Fellow Shareholders,

I hope you are all well. It is hard to believe that a year ago we were coming out of the pandemic and looking forward to getting back to business. It has truly been an absolutely amazing and extraordinary year. Since my last letter we have:

- Up listed to NASDAQ,
- Released QAmplify, our enhancements to our Qatalyst platform that now amplifies the quantum effects of existing quantum computers by 5x – 20x of their qubit count,
- Continued to hire world class talent,
- Expanded our Board of Directors,
- Completed an additional funding of the company through the sale of preferred equity, and,
- Successfully completed the acquisition of QPhoton.

Last year, I stated that QCI's committed vision is "to be the democratizing force that enables subject matter experts (SMEs) and end users to get critical answers to business problems right now, using the computing mix that best delivers those results." We have not only remained committed to that vision but we have accelerated the achievement of delivering those results.

The capstone to this extraordinary year was the acquisition of QPhoton. This enabled QCI to combine its deep expertise and experience in quantum computing with QPhoton's research efforts to develop photonic based quantum systems. **QCI has developed a room-temperature Entropy Quantum System (EQC) for solving real world business problems - TODAY.** This is game changing because the computational capability surpasses anything available in the industry, but operates without all the costly and impractical infrastructure such as cryogenic cooling and specially environmentally engineered rooms to operate that do not scale.

QCI has evolved into a full stack Quantum Solutions Company offering customers the ability to run optimization problems in excess of 5000 variables (Qubits), on a room temperature, desk top quantum system.

We believe this achievement is something most other quantum hardware companies only hope to do in the next three to five years at a computational level and are likely never to achieve using gate model or other methods to achieve quantum results. QCI's Entropy Quantum Computer, the quantum information processing system for solving real-world problems, is available **now** and this is only the beginning of our commercialization of quantum solutions.

As exciting as that statement is, it is only one part of QCI's portfolio. We offer solutions ranging from quantum LiDAR, quantum intelligence, quantum sensing and imaging, quantum-secured networks, and nanophotonic chips.

We all know that developing a world class company requires world class talent. In addition to Dr. Huang joining as QCI's Chief Quantum Officer and a Director, we have attracted Dr. William McGann as our CTO and COO. Dr. McGann most recently was Leidos' CTO of Security and Detection

Technologies with a long successful history as a scientist and entrepreneur with proven abilities to take technologies out of the lab and into the commercial market. We believe that the combination of Dr. Huang and Dr. McGann, and the expanded engineering team they lead, make QCI a real force in the quantum information industry.

QCI has an unwavering commitment to bring real world quantum solutions to world to have a positive impact on business and society – at scale. That is why the acquisition of QPhoton makes more than just business sense. Dr. Huang' vision (which we share) is to bring quantum technologies to the industry and make it available for anyone in any industry that needs to solve complex or world changing problems; business, research, education, and, government. Not only are we perfectly aligned technically to achieve that goal, but we are philosophically aligned as well. That is why the integration of the two companies has been seamless and easy – we all have had the same goal in mind – to build a company that has a meaningful positive impact on our world and to create great value for our shareholders. That is why QCI has evolved to much beyond a quantum software company.

QCI truly is an Innovative Quantum Solutions Company – providing both the industry's leading quantum hardware and software.

The State of Quantum Computing

Last year when I wrote about the state of quantum computing I referred to a lot of the hype in the industry. That is still true today in many ways but there have been some recent statements by hardware makers downsizing expectations of what current quantum hardware can deliver. In large part those statements are based on the various approaches to building a quantum computer, including gate models and annealers. These approaches have promises for the future but still require significant investment and a lot of expensive supporting infrastructure to eventually reach those goals. And – it is unlikely that they will be able to scale to be an "on premises quantum computer", let alone a machine that can be easily deployed in an enterprise. While the industry and market have focused on proving that quantum computing will eventually scale to be able to solve real world problems, today they are solving science experiments and problems to claim to achieve quantum advantage but frankly have little meaning in the real world.

For quantum computing to deliver real and scalable value to businesses and the academic world, it will have to be accessible, capable, affordable, and widely deployable. It cannot be constrained by the limitations of cryogenic cooling and sound and vibration proof infrastructures that make it a solution for only the most elite companies in the business community. Said more specifically, regardless of the future technical advances in these technologies, they are not likely to ever achieve practical levels of SWAP-C (**S**ize / **W**eight and **P**ower - **C**ost).

