partner of such stockholder or must be authorized by a writing executed by such stockholder or an electronic transmission delivered by such stockholder to act for such stockholder as proxy at the meeting of stockholders and such person must produce such writing or electronic transmission, or a reliable reproduction of the writing or electronic transmission, at the meeting of stockholders.

(vi) Without limiting the foregoing provisions of this Section 5, a stockholder must also comply with all applicable requirements of the 1934 Act with respect to the matters set forth in this Section 5, it being understood that any references in these Bylaws to the 1934 Act are not intended to and shall not limit the requirements applicable to proposals and/or nominations to be considered pursuant to Section 5 of these Bylaws, and compliance with clause (iii) of Section 5(a)(i) and with Section 5(b) are the exclusive means for a stockholder to make nominations or submit other business (other than as provided in Section 5(c)(vii)).

(vii) Notwithstanding anything to the contrary in this Section 5, the notice requirements set forth in these Bylaws with respect to the proposal of any business pursuant to this Section 5 will be deemed to be satisfied by a stockholder if (1) such stockholder has submitted a proposal to the corporation in compliance with Rule 14a-8 under the 1934 Act; and (2) such stockholder's proposal has been included in a proxy statement that has been prepared by the corporation to solicit proxies for the meeting of stockholders. Subject to Rule 14a-8 and other applicable rules

and regulations under the 1934 Act, nothing in these Bylaws will be construed to permit any stockholder, or give any stockholder the right, to include or have disseminated or described in the corporation's proxy statement any nomination of a director or any other business proposal.

Section 6. Special Meetings.

(a) Special meetings of the stockholders of the corporation, other than as required by statute, may be called, for any purpose as is a proper matter for stockholder action under Delaware law, by (i) the Chairperson of the Board of Directors, (ii) the Chief Executive Officer, or (iii) the Board of Directors pursuant to a resolution adopted by a majority of the total number of authorized directors (whether or not there exist any vacancies or other unfilled seats in previously authorized directorships at the time any such resolution is presented to the Board of Directors for adoption), but a special meeting may not be called by any other person or persons and any power of stockholders to call a special meeting of stockholders is specifically denied. The Board of Directors may postpone, reschedule or cancel any special meeting of stockholders at any time, before or after the notice for such meeting has been given to the stockholders.

Section 7. Notice of Meetings. Except as otherwise provided by applicable law, notice of each meeting of stockholders shall be given not less than ten nor more than 60 days before the date of the meeting to each stockholder entitled to vote at such meeting as of the record date for determining the stockholders entitled to notice of the meeting. Such notice shall be given in accordance with Section 232 of the DGCL and shall specify the place, if any, date and hour of the meeting, in the case of special meetings, the purpose or purposes of the meeting, the record date for determining stockholders entitled to vote at the meeting, if such record date is different from the record date for determining stockholders entitled to notice of the meeting, and the means of remote communications, if any, by which stockholders and proxyholders may be deemed to be present in person and vote at any such meeting. Notice of the time, place, if any, and purpose of any meeting of stockholders (to the extent required) may be waived in writing, signed by the person entitled to notice thereof, or by electronic transmission by such person, either before or after such meeting, and will be waived by any stockholder by such stockholder's attendance thereat in person, by remote communication, if applicable, or by proxy, except when the stockholder attends a meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Any stockholder so waiving notice of such meeting shall be bound by the proceedings of any such meeting in all respects as if due notice thereof had been given.

Section 8. Quorum and Vote Required. At all meetings of stockholders, except where otherwise required by statute or by the Certificate of Incorporation, or by these Bylaws, or by applicable stock exchange rules, the presence, in person, by remote communication, if applicable, or by proxy, of the holders of a majority of the voting power of the outstanding shares of stock entitled to vote at the meeting shall constitute a quorum for the transaction of business. In the absence of a quorum, any meeting of stockholders may be adjourned, from time to time, either by the chairperson of the meeting or by vote of the holders of a majority of the voting power of the shares present in person or represented by proxy thereat and entitled to vote thereon, but no other business shall be transacted at such meeting. The stockholders present at a duly called or convened meeting, at which a quorum is present, may continue to transact

business until adjournment, notwithstanding the withdrawal of enough stockholders to leave less than a quorum.

Except as otherwise provided by statute or by applicable stock exchange rules, or by the Certificate of Incorporation or these Bylaws, in all matters other than the election of directors, the affirmative vote of the holders of a majority of the voting power of the shares cast affirmatively or negatively on such matter shall be the act of the stockholders (it being understood that abstentions and broker non-votes will be considered for the purposes of establishing quorum at the meeting but will not be considered as votes cast for or against a proposal). Except as otherwise required by statute, the Certificate of Incorporation or these Bylaws, directors shall be elected by a plurality of the voting power of the shares present in person, by remote communication, if applicable, or represented by proxy at the meeting and entitled to vote generally on the election of directors.

Where a separate vote by a class or classes or series is required, except where otherwise required by statute or by the Certificate of Incorporation or these Bylaws or any applicable stock exchange rules, the holders of a majority of the voting power of the outstanding shares of such class or classes or series, present in person, by remote communication, if applicable, or represented by proxy, shall constitute a quorum entitled to take action with respect to that vote on that matter. Except where otherwise provided by statute or by the Certificate of Incorporation or these Bylaws or any applicable stock exchange rules, where a separate vote by a class or classes or series is required, in all matters other than the election of directors, the affirmative vote of the holders of a majority of the voting power of the shares of such class or classes or series cast affirmatively or negatively on that matter and entitled to vote on such matter shall be the act of such class or classes or series (it being understood that abstentions and broker non-votes will not be considered as votes cast for or against a proposal).

Section 9. Adjournment and Notice of Adjourned Meetings. Any meeting of stockholders, whether annual or special, may be adjourned from time to time (a) whether or not a quorum is present, by the chairperson of the meeting or (b) if a quorum is not present, by the vote of the holders of a majority of the voting power of the shares present in person, by remote communication, if applicable, or represented by proxy at the meeting and entitled to vote thereon. When a meeting is adjourned to another time or place, if any (including an adjournment taken to address a technical failure to convene or continue a meeting using remote communication), notice need not be given of the adjourned meeting if the time and place, if any, thereof and the means of remote communications, if any, by which stockholders and proxyholders may be deemed present in person and may vote at such meeting are (i) announced at the meeting at which the adjournment is taken, (ii) displayed, during the time scheduled for the meeting, on the same electronic network used to enable stockholders and proxy holders to participate in the meeting by means of remote communication or (iii) set forth in the notice of meeting given in accordance with Section 222(a) of the DGCL. At the adjourned meeting, the corporation may transact any business that might have been transacted at the original meeting. If the adjournment is for more than 30 days, a notice of the adjourned meeting shall be given to each stockholder of record entitled to vote at the meeting. If after the adjournment a new record date for determination of stockholders entitled to vote is fixed for the adjourned meeting, the Board of Directors shall fix a new record date for notice of such adjourned meeting in accordance with Section 213(a) of the DGCL and Section 40 of these Bylaws, and shall give

notice of the adjourned meeting to each stockholder of record entitled to vote at such adjourned meeting as of the record date for notice of such adjourned meeting.

Section 10. Voting Rights. For the purpose of determining those stockholders entitled to vote at any meeting of the stockholders or adjournment thereof, except as otherwise provided by applicable law, only persons in whose names shares stand on the stock records of the corporation on the record date for determining stockholders entitled to vote at such meeting shall be entitled to vote at any meeting of stockholders. Every person entitled to vote shall have the right to do so either in person, by remote communication, if applicable, or by an agent or agents authorized by a proxy granted in accordance with Delaware law. An agent so appointed need not be a stockholder. No proxy shall be voted after three years from its date of creation unless the proxy provides for a longer period. A proxy shall be irrevocable if it states that it is irrevocable and if, and only as long as, it is coupled with an interest sufficient in law to support an irrevocable power. A stockholder may revoke any proxy that is not irrevocable by attending the meeting and voting in person or by delivering to the Secretary of the corporation a revocation of the proxy or a new proxy bearing a later date. Voting at meetings of stockholders need not be by written ballot.

Section 11. Joint Owners of Stock. If shares or other securities having voting power stand of record in the names of two or more persons, whether fiduciaries, members of a partnership, joint tenants, tenants in common, tenants by the entirety, or otherwise, or if two or more persons have the same fiduciary relationship respecting the same shares, unless the Secretary is given written notice to the contrary and is furnished with a copy of the instrument or order appointing them or creating the relationship wherein it is so provided, their acts with respect to voting shall have the following effect: (a) if only one votes, such person's act binds all; (b) if more than one votes, the act of the majority so voting binds all; (c) if more than one votes, but the vote is evenly split on any particular matter, each faction may vote the securities in question proportionally, or may apply to the Delaware Court of Chancery for relief as provided in Section 217(b) of the DGCL. If the instrument filed with the Secretary shows that any such tenancy is held in unequal interests, a majority or even-split for the purpose of clause (c) of the preceding sentence shall be a majority or even-split in interest.

Section 12. List of Stockholders. The corporation shall prepare, no later than the tenth day before each meeting of stockholders, a complete list of the stockholders entitled to vote at said meeting, arranged in alphabetical order, and showing the address of each stockholder and the number of shares registered in the name of each stockholder; provided, however, if the record date for determining the stockholders entitled to vote is less than ten days before the meeting date, the list shall reflect all of the stockholders entitled to vote as of the tenth day before the meeting date. Such list shall be open to the examination of any stockholder, for any purpose germane to the meeting for a period of ten days ending on the day before the meeting date, (a) on a reasonably accessible electronic network, provided that the information required to gain access to such list is provided with the notice of the meeting, or (b) during ordinary business hours, at the principal place of business of the corporation. In the event that the corporation determines to make the list available on an electronic network, the corporation may take reasonable steps to ensure that such information is available only to stockholders of the corporation.

Section 13. Action without Meeting.

Subject to the rights of holders of any series of preferred stock then outstanding, no action shall be taken by the stockholders of the corporation except at an annual or special meeting of stockholders duly called in accordance with these Bylaws and no action shall be taken by the stockholders by written consent.

Section 14. Remote Communication.

For the purposes of these Bylaws, if authorized by the Board of Directors in its sole discretion, and subject to such guidelines and procedures as the Board of Directors may adopt, stockholders and proxyholders not physically present at a meeting of stockholders may, by means of remote communication:

- (i) participate in a meeting of stockholders; and
- (ii) be deemed present in person and vote at a meeting of stockholders whether such meeting is to be held at a designated place or solely by means of remote communication, provided that (1) the corporation shall implement reasonable measures to verify that each person deemed present and permitted to vote at the meeting by means of remote communication is a stockholder or proxyholder, (2) the corporation shall implement reasonable measures to provide such stockholders and proxyholders a reasonable opportunity to participate in the meeting and to vote on matters submitted to the stockholders, including an opportunity to read or hear the proceedings of the meeting substantially concurrently with such proceedings, and (3) if any stockholder or proxyholder votes or takes other action at the meeting by means of remote communication, a record of such vote or other action shall be maintained by the corporation.

Section 15. Organization.

(a) At every meeting of stockholders, a chairperson of the meeting designated by the Board of Directors, or, if the Board of Directors does not designate such chairperson or such person is absent or refuses to act, the Chairperson of the Board of Directors, or, if the Chairperson of the Board of Directors has not been appointed, is absent or refuses to act, the Chief Executive Officer, or if no Chief Executive Officer is then serving or the Chief Executive Officer is absent or refuses to act, the President, or, if the President is absent or refuses to act, any other executive officer of the corporation shall act as chairperson of the meeting of stockholders. The Secretary, or, in the Secretary's absence, an Assistant Secretary or other officer or other person directed to do so by the chairperson of the meeting, shall act as secretary of the meeting.

(b) The Board of Directors shall be entitled to make such rules or regulations for the conduct of meetings of stockholders as it shall deem necessary, appropriate or convenient. Subject to such rules and regulations of the Board of Directors, if any, the chairperson of the meeting shall have the right and authority to convene and (for any or no reason) to recess and/or adjourn the meeting, to prescribe such rules, regulations and procedures and to do all such acts as, in the judgment of such chairperson, are necessary, appropriate or convenient for the proper conduct of the meeting, including, without limitation, establishing an agenda or order of business for the meeting, rules and procedures for maintaining order at the meeting and the safety of those present, limitations on participation in such meeting to stockholders of record of the corporation and their duly authorized and constituted proxies and such other persons as the chairperson shall permit, restrictions on entry to the meeting after the time fixed for the commencement thereof, limitations on the time allotted to questions or comments by participants and regulation of the

opening and closing of the polls for balloting on matters that are to be voted on by ballot. The date and time of the opening and closing of the polls for each matter upon which the stockholders will vote at the meeting shall be announced at the meeting. Unless and to the extent determined by the Board of Directors or the chairperson of the meeting, meetings of stockholders shall not be required to be held in accordance with rules of parliamentary procedure.

ARTICLE IV

DIRECTORS

Section 16. Number and Term of Office. The authorized number of directors of the corporation shall be fixed in accordance with the Certificate of Incorporation. Directors need not be stockholders unless so required by the Certificate of Incorporation.

Section 17. Powers. The business and affairs of the corporation shall be managed by or under the direction of the Board of Directors, except as may be otherwise provided by the Certificate of Incorporation or the DGCL.

Section 18. Terms of Directors. The terms of directors shall be as set forth in the Certificate of Incorporation.

Section 19. Vacancies. Vacancies and newly created directorships on the Board of Directors shall be filled as set forth in the Certificate of Incorporation.

Section 20. Resignation. Any director may resign at any time by delivering such director's notice in writing or by electronic transmission to the Board of Directors or the Secretary. Such resignation shall take effect at the time of delivery of the notice or at any later time or upon the happening of an event or events specified therein. Acceptance of such resignation shall not be necessary to make it effective. When one or more directors shall resign from the Board of Directors, effective at a future date, a majority of the directors then in office, including those who have so resigned, shall have power to fill such vacancy or vacancies, the vote thereon to take effect when such resignation or resignations shall become effective, and each director so chosen shall hold office for the unexpired portion of the term of the director whose place shall be vacated and until such director's successor shall have been duly elected and qualified or until such director's earlier death, resignation or removal.

Section 21. Removal. Directors shall be removed as set forth in the Certificate of Incorporation and under applicable law.

Section 22. Meetings.

(a) Regular Meetings. Unless otherwise restricted by the Certificate of Incorporation, regular meetings of the Board of Directors may be held at any time or date and at any place, if any, within or without the State of Delaware that has been designated by the Board of Directors and publicized among all directors, either orally or in writing, by telephone, including a voice-messaging system or other system designed to record and communicate messages, or by

electronic mail or other electronic transmission (as defined in Section 232 of the DGCL). No further notice shall be required for regular meetings of the Board of Directors.

(b) Special Meetings. Unless otherwise restricted by the Certificate of Incorporation, special meetings of the Board of Directors may be held at any time and place, if any, within or without the State of Delaware as designated and called by the Chairperson of the Board of Directors, the Chief Executive Officer or a majority of the total number of authorized directors (whether or not there exist any vacancies or other unfilled seats in previously authorized directorships).

(c) Meetings by Electronic Communications Equipment. Any member of the Board of Directors, or of any committee thereof, may participate in a meeting by means of conference telephone or other communications equipment by means of which all persons participating in the meeting can hear each other, and participation in a meeting by such means shall constitute presence in person at such meeting.

(d) Notice of Special Meetings. Notice of the time and place, if any, of all special meetings of the Board of Directors shall be transmitted orally or in writing, by telephone, including a voice messaging system or other system or technology designed to record and communicate messages, or electronic mail or otherwise given by electronic transmission (as defined in Section 232 of the DGCL), during normal business hours, at least 24 hours before the date and time of the meeting. If notice is sent by U.S. mail, it shall be sent by first class mail, postage prepaid, at least three days before the date of the meeting. The person(s) authorized to call a special meeting of the Board of Directors may authorize another person or persons to send notice of such meeting.

(e) Waiver of Notice. Notice of any meeting of the Board of Directors may be waived in writing, or by electronic transmission, at any time before or after the meeting and will be waived by any director by attendance thereat, except when the director attends the meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. The transaction of all business at any meeting of the Board of Directors, or any committee thereof, however called or noticed, or wherever held, shall be as valid as though it had been transacted at a meeting duly held after regular call and notice, if a quorum be present and if, either before or after the meeting, each of the directors not present who did not receive notice shall sign a written waiver of notice or shall waive notice by electronic transmission. All such waivers shall be filed with the corporate records or made a part of the minutes of the meeting.

Section 23. Quorum and Voting.

(a) Unless the Certificate of Incorporation requires a greater number, and except with respect to questions related to indemnification arising under Section 47 for which a quorum shall be one-third of the authorized number of directors fixed from time to time by the Board of Directors in accordance with the Certificate of Incorporation, a quorum of the Board of Directors shall consist of a majority of the total number of directors then serving on the Board of Directors or, if greater, one-third of the authorized number of directors fixed from time to time by the Board of Directors in accordance with the Certificate of Incorporation. At any meeting whether a quorum be present or otherwise, a majority of the directors present may adjourn from time to time, without notice other than by announcement at the meeting.

(b) At each meeting of the Board of Directors at which a quorum is present, all questions and business shall be determined by the affirmative vote of a majority of the directors present, unless a different vote be required by applicable law, the Certificate of Incorporation or these Bylaws.

Section 24. Action without Meeting. Unless otherwise restricted by the Certificate of Incorporation or these Bylaws, any action required or permitted to be taken at any meeting of the Board of Directors or of any committee thereof may be taken without a meeting, if all members of the Board of Directors or committee, as the case may be, consent thereto in writing or by electronic transmission. Such a consent may be documented, signed and delivered in any manner permitted by Section 116 of the DGCL. Any person (whether or not then a director) may provide, whether through instruction to an agent or otherwise, that a consent to action will be effective at a future time (including a time determined upon the happening of an event), no later than 60 days after such instruction is given or such provision is made and such consent shall be deemed to have been given for purposes of this Section 24 at such effective time so long as such person is then a director and did not revoke the consent prior to such time. Such consent or consents shall be filed with the minutes of proceedings of the Board of Directors or committee. Such filing shall be in paper form if the minutes are maintained in paper form and shall be in electronic form if the minutes are maintained in electronic form.