QCI is Changing the Current State of Quantum Computing:

Our first step into the world of quantum computing hardware is our Entropy Quantum Computing (EQC) platform. Using the EQC we produced landmark results for a real-world problem – BMW's autonomous vehicle sensor optimization challenge which we highlighted in our presentation to BMW on July 20, 2022 (link to the video). As a result of the presentation, we had so many people reaching out with questions, and we wanted to share some highlights about EQC, especially how it

differs from today's Noisy Intermediate Scale Quantum (NISQ) computers – the more common quantum computer.

Quantum and Today's NISQ Computers

First, here is a brief introduction to how quantum systems in nature really work. Quantum systems are naturally "open", meaning, they inevitably interact with the many degrees of freedom subtended in their surrounding environment. As a result of this interaction, the wavefunctions describing those systems collapse, which is the point where quantum information is lost.

That's why today's NISQ computers are designed to produce closed quantum systems in pristine quantum states that are isolated from the environment. Their goal is to minimize this interaction since it causes significant processing challenges for these architectures.

You see, to create and maintain stability of the pristine closed system, there is a significant engineering cost in the design requirements to protect quantum information from the environment (aka noise). This is why quantum computers usually require cryogenic cooling, pure vacuum, and zero electromagnetic background. Those requirements introduce high cost, complex maintenance, and ongoing stability issues, thus the SWAP-C challenge of NISQ systems.

We've all heard the questions about whether quantum computing is real (it is) as a result of the limitations of these early architectures. That's due to the reality facing these NISQ computers: they have limited qubit scale, which restricts the size and complexity of the problems they can process; they are extremely expensive to build and maintain due to the extreme environmental demands; they are error prone even at small scale; they lack stability due to decoherence, which collapses the quantum space.

As of today, these systems have been able to process small "toy" problems up to 127 variables for gate-model systems and up to 400 variables for sparse matrix problems on a quantum annealer. The computations can take hours to complete and may be interrupted as the systems lose coherence. Additionally, these closed systems are still extremely prone to errors. One paper estimates that every logical qubit will require 1,000 to 10,000 qubits for error correction alone, which means that the best NISQ computer today contains effectively less than one error-corrected qubit, and it will take decades to reach ten, if at all possible.

EQC in Action - A Full Quantum Solution – The BMW Sensor Problem Submission Summary

As demonstrated as part of the BMW Quantum Challenge presentations, QCI's first EQC prototype delivered truly landmark results. We solved a sensor optimization problem for autonomous vehicles FOR THE FIRST TIME on a fully-quantum system. The computations included 3,854 variables and 500 constraints. The EQC delivered a superior, feasible solution in six minutes. Following is a summary of this landmark result.

The BMW sensor challenge was designed to test the abilities of quantum technologies. Its focus was to find an optimal configuration of vehicle sensors for autonomous driving. Optimality was defined as maximal coverage of the vehicle's surroundings, at minimal economic cost.

Today's NISQ architectures have only been able to process problems with very limited variable sizes, around 127 variables (Qubits). This is due to the limitations noted above as the number of qubits available to represent problem variables are extremely limited. Plus the lack of connectivity and coherence between

these qubits to account for the volume of constraints. The size and complexity of the BMW Challenge highlighted the limitations caused by the extreme system requirements needed in NISQ architectures.

Note that in 2021, Quantum Computing Inc. (QCI), took on the BMW sensor optimization challenge and generated a solution, leveraging a variational approach, Variational Analog Quantum Oracle (VAQO) that enables QPUs to contribute to solving problems larger than the number of qubits available. It was applied to a D-Wave quantum annealer that solved the BMW problem (see the table below.) That demonstration provided a good example of how software can be used to extend the capabilities of current quantum computing hardware. This software, QAmplify, includes VAQO and can be used to extend the qubit capacity of both gate-model systems and quantum annealers.

With the recent acquisition of QPhoton, a quantum photonics systems company, QCI has established a toolbox of new quantum hardware technologies, including Entropy Quantum Computing (EQC) that we applied to the BMW optimization problem.

This year, we presented a 2022 solution based on EQC to directly solve a problem with 3,854 variables. Using an initial EQC prototype, a superior, feasible solution was obtained in six minutes of total runtime.