Section 25. Fees and Compensation. Directors shall be entitled to such compensation for their services on the Board of Directors or any committee thereof as may be approved by the Board of Directors, or a committee thereof to which the Board of Directors has delegated such responsibility and authority, including, if so approved, by resolution of the Board of Directors or a committee thereof to which the Board of Directors has delegated such responsibility and authority, including, without limitation, a fixed sum and reimbursement of expenses incurred, if any, for attendance at each regular or special meeting of the Board of Directors and at any meeting of a committee of the Board of Directors, as well as reimbursement for other reasonable expenses incurred with respect to duties as a member of the Board of Directors or any committee thereof. Nothing herein contained shall be construed to preclude any director from serving the corporation in any other capacity as an officer, agent, employee, or otherwise and receiving compensation therefor.

Section 26. Committees.

(a) Executive Committee. The Board of Directors may appoint an Executive Committee to consist of one or more members of the Board of Directors. The Executive Committee, to the extent permitted by applicable law and provided in the resolution of the Board of Directors shall have and may exercise all the powers and authority of the Board of Directors in the management of the business and affairs of the corporation, and may authorize the seal of the corporation to be affixed to all papers that may require it; but no such committee shall have the power or authority in reference to (i) approving or adopting, or recommending to the stockholders, any action or matter (other than the election or removal of directors) expressly required by the DGCL to be submitted to stockholders for approval, or (ii) adopting, amending or repealing any Bylaw of the corporation.

(b) Other Committees. The Board of Directors may, from time to time, appoint such other committees as may be permitted by applicable law. Such other committees appointed by the

Board of Directors shall consist of one or more members of the Board of Directors and shall have such powers and perform such duties as may be prescribed by the resolution or resolutions creating such committees, but in no event shall any such committee have the powers denied to the Executive Committee in these Bylaws.

(c) Term. The Board of Directors, subject to any requirements of any outstanding series of preferred stock and the provisions of subsections (a) or (b) of this Section 26, may at any time increase or decrease the number of members of a committee or terminate the existence of a committee. The membership of a committee member shall terminate on the date of such member's death or voluntary resignation from the committee or from the Board of Directors. The Board of Directors may at any time for any reason remove any individual committee member and the Board of Directors may fill any committee vacancy created by death, resignation, removal or increase in the number of members of the committee. The Board of Directors may designate one or more directors as alternate members of any committee, who may replace any absent or disqualified member at any meeting of the committee, and, in addition, in the absence or disqualification of any member of a committee, the member or members thereof present at any meeting and not disqualified from voting, whether or not such member or members constitute a quorum, may unanimously appoint another member of the Board of Directors to act at the meeting in the place of any such absent or disqualified member.

(d) Meetings. Unless the Board of Directors shall otherwise provide, regular meetings of the Executive Committee or any other committee appointed pursuant to this Section 26 shall be held at such times and places, if any, as are determined by the Board of Directors, or by any such committee, and when notice thereof has been given to each member of such committee, no further notice of such regular meetings need be given thereafter. Special meetings of any such committee may be held at such place, if any, that has been determined from time to time by such committee, and may be called by any director who is a member of such committee, upon notice to the members of such committee of the time and place, if any, of such special meeting given in the manner provided for the giving of notice to members of the Board of Directors of special meetings of the Board of Directors. Notice of any meeting of any committee may be waived in writing or by electronic transmission at any time before or after the meeting and will be waived by any director by attendance thereat, except when the director attends such meeting for the express purpose of objecting, at the beginning of the meeting, to the transaction of any business because the meeting is not lawfully called or convened. Unless otherwise provided by the Board of Directors in the resolutions authorizing the creation of the committee, a majority of the authorized number of members of any such committee shall constitute a quorum for the transaction of business, and the act of a majority of those present at any meeting at which a quorum is present shall be the act of such committee.

(e) Subcommittees. Unless otherwise provided in the Certificate of Incorporation, these Bylaws or the resolutions of the Board of Directors designating the committee, a committee may create one or more subcommittees, each subcommittee to consist of one or more members of the committee, and delegate to a subcommittee any or all of the powers and authority of the committee.

Section 27. Duties of Chairperson of the Board of Directors. The Chairperson of the Board of Directors, when present, shall preside at all meetings of the Board of Directors. The Chairperson

of the Board of Directors shall perform such other duties customarily associated with the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time.

Section 28. Lead Independent Director. The Chairperson of the Board of Directors, or if the Chairperson is not an independent director, one of the independent directors, may be designated by the Board of Directors as lead independent director to serve until replaced by the Board of Directors ("***Lead Independent Director***"). The Lead Independent Director will preside over meetings of the independent directors and perform such other duties as may be established or delegated by the Board of Directors and perform such other duties as may be established or delegated by the Chairperson of the Board of Directors.

Section 29. Organization. At every meeting of the directors, the Chairperson of the Board of Directors, or, if a Chairperson has not been appointed or is absent, the Lead Independent Director, or if the Lead Independent Director has not been appointed or is absent, the Chief Executive Officer (if a director), or, if a Chief Executive Officer is absent, the President (if a director), or if the President is absent, the most senior Vice President (if a director), or, in the absence of any such person, a chairperson of the meeting chosen by a majority of the directors present, shall preside over the meeting. The Secretary, or in the Secretary's absence, any Assistant Secretary or other officer, director or other person directed to do so by the person presiding over the meeting, shall act as secretary of the meeting.

ARTICLE V

OFFICERS

Section 30. Officers Designated. The officers of the corporation shall include, if and when designated by the Board of Directors, the Chief Executive Officer, the President, one or more Vice Presidents, the Secretary, the Chief Financial Officer and the Treasurer. The Board of Directors may also appoint one or more Assistant Secretaries and Assistant Treasurers and such other officers and agents with such powers and duties as it shall deem appropriate or necessary. The Board of Directors may assign such additional titles to one or more of the officers as it shall deem appropriate. The Board of Directors may also empower any officer to appoint any other officers as the business of the corporation may require to hold office for such period, have such authority, and perform such duties as are provided in these Bylaws or as determined from time to time by the Board of Directors or, for the avoidance of doubt, any duly authorized committee or by any officer who has been conferred such power of determination. Any one person may hold any number of offices of the corporation at any one time unless specifically prohibited therefrom by applicable law, the Certificate of Incorporation or these Bylaws. The salaries and other compensation of the officers of the corporation shall be fixed by or in the manner designated by the Board of Directors or by a committee thereof to which the Board of Directors has delegated such responsibility or by any officer who has been conferred such power of determination.

Section 31. Tenure and Duties of Officers.

(a) General. All officers shall hold office at the pleasure of the Board of Directors and until their successors shall have been duly elected and qualified, unless sooner removed, subject to such

officer's earlier death or resignation. If the office of any officer becomes vacant for any reason, the vacancy may be filled by the Board of Directors or by a committee thereof to which the Board of Directors has delegated such responsibility or, if so authorized by the Board of Directors, by the Chief Executive Officer or another officer of the corporation.

(b) Duties of Chief Executive Officer. The Chief Executive Officer shall be the chief executive officer of the corporation and, subject to the supervision, direction and control of the Board of Directors, shall have the general powers and duties of supervision, direction, management and control of the business and officers of the corporation as are customarily associated with the position of Chief Executive Officer. To the extent that a Chief Executive Officer has been appointed and no President has been appointed, all references in these Bylaws to the President shall be deemed references to the Chief Executive Officer. The Chief Executive Officer shall perform other duties customarily associated with the office and shall also perform such other duties and have such other powers, as the Board of Directors shall designate from time to time.

(c) Duties of President. Unless another officer has been appointed Chief Executive Officer of the corporation, the President shall be the chief executive officer of the corporation and, subject to the supervision, direction and control of the Board of Directors, shall have the general powers and duties of supervision, direction, management and control of the business and officers of the corporation as are customarily associated with the position of President. The President shall perform other duties customarily associated with the office and shall also perform such other duties and have such other powers, as the Board of Directors (or the Chief Executive Officer, if the Chief Executive Officer and President are not the same person and the Board of Directors has delegated the designation of the President's duties to the Chief Executive Officer) shall designate from time to time.

(d) Duties of Vice Presidents. A Vice President may assume and perform the duties of the President in the absence or disability of the President or whenever the office of President is vacant (unless the duties of the President are being filled by the Chief Executive Officer). A Vice President shall perform other duties customarily associated with the office and shall also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer, or, if the Chief Executive Officer has not been appointed or is absent, the President shall designate from time to time.