EQC Results

The 2022 sensor challenge problem taken on with the EQC consists of n = 3, 854 variables (Qubits) and 501 constraints. The problem (including constraints) was submitted directly to an EQC prototype in the form of an n–by–(n + 1) Hamiltonian matrix. Through the controlled interaction with the engineered environment, the system relaxed to a ground state, where the objective function and all of the optimality conditions were captured and subsequently analyzed.

The EQC result achieved optimality, provided a sensor configuration consisting of 15 sensors yielding 96% coverage of the criticality space. This practical solution demonstrates a clear advantage when compared with best alternatives as described below..

First, using QCI's classical solver CSample, the problem resulted in a significantly lower 62.8% coverage area for the same number of sensors (15).

Second, using the VAQO approach demonstrated in our 2021 solution, we generated a result with a higher 99.8% sensor coverage, but at significantly higher costs using 373 sensors. (Table 1 summarizes this data.)

Table 1

Performance Parameters	EQC	VAQO	CSample
Coverage	96%	99.4%	62.8%
Number of Sensors	15	373	15
Runtime (seconds)	363	26373	197

Table 1: *Comparison of best results obtained by each solver. The Hamiltonian used was properly designed to take into account the physical constraints of the EQC system. Metrics meeting the practical feasibility bar are marked in green, and*

The Bottom Line

We all see the hype and concerns about the value of quantum computing, arising from limited scale, high cost, lack of stability, overall complexity, and a significant error correction challenge. The EQC is designed to address the significant challenges that current NISQ computers are facing. QCI has successfully demonstrated a scalable, error-free and cost-effective computing prototype using quantum photonics. The future systems are designed to be deployable anywhere, require no special environments, and be readily usable by non-quantum experts.

QCI's Roadmap to the Quantum Future

Those of you who know me and QCI, know that we are a company that doesn't believe in hype, hyperbole or raising expectations that we cannot deliver on. If anything, we believe in underselling our capabilities and over delivering on expectations, because candidly, that is how you build a solid reputation and successful business over time. As I stated QCI aspires to be the leading innovation quantum solutions company. It is our

vision that we will develop democratized quantum solutions that will have a positive impact to business, industry, government and society. I would like to share our roadmap and explain where we are going and how we will get there.

QCI's technology roadmap is based on our Quantum EcoSystem; Quantum Computing, Quantum Intelligence, Quantum Remote Sensing, Quantum Cyber Security, and Quantum Imaging and the lynchpin – Quantum Optical Chips. This Quantum EcoSystem represent the technologies we have in our portfolio that we will be bringing to market.

QCI is now a full stack quantum computing company and is much more than just quantum computing business. Our quantum technologies, which are either protected by our patents or are in the patent process, allow us to go to market in the most important areas where this technology can make a difference – today:

- Quantum Computing
    - Our first Entropy Quantum Computer, Dirac 1, can run problems of over **5000 variables**.
    - Next quarter we will be providing subscription access to Dirac-1 capable of running complex optimization problems such as the BMW sensor optimization problem and others. Our subscription service along with our professional services have been successfully beta testing with a limited set of clients in preparation for our commercial release.
    - The complete family of EQC products will be released in 2023 – These include next generations of EQC that further expand the scale and capabilities of the Dirac-1 to broader, larger, and more complex optimization problems. As part of this progression of technology, we are introducing a "high-dimensional" EQC that will operate with Quantum Digits (Qudits) vs. Quantum Bits (Qubits).
- Quantum Intelligence – Reservoir Quantum Computing (RQC)
    - Reservoir Quantum Computing (RQC) will also be released in late Q4 of 2022 and be made available through the Qatalyst platform. RQC is a hardware configuration for quantum optical machine learning and will offer substantial increase in throughput over current convoluted neural network (CNN) approaches today, by improving the data training rates by as much as 100X.
- Quantum Optical Chips
    - Optical chips will ultimately provide the greatest scalability and performance advantages for quantum information processing, sensing and imaging. When all of the critical optical components can be "embedded" on a fully integrated chip, the efficiency and fidelity of the photonic quantum technologies will be fully realized. This will represent the ultimate SWAP-C capable system and will serve as a common core technology for ALL of the product developments on the future (3 years) QCI product road maps.
- Cybersecurity – Quantum Networks and Quantum Authentication
    - The Cybersecurity domain has been awakened to the benefits and the threat of quantum computing resulting from the expectation that quantum can break any RSA

and non-quantum based encryption. However, effective cybersecurity goes well beyond encryption for protection. Effective cybersecurity requires a holistic approach to protecting the enterprise. QCI believes that our quantum computing capabilities have applications in encryption. However, we are applying our quantum technologies to create secure transport layers (quantum networks) and authentication (quantum authentication) which will contribute greatly to the cybersecurity domain, beyond encryption.