(e) Duties of Secretary and Assistant Secretary. The Secretary shall attend all meetings of the stockholders and of the Board of Directors and shall record all acts, votes and proceedings thereof in the minute books of the corporation. The Secretary shall give notice in conformity with these Bylaws of all meetings of the stockholders and of all meetings of the Board of Directors and any committee thereof requiring notice. The Secretary shall perform all other duties provided for in these Bylaws and other duties customarily associated with the office and shall also perform such other duties and have such other powers, as the Board of Directors or the Chief Executive Officer, or if no Chief Executive Officer is then serving, the President shall designate from time to time. The Chief Executive Officer, or if no Chief Executive Officer is then serving, the President may direct any Assistant Secretary or other officer to assume and perform the duties of the Secretary in the absence or disability of the Secretary, and each Assistant Secretary shall perform other duties customarily associated with the office and shall also perform such other duties and have such other powers as the Board of Directors or the Chief

Executive Officer, or if no Chief Executive Officer is then serving, the President shall designate from time to time.

(f) Duties of Chief Financial Officer. The Chief Financial Officer shall keep or cause to be kept the books of account of the corporation in a thorough and proper manner and shall render statements of the financial affairs of the corporation in such form and as often as required by the Board of Directors, the Chief Executive Officer, or the President. The Chief Financial Officer, subject to the order of the Board of Directors, shall have the custody of all funds and securities of the corporation. The Chief Financial Officer shall perform other duties customarily associated with the office and shall also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer, or if no Chief Executive Officer is then serving, the President shall designate from time to time. To the extent that a Chief Financial Officer has been appointed and no Treasurer has been appointed, all references in these Bylaws to the Treasurer shall be deemed references to the Chief Financial Officer.

(g) Duties of Treasurer and Assistant Treasurer. Unless another officer has been appointed Chief Financial Officer of the corporation, the Treasurer shall be the chief financial officer of the corporation. The Treasurer shall perform other duties customarily associated with the office and shall also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer, or if no Chief Executive Officer is then serving, the President shall designate from time to time. The Chief Executive Officer, or if no Chief Executive Officer is then serving, the President may direct any Assistant Treasurer or other officer to assume and perform the duties of the Treasurer in the absence or disability of the Treasurer, and each Assistant Treasurer shall perform other duties commonly incident to the office and shall also perform such other duties and have such other powers as the Board of Directors or the Chief Executive Officer, or if no Chief Executive Officer is then serving, the President shall designate from time to time.

Section 32. Delegation of Authority. The Board of Directors may from time to time delegate the powers or duties of any officer to any other officer or agent, notwithstanding any provision hereof.

Section 33. Resignations. Any officer may resign at any time by giving notice in writing or by electronic transmission to the Board of Directors, the Chairperson of the Board of Directors, the Chief Executive Officer, the President or the Secretary. Any such resignation shall be effective when received by the person or persons to whom such notice is given, unless a later time is specified therein, in which event the resignation shall become effective at such later time. Unless otherwise specified in such notice, the acceptance of any such resignation shall not be necessary to make it effective. Any resignation shall be without prejudice to the rights, if any, of the corporation under any contract with the resigning officer.

Section 34. Removal. Any officer may be removed from office at any time, either with or without cause, by the Board of Directors, or by any duly authorized committee thereof or any officer upon whom such power of removal may have been conferred by the Board of Directors.

ARTICLE VI

EXECUTION OF CORPORATE INSTRUMENTS AND VOTING OF SECURITIES OWNED BY THE CORPORATION

Section 35. Execution of Corporate Instruments. The Board of Directors may, in its discretion, determine the method and designate the signatory officer or officers, or other person or persons, to execute, sign or endorse on behalf of the corporation any corporate instrument or document, or to sign on behalf of the corporation the corporate name without limitation, or to enter into contracts on behalf of the corporation, except where otherwise provided by applicable law or these Bylaws, and such execution or signature shall be binding upon the corporation.

All checks and drafts drawn on banks or other depositaries on funds to the credit of the corporation or in special accounts of the corporation shall be signed by such person or persons as the Board of Directors shall from time to time authorize so to do.

Unless otherwise specifically determined by the Board of Directors or otherwise required by applicable law, the execution, signing or endorsement of any corporate instrument or document by or on behalf of the corporation may be effected manually, by facsimile or (to the extent permitted by applicable law and subject to such policies and procedures as the corporation may have in effect from time to time) by electronic signature.

Unless authorized or ratified by the Board of Directors or within the agency power of an officer, agent or employee, no officer, agent or employee shall have any power or authority to bind the corporation by any contract or engagement or to pledge its credit or to render it liable for any purpose or for any amount.

Section 36. Voting of Securities Owned by the Corporation. All stock and other securities of, or interests in, or issued by, other corporations or entities owned or held by the corporation for itself, or for other parties in any capacity, and all rights incident to any management authority conferred on the corporation in accordance with the governing documents of any such corporation or entity, shall be voted, represented and exercised (including via written consent in lieu of meeting), and all proxies with respect thereto shall be executed, by the person authorized so to do by resolution of the Board of Directors, or, in the absence of such authorization, by the Chairperson of the Board of Directors, the Chief Executive Officer, the President, or any Vice President.

ARTICLE VII

SHARES OF STOCK

Section 37. Form and Execution of Certificates. The shares of the corporation shall be represented by certificates, or shall be uncertificated if so provided by resolution or resolutions of the Board of Directors. Certificates for the shares of stock, if any, shall be in such form as is consistent with the Certificate of Incorporation and applicable law. Every holder of stock in the corporation represented by certificates shall be entitled to have a certificate signed by or in the name of the corporation by any two officers of the corporation, certifying the number, and the class or series, of shares owned by such holder in the corporation. Any or all of the signatures on the certificate may be facsimiles. In case any officer, transfer agent, or registrar who has signed or whose facsimile signature has been placed upon a certificate shall have ceased to be such

officer, transfer agent, or registrar before such certificate is issued, it may be issued with the same effect as if such person were such officer, transfer agent, or registrar at the date of issue.

Section 38. Lost Certificates. A new certificate or certificates shall be issued in place of any certificate or certificates theretofore issued by the corporation alleged to have been lost, stolen, or destroyed, upon the making of an affidavit of that fact by the person claiming the certificate of stock to be lost, stolen, or destroyed. The corporation may require, as a condition precedent to the issuance of a new certificate or certificates, the owner of such lost, stolen, or destroyed certificate or certificates, or the owner's legal representative, to agree to indemnify the corporation in such manner as it shall require or to give the corporation a surety bond in such form and amount as it may direct as indemnity against any claim that may be made against the corporation with respect to the certificate alleged to have been lost, stolen, or destroyed.

Section 39. Transfers.

(a) Transfers of record of shares of stock of the corporation shall be made only upon its books by the holders thereof, in person or by attorney duly authorized, and, subject to Section 38 of these Bylaws, in the case of stock represented by certificate, upon the surrender of a certificate or certificates for a like number of shares, properly endorsed or accompanied by proper evidence of succession, assignation or authority to transfer.

(b) The corporation shall have power to enter into and perform any agreement with any number of stockholders of any one or more classes or series of stock of the corporation to restrict the transfer of shares of stock of the corporation of any one or more classes or series owned by such stockholders in any manner not prohibited by the DGCL.

Section 40. Fixing Record Dates.

(a) In order that the corporation may determine the stockholders entitled to notice of any meeting of stockholders or any adjournment thereof, the Board of Directors may fix a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted by the Board of Directors, and which record date shall, subject to applicable law, not be more than 60 nor less than ten days before the date of such meeting. If the Board of Directors so fixes a record date for determining the stockholders entitled to notice of any meeting of stockholders, such date shall also be the record date for determining the stockholders entitled to vote at such meeting, unless the Board of Directors determines, at the time it fixes the record date for determining the stockholders entitled to notice of such meeting, that a later date on or before the date of the meeting shall be the record date for determining the stockholders entitled to vote at such meeting. If no record date is fixed by the Board of Directors, the record date for determining stockholders entitled to notice of and to vote at a meeting of stockholders shall be at the close of business on the day immediately preceding the day on which notice is given, or if notice is waived, at the close of business on the day next preceding the day on which the meeting is held. A determination of stockholders of record entitled to notice of or to vote at a meeting of stockholders shall apply to any adjournment of the meeting; *provided, however*, that the Board of Directors may fix a new record date for determination of stockholders entitled to vote at the adjourned meeting, and in such case shall also fix as the record date for stockholders entitled to notice of such adjourned meeting the same or an earlier date as that fixed for determination of

stockholders entitled to vote in accordance with the provisions of Section 213 of the DGCL and this Section 40 at the adjourned meeting.

(b) In order that the corporation may determine the stockholders entitled to receive payment of any dividend or other distribution or allotment of any rights or the stockholders entitled to exercise any rights in respect of any change, conversion or exchange of stock, or for the purpose of any other lawful action, the Board of Directors may fix, in advance, a record date, which record date shall not precede the date upon which the resolution fixing the record date is adopted, and which record date shall be not more than 60 days prior to such action. If no record date is fixed, the record date for determining stockholders for any such purpose shall be at the close of business on the day on which the Board of Directors adopts the resolution relating thereto.

Section 41. Registered Stockholders. The corporation shall be entitled to recognize the exclusive right of a person registered on its books as the owner of shares to receive dividends and notices, and to vote as such owner, and shall not be bound to recognize any equitable or other claim to or interest in such share or shares on the part of any other person whether or not it shall have express or other notice thereof, except as otherwise provided by Delaware law.

Section 42. Additional Powers of the Board. In addition to, and without limiting, the powers set forth in these Bylaws, the Board of Directors shall have power and authority to make all such rules and regulations as it shall deem expedient concerning the issue, transfer, and registration of certificates for shares of stock of the corporation, including the use of uncertificated shares of stock, subject to the provisions of the DGCL, other applicable law, the Certificate of Incorporation and these Bylaws. The Board of Directors may appoint and remove transfer agents and registrars of transfers, and may require all stock certificates to bear the signature of any such transfer agent and/or any such registrar of transfers.

ARTICLE VIII

DIVIDENDS

Section 43. Declaration of Dividends. Dividends upon the capital stock of the corporation, subject to the provisions of the Certificate of Incorporation and applicable law, if any, may be declared by the Board of Directors. Dividends may be paid in cash, in property, or in shares of the capital stock, subject to the provisions of the Certificate of Incorporation and applicable law.

Section 44. Dividend Reserve. Before payment of any dividend, there may be set aside out of any funds of the corporation available for dividends such sum or sums as the Board of Directors from time to time, in its absolute discretion, determines proper as a reserve or reserves to meet contingencies, or for equalizing dividends, or for repairing or maintaining any property of the corporation, or for such other purpose or purposes as the Board of Directors shall determine to be conducive to the interests of the corporation, and the Board of Directors may modify or abolish any such reserve in the manner in which it was created.

ARTICLE IX

FISCAL YEAR

Section 45. Fiscal Year. The fiscal year of the corporation shall be fixed by resolution of the Board of Directors.

ARTICLE X

INDEMNIFICATION

Section 46. Indemnification of Directors, Executive Officers, Employees and Other Agents.

(a) Directors and Executive Officers. The corporation shall indemnify to the full extent permitted under and in any manner permitted under the DGCL or any other applicable law, any person who is made or threatened to be made a party to or is otherwise involved (as a witness or otherwise) in any threatened, pending, or completed action, suit, or proceeding, whether civil, criminal, administrative, or investigative (hereinafter, a “*Proceeding*”), by reason of the fact that such person is or was a director or executive officer (for the purposes of this Article X, “executive officers” shall be those persons designated by the corporation as (a) executive officers for purposes of the disclosures required in the corporation’s proxy and periodic reports or (b) officers for purposes of Section 16 of the 1934 Act) of the corporation, or while serving as a director or executive officer of the corporation, is or was serving at the request of the corporation as a director, officer, employee, or agent of another corporation, partnership, joint venture, trust, or other enterprise, including service with respect to an employee benefit plan (collectively, “*Another Enterprise*”), against expenses (including attorneys’ fees), judgments, fines (including ERISA excise taxes or penalties) and amounts paid in settlement actually and reasonably incurred by such person in connection with such Proceeding if such person acted in good faith and in a manner such person reasonably believed to be in or not opposed to the best interests of the corporation, and, with respect to any criminal action or proceeding, had no reasonable cause to believe such person’s conduct was unlawful; *provided, however*, that the corporation may modify the extent of such indemnification by individual contracts with its directors and executive officers; and, *provided, further*, that the corporation shall not be required to indemnify any director or executive officer in connection with any Proceeding (or part thereof) initiated by such person unless (i) such indemnification is expressly required to be made by applicable law, (ii) the Proceeding (or part thereof) was authorized by the Board of Directors, (iii) such indemnification is provided by the corporation, in its sole discretion, pursuant to the powers vested in the corporation under the DGCL or any other applicable law or (iv) such indemnification is required to be made under subsection (d) of this Section 46.

(b) Other Officers, Employees and Other Agents. The corporation shall have power to indemnify (including the power to advance expenses in a manner consistent with subsection (c) of this Section 46) its other officers, employees and other agents as set forth in the DGCL or any other applicable law. The Board of Directors shall have the power to delegate the determination of whether indemnification shall be given to any such person except executive officers to such officers or other persons as the Board of Directors shall determine.

(c) Expenses. The corporation shall advance to any person who was or is a party or is threatened to be made a party to any threatened, pending or completed Proceeding, by reason of the fact that

such person is or was a director or executive officer of the corporation, or is or was serving at the request of the corporation as a director or executive officer of Another Enterprise, prior to the final disposition of the Proceeding, promptly following request therefor, all expenses (including attorneys' fees) incurred by any director or executive officer in connection with such Proceeding provided, however, that if the DGCL requires, an advancement of expenses incurred by a director or executive officer in such person's capacity as a director or executive officer (and not in any other capacity in which service was or is rendered by such indemnitee, including, without limitation, service to an employee benefit plan) shall be made only upon delivery to the corporation of an undertaking (hereinafter an "*undertaking*"), by or on behalf of such indemnitee, to repay all amounts so advanced if it shall ultimately be determined by final judicial decision from which there is no further right to appeal (hereinafter a "*final adjudication*") that such indemnitee is not entitled to be indemnified for such expenses under this Section 46 or otherwise.

Notwithstanding the foregoing, unless otherwise determined pursuant to subsection (d) of this Section 46, no advance shall be made by the corporation to an executive officer of the corporation (except by reason of the fact that such executive officer is or was a director of the corporation in which event this subsection shall not apply) in any Proceeding, if a determination is reasonably and promptly made (i) by a majority vote of directors who were not parties to the Proceeding, even if not a quorum, or (ii) by a committee of such directors designated by a majority vote of such directors, even though less than a quorum, or (iii) if there are no such directors, or such directors so direct, by independent legal counsel in a written opinion, that the facts known to the decision-making party at the time such determination is made demonstrate clearly and convincingly that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the corporation.

(d) Enforcement. Without the necessity of entering into an express contract, all rights to indemnification and advances to directors and executive officers under this Section 46 shall be deemed to be contractual rights, shall vest when the person becomes a director or executive officer of the corporation, shall continue as vested contract rights even if such person ceases to be a director or executive officer of the corporation, and shall be effective to the same extent and as if provided for in a contract between the corporation and the director or executive officer. Any right to indemnification or advances granted by this Section 46 to a director or executive officer shall be enforceable by or on behalf of the person holding such right in any court of competent jurisdiction if (i) the claim for indemnification or advances is denied, in whole or in part, or (ii) no disposition of such claim is made within 90 days of request therefor. To the fullest extent permitted by applicable law, the claimant in such enforcement action, if successful in whole or in part, shall be entitled to be paid also the expense of prosecuting the claim. In connection with any claim for indemnification, the corporation shall be entitled to raise as a defense to any such action that the claimant has not met the standards of conduct that make it permissible under the DGCL or any other applicable law for the corporation to indemnify the claimant for the amount claimed. In connection with any claim by an executive officer of the corporation (except in any Proceeding, by reason of the fact that such executive officer is or was a director of the corporation) for advances, the corporation shall be entitled to raise a defense as to any such action clear and convincing evidence that such person acted in bad faith or in a manner that such person did not believe to be in or not opposed to the best interests of the corporation, or with respect to any criminal action or proceeding that such person acted without reasonable cause to

believe that such person's conduct was lawful. Neither the failure of the corporation (including its Board of Directors, independent legal counsel or its stockholders) to have made a determination prior to the commencement of such action that indemnification of the claimant is proper in the circumstances because the claimant has met the applicable standard of conduct set forth in the DGCL or any other applicable law, nor an actual determination by the corporation (including its Board of Directors, independent legal counsel or its stockholders) that the claimant has not met such applicable standard of conduct, shall be a defense to the action or create a presumption that claimant has not met the applicable standard of conduct. In any suit brought by a director or executive officer to enforce a right to indemnification or to an advancement of expenses hereunder, the burden of proving that the director or executive officer is not entitled to be indemnified, or to such advancement of expenses, under this Section 46 or otherwise shall be on the corporation.

(e) Non-Exclusivity of Rights. The rights conferred on any person by this Section 46 shall not be exclusive of any other right that such person may have or hereafter acquire under any applicable statute, provision of the Certificate of Incorporation, these Bylaws, agreement, vote of stockholders or disinterested directors or otherwise, both as to action in such person's official capacity and as to action in another capacity while holding office. The corporation is specifically authorized to enter into individual contracts with any or all of its directors, officers, employees or agents respecting indemnification and advances, to the fullest extent not prohibited by the DGCL, or by any other applicable law.

(f) Survival of Rights. The rights conferred on any person by this Bylaw shall continue as to a person who has ceased to be a director or executive officer or officer, employee or other agent and shall inure to the benefit of the heirs, executors and administrators of such a person.

(g) Insurance. To the fullest extent permitted by the DGCL or any other applicable law, the corporation, upon approval by the Board of Directors, may purchase and maintain insurance on behalf of any person required or permitted to be indemnified pursuant to this Section 46.