- Quantum Remote Sensing – QLiDAR
    - Our QLiDAR capability has the ability to see through dense fog and provide image fidelity at great distances and through difficult environments such as snow, ice, and water. Once again, by leveraging the power of quantum mechanics and single photon detection, LiDAR systems can be greatly enhanced in their ability to measure at improved resolution and distances as well as extend these photonic signals to applications in vibrometry for material stress analysis, particle size analysis, and potential remote sensing from satellites
- Quantum Imaging
    - One of the most exciting opportunities in the 3-5 year horizon is to leverage the ability to count single photons and filter their associated wavefunctions precisely to obtain optical imaging through otherwise opaque and dense materials.

Goals for 2022-2023

The past couple of years have certainly been tumultuous ones. We face the uncertainty of the capital markets and an economy that is still reeling from the pandemic, inflation, an uncertain supply chain, a strained workforce and other economic and political challenges. QCI has managed to thrive in these uncertain times. However, one of the greatest challenges I face as CEO of QCI is getting the market to believe that this modest start-up company actually has the technology to make the claims we are making while the largest technology companies in the world are still struggling to achieve scalable quantum performance. We view that as a high class problem. We have the benefit of being able to prove and back up the claims we are making and we are eager to accept problems from the industry to prove we can solve them at our cost, not theirs. I have always said that we will build a company based on fundamentals – execution and operational excellence. And that is the path we are on – we will continue to build a company that will deliver on the promise of quantum computing - today. QCI arguably has the best and proven quantum technology along with a broad portfolio of quantum technology in the marketplace. Our goals for 2022-23 are focused on generating and increasing sales of our quantum technology's existing capabilities represented in our roadmap. We expect to do the following over the next 12 months:

- Offer subscription access to Dirac 1 and 2
- Expand our Technical Solutions offerings to other domains that will benefit from our Dirac-1
- Commercializing and selling our Quantum LiDAR
- Deploying our Quantum Cybersecurity Solutions by commercializing our quantum Network and Authentication capabilities
- Developing our Quantum Chip manufacturing capability

- Deploying our quantum solutions to US Government clients
- Expanding the deployment our quantum solutions to State Government clients
- Expanding our technical team
- Expanding our Technical Solutions and Sales Team
- Establishing our Senior Technical Advisory Group
- Increasing market awareness of QCI

These are ambitious goals for sure but well within our reach based on our current trajectory. Our combined technical team is continually working to provide greater computational capabilities to our clients as well as completing the development of other quantum solutions in the market place. The challenge we have is keeping up with the pace of the engineering team's development – it is a good problem to have.

2022-2023 Pipeline

In mid-2022 QCI created its Quantum Solutions division, which is focused on bridging the gap between state of the art quantum computing technologies and real-world business problems. Our Quantum Solutions team comprises professionals with backgrounds in data science, solutions architecture, and management consulting. We work with forward-thinking companies to help them define, demonstrate, and implement quantum-based technology solutions to their business-relevant problems today.

Logistics optimization is a key technology application where quantum computing can readily show value. In July, QCI's Quantum Solutions team was selected by a State Government Innovation Center as a partner to evaluate quantum technology applications that support logistics use cases. In this partnership, QCI will use our Entropy Quantum Computing (EQC) technologies to demonstrate optimization use cases to support advanced air mobility applications, such as air-based drone delivery networks. QCI is honored to be selected by our State partner for this opportunity.
In addition to logistics applications, the Quantum Solutions team is developing and demonstrating solutions for various other applications including:

- **Energy**: Improving the design of wind power plants by optimizing configurations of wind turbines to maximize power generation efficiency while accounting for turbine wake effects
- **Manufacturing**: Supporting the design of autonomous vehicles by optimizing the placement of vehicle sensors to maximize coverage of surrounding areas while minimizing costs
- **Artificial Intelligence**: Enhancing machine learning processes by optimizing the selection of features for AI/ML models
- **Financial Services**: Helping banks more accurately detect and identify fraudulent activity within their transactions data streams

QUBT-U and Workforce Development

It is often stated that children are our future. We at QCI believe the education of the American workforce is critical to the advancement of high technology across industry and academics. QCI is dedicated to ensuring that quantum computing is accessible to the academic community at every level, from high schools to graduate levels. That is why we established QUBT-U (https://www.quantumcomputinginc.com/qubt-u/) which gives academic institutions free access to our Qatalyst platform to allow students to learn how to use quantum computers in their areas of study. We have partnered with a number of universities this past year to provide access to quantum computers via Qatalyst and will expand that program with additional universities. But we are most

excited about including high schools in QUBT-U to further attract students to quantum computing. In this next year we will be working at the state and federal levels to expand our QUBT-U program to further reach students in every part of our community to give them the opportunities to participate in the future of quantum computing.