(h) Amendments. Any repeal or modification of this Section 46 shall only be prospective and shall not affect the rights under this Section 46 as in effect at the time of the alleged occurrence of any action or omission to act that is the cause of any Proceeding against any agent of the corporation.

(i) Saving Clause. If this Article X or any portion hereof shall be invalidated on any ground by any court of competent jurisdiction, then the corporation shall nevertheless indemnify each director and executive officer to the full extent not prohibited by any applicable portion of this Article X that shall not have been invalidated, or by any other applicable law. If this Article X shall be invalid due to the application of the indemnification provisions of another jurisdiction, then the corporation shall indemnify each director and executive officer to the full extent not prohibited under the applicable law of such jurisdiction.

(j) Certain Definitions and Construction of Terms. For the purposes of Article X of these Bylaws, the following definitions and rules of construction shall apply:

(i) References to “***Another Enterprise***” shall include employee benefit plans; references to “***fin***es” shall include any excise taxes assessed on a person with respect to an employee benefit plan; and references to “***serving at the request of the corporation***” shall include any service as a director, officer, employee or agent of the corporation that imposes duties on, or involves services by, such director, officer, employee, or agent with respect to an employee benefit plan, its participants, or beneficiaries; and a person who acted in good faith and in a manner such person reasonably believed to be in the interest of the participants and beneficiaries of an employee benefit plan shall be deemed to have acted in a manner “***not opposed to the best interests of the corporation***” as referred to in this Section 46.

(ii) The term the “***corporation***” shall include, in addition to the resulting entity, any constituent entity (including any constituent of a constituent) absorbed in a consolidation or merger that, if its separate existence had continued, would have had power and authority to indemnify its directors, officers, and employees or agents, so that any person who is or was a director, officer, employee or agent of such constituent entity, or is or was serving at the request of such constituent entity as a director, officer, employee or agent of another corporation, partnership, joint venture, trust or other enterprise, shall stand in the same position under the provisions of this Section 46 with respect to the resulting or surviving entity as he would have with respect to such constituent entity if its separate existence had continued.

(iii) References to a “***director***,” “***executive officer***,” “***officer***,” “***employee***,” or “***agent***” of the corporation shall include, without limitation, situations where such person is serving at the request of the corporation as, respectively, a director, executive officer, officer, employee, trustee or agent of another corporation, partnership, joint venture, trust or other enterprise.

(iv) The term “***expenses***” shall be broadly construed and shall include, without limitation, court costs, attorneys’ fees, witness fees, fines, amounts paid in settlement or judgment and any other costs and expenses of any nature or kind actually and reasonably incurred in connection with any Proceeding.

(v) The term “***Proceeding***” shall be broadly construed and shall include, without limitation, the investigation, preparation, prosecution, defense, settlement, arbitration and appeal of, and the giving of testimony in, any threatened, pending or completed action, suit or proceeding, whether civil, criminal, administrative or investigative.

ARTICLE XI

NOTICES

Section 47. Notices.

(a) **Notice to Stockholders.** Notice to stockholders of stockholder meetings shall be given as provided in Section 7. Without limiting the manner by which notice may otherwise be given effectively to stockholders under any agreement or contract with such stockholder, and except as otherwise required by applicable law, written notice to stockholders for purposes other than stockholder meetings may be sent by U.S. mail, nationally recognized overnight courier, or

electronic mail or otherwise given by electronic transmission (as defined in Section 232 of the DGCL).

(b) Notice to Directors. Any notice required to be given to any director may be given by the method stated in subsection (a) of this Section 47, as otherwise provided in these Bylaws (including by any of the means specified in Section 22(d)), or by overnight delivery service. Any notice sent by overnight delivery service or U.S. mail shall be sent to such address as such director shall have filed with the Secretary, or, in the absence of such filing, to the last known post office address of such director.

(c) Affidavit of Notice. An affidavit of the Secretary or an Assistant Secretary or of the transfer agent or other agent of the corporation that notice has been given shall, in the absence of fraud, be prima facie evidence of the facts therein contained.

(d) Methods of Notice. It shall not be necessary that the same method of giving notice be employed in respect of all recipients of notice, but one permissible method may be employed in respect of any one or more, and any other permissible method or methods may be employed in respect of any other or others.

(e) Notice to Person with Whom Communication is Unlawful. Whenever notice is required to be given, under applicable law or any provision of the Certificate of Incorporation or these Bylaws, to any person with whom communication is unlawful, the giving of such notice to such person shall not be required and there shall be no duty to apply to any governmental authority or agency for a license or permit to give such notice to such person. Any action or meeting that shall be taken or held without notice to any such person with whom communication is unlawful shall have the same force and effect as if such notice had been duly given. In the event that the action taken by the corporation is such as to require the filing of a certificate under any provision of the DGCL, the certificate shall state, if such is the fact and if notice is required, that notice was given to all persons entitled to receive notice except such persons with whom communication is unlawful.

(f) Notice to Stockholders Sharing an Address. Except as otherwise prohibited under the DGCL, any notice given under the provisions of the DGCL, the Certificate of Incorporation or these Bylaws shall be effective if given by a single written notice to stockholders who share an address if consented to by the stockholders at that address to whom such notice is given. Such consent shall have been deemed to have been given if such stockholder fails to object in writing to the corporation within 60 days of having been given notice by the corporation of its intention to send the single notice. Any consent shall be revocable by the stockholder by written notice to the corporation.

ARTICLE XII

AMENDMENTS

Section 48. Amendments. Subject to the limitations set forth in Section 46(h) and the provisions of the Certificate of Incorporation, the Board of Directors is expressly empowered to adopt, amend or repeal these Bylaws of the corporation. Any adoption, amendment or repeal of these

Bylaws of the corporation by the Board of Directors shall require the approval of a majority of the authorized number of directors. The stockholders also shall have power to adopt, amend or repeal these Bylaws of the corporation; *provided, however,* that, in addition to any vote of the holders of any class or series of stock of the corporation required by applicable law or by the Certificate of Incorporation, such action by stockholders shall require the affirmative vote of the holders of at least 66-2/3% of the voting power of all of the then-outstanding shares of the capital stock of the corporation entitled to vote generally in the election of directors, voting together as a single class.

[CERTAIN INFORMATION IN THIS EXHIBIT IDENTIFIED BY [***] IS CONFIDENTIAL AND HAS BEEN EXCLUDED BECAUSE IT (I) IS NOT MATERIAL AND (II) THE REGISTRANT CUSTOMARILY AND ACTUALLY TREATS THAT INFORMATION AS PRIVATE OR CONFIDENTIAL.]

September 8, 2023

Laurie Babinski

[***]

[***]

Re: Separation Agreement

Dear Laurie:

This letter sets forth the substance of the separation agreement (the “*Agreement*”) which IonQ, Inc. (the “*Company*”) is offering to you to aid in your employment transition.

1. Separation. Your last day of work with the Company and your last day as General Counsel and Corporate Secretary will be Wednesday, August 16, 2023. You understand and agree that your employment would have ended on that date if the parties had not entered into this Agreement.

2. Continued Employment Severance Benefits. Upon entering into this Agreement, not revoking the Agreement and complying with the Agreement’s terms, you will be available to consult with reasonable notice during regular business hours on an as-needed basis until your final date of employment, which will be September 11, 2023 (the “*Separation Date*”), unless your employment with the Company is terminated earlier in accordance with the terms of this Agreement. You will continue to receive your regular salary and benefits, and your equity will continue to vest, through your Separation Date, as long as you comply with the terms of this Agreement and Company policies.

3. Post-Separation Date Severance Benefits. Upon the successful completion of employment through the Separation Date, your employment with the Company will end and you shall be provided with additional severance benefits in accordance with the terms of this Agreement.

4. Consideration. In reliance on such voluntary representations and the promises and releases contained in this Agreement, the Company will provide you with the following additional pay to which you are not otherwise entitled:

a. Upon you executing this Agreement the first time, you shall continue employment with the Company through September 11, 2023, unless terminated earlier, according to the following terms:

- (i) You understand and agree that during your continued employment with the Company, you must comply with and follow all Company policies and procedures. You further understand and agree that your failure to comply with or follow all Company policies and procedures may result in the immediate termination of your employment and no further salary or
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benefits, including severance benefits, shall be provided to you pursuant to this Agreement.

- (ii) Salary. While you remain employed with the Company pursuant to the terms of this Agreement, the Company agrees to continue to pay you your current gross salary, which is the equivalent of [***] per month, through your Separation Date. Said gross salary shall be paid in equal amounts in accordance with the Company's normal payroll processes and procedures, and shall be reduced by all applicable withholdings and deductions. The Company shall pay you your salary only as long as you remain employed by the Company.
- (iii) Benefits. While you remain employed with the Company pursuant to the terms of this Agreement, the Company agrees to continue to provide you with your current benefits at their current levels of coverage, through and in accordance with terms of the policies, plans or contracts selected by the Company, in its sole discretion, for all of the Company's employees, through your Separation Date. The Company shall provide you these benefits only as long as you remain employed by the Company.
- (iv) Equity. While you remain employed with the Company pursuant to the terms of this Agreement, you will continue to vest in the equity you were granted pursuant to the terms of the Company's 2015 and/or 2021 Equity Incentive Plan. You shall continue to vest in this equity only as long as you remain employed by the Company.

b. On or after your Separation Date, upon you executing this Agreement a second time, the Company shall provide you with the additional following benefits: The Company agrees to pay Employee the gross amount of [***], less all applicable withholdings and deductions ("Severance Payment"). If you do not exercise your right of revocation as described in Section 16 below, the Severance Payment shall be made thirty (30) days after the Separation Date or, if the revocation period expires more than thirty (30) days after the Separation Date, within ten (10) workdays of the end of the revocation period or the date the Company receives the signed Agreement, whichever is later.

c. You acknowledge, understand and agree that you must sign this Agreement two times to obtain the full benefits provided by the terms of the Agreement. However, each signing of this Agreement by you is independent of any other so that if you do not sign the Agreement a second time, the terms of the Agreement, as provided by its terms, shall be binding upon the Parties pursuant to your first signing of the Agreement.

d. This Agreement, all of its terms, and all of the obligations of the Company contained herein are expressly contingent upon the condition that you do not exercise your right of revocation as described in Section 16 below.

5. Accrued Salary. As of the Separation Date, the Company will have paid you all of the accrued salary earned through the Separation Date, subject to standard payroll deductions and withholdings. You will receive these payments regardless of whether or not you sign this Agreement. You acknowledge that the Company maintains a non-accrual PTO policy and as a result, you have no accrued but unused PTO that the Company is obligated to pay you upon your separation from employment.

6. Benefit Plans. If you are currently participating in the Company's group health insurance plans, your participation as an employee will end on September 30, 2023. Thereafter, to the extent provided by the federal COBRA law or, if applicable, state insurance laws, and by the Company's current group health insurance policies, you will be eligible to continue your group health insurance benefits at your own expense. You will be receiving additional COBRA information from the Company's COBRA administrator to your mailing address following the termination of your benefits. Later, you may be able to convert to an individual policy through the provider of the Company's health insurance, if you wish. Your participation in Employer-Sponsored Group Life Insurance and Short and Long Term Disability Insurance, if applicable, will end on the Separation Date.

Deductions for the 401(k) Plan will end with your last regular paycheck. Your right to vesting with respect to any Company contributions in your 401(k) Plan account will be as set forth in the 401(k) Plan. You will receive information by mail concerning 401(k) rollover procedures should you be a participant in this program.

7. Equity. You were granted options to purchase shares of the Company's common stock (the "**Options**") or restricted stock units (the "RSUs"), as applicable, pursuant to the Company's 2015 and/or 2021 Equity Incentive Plan (the "**Plan**"). Under the terms of the Plan, vesting will cease as of the Separation Date and the unvested portions thereof are forfeited in their entirety.

8. Other Compensation or Benefits. You acknowledge that, except as expressly provided in this Agreement, you will not receive any additional compensation, severance or benefits after the Separation Date.

9. Expense Reimbursements. You agree that, within ten (10) days of the Separation Date, you will submit your final documented expense reimbursement statement reflecting all business expenses you incurred through the Separation Date, if any, for which you seek reimbursement. The Company will reimburse you for reasonable business expenses pursuant to its regular business practice.

10. Return of Company Property. Within ten (10) days of the Separation Date, you agree to return to the Company all Company documents (and all copies thereof) and other Company property that you have had in your possession at any time, including, but not limited to, your Company-issued phone, Company files, notes, drawings, records, business plans and forecasts, financial information, specifications, computer-recorded information, tangible property (including, but not limited to, computers), credit cards, entry cards, identification badges and keys; and, any materials of any kind that contain or embody any proprietary or confidential information of the Company (and all reproductions thereof). Please coordinate the return of Company property

with [***]. **Receipt of the severance benefits under this Agreement is expressly conditioned upon return of all Company property.**

11. Proprietary Information and Post-Termination Obligations. Both during and after your employment you acknowledge your continuing obligations under your Employee Proprietary Information and Inventions, Non-Solicitation and Non-Competition Agreement not to use or disclose any confidential or proprietary information of the Company and to refrain from certain solicitation and competitive activities. A copy of your Employee Confidential Information, Inventions, Non-Solicitation and Non-Competition Agreement is attached hereto as Exhibit A. If you have any doubts as to the scope of the restrictions in your agreement, you should contact the Company immediately to assess your compliance. As you know, the Company will enforce its contract rights. Please familiarize yourself with the enclosed agreement which you signed. Confidential information that is also a “trade secret,” as defined by law, may be disclosed (A) if it is made (i) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or (B) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal. In addition, in the event that you file a lawsuit for retaliation by the Company for reporting a suspected violation of law, you may disclose the trade secret to your attorney and use the trade secret information in the court proceeding, if you: (A) file any document containing the trade secret under seal; and (B) do not disclose the trade secret, except pursuant to court order.

12. Confidentiality. The provisions of this Agreement will be held in strictest confidence by you and will not be publicized or disclosed in any manner whatsoever; *provided, however*, that:

(a) you may disclose this Agreement to your immediate family; (b) you may disclose this Agreement in confidence to your attorney, accountant, auditor, tax preparer, and financial advisor; and (c) you may disclose this Agreement insofar as such disclosure may be required by law. Notwithstanding the foregoing, nothing in this Agreement shall limit your right to voluntarily communicate with the Equal Employment Opportunity Commission, United States Department of Labor, the National Labor Relations Board, the Securities and Exchange Commission, other federal government agency or similar state or local agency or to discuss the terms and conditions of your employment with others to the extent expressly permitted by Section 7 of the National Labor Relations Act.

13. Non-Disparagement. You agree not to disparage the Company, the Company Parties or their products, employment practices, business practices, services, or management (whether oral, written electronic, anonymous, via the internet, or otherwise). You specifically agree that you will not post or make any reference to the Company or Company Parties on any internet website or through any other social media source. The foregoing shall not preclude you from testifying truthfully in response to a legally-imposed subpoena or otherwise as required by law.

14. Cooperation after Termination. In exchange for the Severance Benefit, and without further consideration, you agree to cooperate fully and completely with the Company and any of the other Company Parties with respect to matters on which you worked during your employment and to assist with pending or future legal investigations, proceedings, or litigation, public or private, involving the Company or any of the other Company Parties on matters about which you

have personal knowledge, including, but not limited to, the matter styled, *Leacock v. IonQ, Inc., et al.* (D. Md. 8:22-cv-01306-DLB). This includes your obligation to promptly meet with representatives of the Company or the other Company Parties, either personally or by telephone, at reasonable times upon their request and without unreasonable interference with your employment or personal activities, and providing information and, where applicable, testimony, that is truthful, accurate, and complete according to information known to you. Reasonable assistance includes, but is not limited to, being available by telephone to answer questions, provide guidance, or discuss matters as needed; providing information and materials to the Company's counsel; providing truthful testimony, if necessary; maintaining the confidentiality of the Company's and all Company Parties' privileged or confidential information, including without limitation, attorney-client privileged communications and work product, unless disclosure is expressly authorized by the Company's legal department; and notifying the Company's CEO and President, Peter Chapman, promptly of any requests made for information related to any pending or potential legal claim or litigation involving the Company or any Company Party, reviewing any such requests with a designated representative of the Company prior to disclosing such information, and permitting a representative of the Company to be present during any communication of such information. The Company will use its best efforts to ensure that any assistance requested will be arranged so that it does not unreasonably interfere with your other work or personal commitments. You acknowledge that you will not receive any additional pay for your assistance beyond that provided in Section 4 of this Agreement, but will be reimbursed for any reasonable travel or related costs incurred for services provided under this paragraph.

15. Release. In exchange for the consideration under this Agreement, to which you would not otherwise be entitled, and except as otherwise set forth in this Agreement, you, on behalf of yourself and, to the extent permitted by law, on behalf of your spouse, heirs, executors, administrators, assigns, insurers, attorneys and other persons or entities, acting or purporting to act on your behalf (collectively, the "**Employee Parties**"), hereby generally and completely release, acquit and forever discharge the Company, its parents and subsidiaries, and its and their current and former officers, directors, managers, partners, agents, representatives, employees, attorneys, shareholders, predecessors, successors, assigns, insurers and affiliates (the "**Company Parties**") of and from any and all claims, liabilities, demands, contentions, actions, causes of action, suits, costs, expenses, attorneys' fees, damages, indemnities, debts, judgments, levies, executions and obligations of every kind and nature, in law, equity, or otherwise, both known and unknown, suspected and unsuspected, disclosed and undisclosed, arising out of or in any way related to agreements, events, acts or conduct at any time prior to and including the execution date of this Agreement, including but not limited to: all such claims and demands directly or indirectly arising out of or in any way connected with your employment with the Company or your resignation of that employment; claims or demands related to salary, bonuses, commissions, stock, stock options, or any other ownership interests in the Company, vacation pay, fringe benefits, expense reimbursements, severance pay, or any other form of compensation; claims pursuant to any federal, state or local law, statute, or cause of action; tort law; or contract law (individually a "**Claim**" and collectively "**Claims**"). The Claims you are releasing and waiving in this Agreement include, but are not limited to, any and all Claims that any of the Company Parties:

- has violated its personnel policies, handbooks, contracts of employment, or covenants of good faith and fair dealing;
- has discriminated against you on the basis of age, race, color, sex (including sexual

harassment), national origin, ancestry, disability, religion, sexual orientation, marital status, parental status, source of income, entitlement to benefits, any union activities or other protected category in violation of any local, state or federal law, constitution, ordinance, or regulation, including but not limited to: Title VII of the Civil Rights Act of 1964, as amended; the Civil Rights Act of 1991; 42 U.S.C. § 1981, as amended; the Equal Pay Act; the Americans With Disabilities Act; the Genetic Information Nondiscrimination Act; the Family and Medical Leave Act; the Fair Employment Practice Act of Maryland, Md. Code Ann., State Government, tit. 20; the Employee Retirement Income Security Act; the Employee Polygraph Protection Act; the Worker Adjustment and Retraining Notification Act; the Older Workers Benefit Protection Act; the anti-retaliation provisions of the Sarbanes-Oxley Act, Washington Law Against Discrimination, Rev. Code Wash.

§§ 49.44.090, 49.60.040, 49.60.172, 49.60.180, 49.60.190, 49.60.200, or any other federal or state law regarding whistleblower retaliation; the Lilly Ledbetter Fair Pay Act; the Uniformed Services Employment and Reemployment Rights Act; the Fair Credit Reporting Act; and the National Labor Relations Act;

- has violated any statute, public policy or common law (including but not limited to Claims for retaliatory discharge; negligent hiring, retention or supervision; defamation; intentional or negligent infliction of emotional distress and/or mental anguish; intentional interference with contract; negligence; detrimental reliance; loss of consortium to you or any member of your family and/or promissory estoppel).

Notwithstanding the foregoing, other than events expressly contemplated by this Agreement you do not waive or release rights or Claims that may arise from events that occur after the date this waiver is executed. Also excluded from this Agreement are any Claims which cannot be waived by law, including, without limitation, any rights you may have under applicable workers' compensation laws and your right, if applicable, to file or participate in an investigative proceeding of any federal, state or local governmental agency. Nothing in this Agreement shall prevent you from filing, cooperating with, or participating in any proceeding or investigation before the Equal Employment Opportunity Commission, United States Department of Labor, the National Labor Relations Board, the Occupational Safety and Health Administration, the Securities and Exchange Commission or any other federal government agency, or similar state or local agency ("**Government Agencies**"), or exercising any rights pursuant to Section 7 of the National Labor Relations Act. You further understand this Agreement does not limit your ability to voluntarily communicate with any Government Agencies or otherwise participate in any investigation or proceeding that may be conducted by any Government Agency, including providing documents or other information, without notice to the Company. While this Agreement does not limit your right to receive an award for information provided to the Securities and Exchange Commission, you understand and agree that, you are otherwise waiving, to the fullest extent permitted by law, any and all rights you may have to individual relief based on any Claims that you have released and any rights you have waived by signing this Agreement. If any Claim is not subject to release, to the extent permitted by law, you waive any right or ability to be a class or collective action representative or to otherwise participate in any putative or certified class, collective or multi-party action or proceeding based on such a Claim in which any of the Company Parties is a party. This Agreement does not abrogate your existing rights under any Company benefit plan or any plan or agreement related to equity ownership in the Company; however, it does waive, release and forever

discharge Claims existing as of the date you execute this Agreement pursuant to any such plan or agreement.

16. Waiver of Claims under the Age Discrimination in Employment Act. You recognize that, in signing this release of Claims, you are waiving your right to pursue any and all claims under the Age Discrimination in Employment Act, 29 U.S.C. § 621 *et seq.* (“**ADEA**”) arising prior to the date that each time you execute this Release. You understand that you may take twenty-one (21) days from the date each time this Release is presented to consider whether to execute this Release. You are advised through this Agreement that you may wish to consult with an attorney prior to execution of this Release. Once you have executed this Release, you may revoke the Release at any time during the seven (7) day period following your execution of the Release. After seven (7) days have passed following your execution of this Release, your execution of this Release shall be final and irrevocable.

17. Your Acknowledgments and Affirmations. You acknowledge and agree that (i) the consideration given to you in exchange for the waiver and release in this Agreement is in addition to anything of value to which you were already entitled; (ii) that you have been paid for all time worked, have received all the leave, leaves of absence and leave benefits and protections for which you are eligible, and have not suffered any on-the-job injury for which you have not already filed a Claim; (iii) you have been given sufficient time to consider this Agreement and to consult an attorney or advisor of your choosing; and (iv) you are knowingly and voluntarily executing this Agreement waiving and releasing any Claims you may have as of the date you execute it. You affirm that all of the decisions of the Company Parties regarding your pay and benefits through the date of your execution of this Agreement were not discriminatory based on age, disability, race, color, sex, religion, national origin or any other classification protected by law. You affirm that you have not filed or caused to be filed, and are not presently a party to, a Claim against any of the Company Parties. You further affirm that you have no known workplace injuries or occupational diseases. You acknowledge and affirm that you have not been retaliated against for reporting any allegation of corporate fraud or other wrongdoing by any of the Company Parties, or for exercising any rights protected by law, including any rights protected by the Fair Labor Standards Act, the Family Medical Leave Act, or any related statute or local leave or disability accommodation laws, or any applicable state workers’ compensation law.

18. No Admission. This Agreement does not constitute an admission by the Company of any wrongful action or violation of any federal, state, or local statute, or common law rights, including those relating to the provisions of any law or statute concerning employment actions, or of any other possible or claimed violation of law or rights.

19. Breach. You agree that upon any breach of this Agreement you will forfeit the consideration provided to you under this Agreement. Further, you acknowledge that it may be impossible to assess the damages caused by your violation of the terms of Sections 10, 11, 12, 13 and 14 of this Agreement and further agree that any threatened or actual violation or breach of those Sections of this Agreement will constitute immediate and irreparable injury to the Company. You therefore agree that any such breach of this Agreement is a material breach of this Agreement, and, in addition to any and all other damages and remedies available to the Company upon your breach of this Agreement, the Company shall be entitled to an injunction to prevent you from

violating or breaching this Agreement. You agree that if the Company is successful in whole or part in any legal or equitable action against you under this Agreement, you agree to pay all of the costs, including reasonable attorneys' fees, incurred by the Company in enforcing the terms of this Agreement.

20. Miscellaneous. This Agreement, including Exhibit A, constitutes the complete, final and exclusive embodiment of the entire agreement between you and the Company with regard to this subject matter. It is entered into without reliance on any promise or representation, written or oral, other than those expressly contained herein, and it supersedes any other such promises, warranties or representations. This Agreement may not be modified or amended except in a writing signed by both you and a duly authorized officer of the Company. This Agreement will bind the heirs, personal representatives, successors and assigns of both you and the Company, and inure to the benefit of both you and the Company, their heirs, successors and assigns. If any provision of this Agreement is determined to be invalid or unenforceable, in whole or in part, this determination will not affect any other provision of this Agreement and the provision in question will be modified by the court so as to be rendered enforceable. This Agreement will be deemed to have been entered into and will be construed and enforced in accordance with the laws of the State of Maryland as applied to contracts made and to be performed entirely within Maryland.

If this Agreement is acceptable to you, please sign below on or before September 6, 2023. You must sign this Agreement a second time to be eligible to receive the post-separation date Severance Payment. The Company's offer contained herein will automatically expire if you do not sign and return the fully signed Agreement within this timeframe.

I wish you good luck in your future endeavors.

Sincerely,

/s/ Tom Jones

Tom Jones
Chief People Officer
IONQ, INC.

Date: 9/8/2023

For Post-Separation Date Severance Payment:
AGREED TO AND ACCEPTED:

/s/ Laurie Babinski

Laurie Babinski

9/11/2023

Date

EXHIBIT A

CERTIFICATIONS

I, Peter Chapman, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of IonQ, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 9, 2023

/s/ Peter Chapman

Peter Chapman

Chief Executive Officer

(Principal Executive Officer)

CERTIFICATIONS

I, Thomas Kramer, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of IonQ, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 9, 2023

/s/ Thomas Kramer

Thomas Kramer

Chief Financial Officer

(Principal Financial and Accounting Officer)

CERTIFICATION

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended, (the “Exchange Act”) and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), Peter Chapman, Chief Executive Officer of IonQ, Inc. (the “Company”), and Thomas Kramer, Chief Financial Officer of the Company, each hereby certifies that, to the best of their knowledge:

1. The Company’s Quarterly Report on Form 10-Q for the period ended September 30, 2023, to which this Certification is attached as Exhibit 32.1 (the “Periodic Report”), fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and
2. The information contained in the Periodic Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

IN WITNESS WHEREOF, the undersigned have set their hands hereto as of the 9th day of November 2023.

/s/ Peter Chapman

Peter Chapman
Chief Executive Officer

/s/ Thomas Kramer

Thomas Kramer
Chief Financial Officer