Explore New Partnerships

Last year QCI announced a technology collaboration with Amazon Web Services (AWS), with Qatalyst now available as a software-as-a-service (SaaS) on AWS Braket Qatalyst accesses quantum computers from D-Wave, Ion-Q, and Rigetti via AWS Braket. The availability of Qatalyst on AWS Braket positions QCI directly in the middle of a global value chain for AWS business users. This partnership has helped us as much as we have helped the users of AWS Braket achieve their objectives.

QCI is a small company with big technology and big ideas. We know that we need to advance rapidly into markets with our innovative technologies and we need solid partnerships with established market leaders to do so successfully. Fortunately we have the leadership on board that has done that before and we are working aggressively to establish partners in the LiDAR, Cybersecurity, chip manufacturing and medical imaging domains to get our technologies into the market.

Establish a Senior Technology Advisory Group

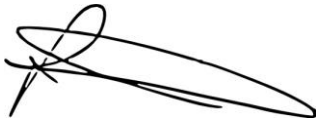
Early on we established a group of very talented and accomplished executives to help shape the company's strategy. We will be expanding on this idea modeled after a very successful panel on which I served during my time with the US Government, the Intelligence Science Board. We know that we have an excellent management team, but day to day execution does not leave much time to focus on some of the higher level challenges the team often faces. To assist our management team, we have begun assembling a highly esteemed group of technology, business, former government and academic professionals to help QCI deal with the challenges of its growth and expansion into the market. This august and diverse group will allow us to think out of the box on issues that every rapidly growing faces to ensure that we are asking the hard questions, continually innovating, and being aware of market changes and conditions that could potentially threaten QCI or offer opportunities for growth.

Building Shareholder Value

We are building shareholder value by focusing on the needs of our customers and delivering value today. The acquisition of QPhoton and the addition of top industry talent to our team are great examples of that. We are better positioned and more focused on delivering value – providing solutions to real world problems through the application of our technology, than we have ever been. As a shareholder of QCI, you should be excited by the opportunities this company has to not just make a difference in the marketplace, but the world. I recently received a message from one of our original investors in QCI that only knew of the company through his research in the quantum computing market. He invested in QCI because at the time, his wife was suffering from multiple sclerosis, because he believed that quantum computing one day might contribute to the discovery of a cure of that and other horrible diseases. Regrettably, she passed away before quantum computing could contribute to that goal. However, upon learning of the acquisition of QPhoton and the capabilities the combined companies we now have, he reiterated his commitment to QCI and his belief that we will one day enable researchers to find a cure for diseases that took his wife and

countless others, way too early in their lives. His story is fundamentally why we are doing what we do – we want to create the best technology to put into the hands of researchers, students, business people, our government and anyone who is dedicated to making this world better. We believe quantum computing will do that and we thank you for giving us the opportunity to contribute to that outcome.

Respectfully,



Robert Liscouski
Chairman, Chairman and CEO

Important Cautions Regarding Forward-Looking Statements

This letter contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. All statements other than statements of historical fact could be deemed forwardlooking, including, but not limited to, statements regarding the future performance of Quantum Computing, Inc. and its consolidated subsidiaries (the "Company" or "QCI"), including its financial outlook; the other expectations described under "QCI's Roadmap to Quantum Future", "QCI Quantum EcoSystem", "QUBT-U and Workforce Development". QCI's Path to the Future", Goals for 2022-23", 2022-2023 Pipeline", "Explore New Partnerships", and Establish A Senior Technology Advisory Group" above; and the Company's business strategy, plans, and objectives for future operations. In some cases, forward-looking statements can be identified by terms such as "may," "will," "appears," "should," "expects," "plans," "anticipates," "could," "outlook," "intends," "target," "projects," "contemplates," "believes," "estimates," "predicts," "potential," or "continue," or the negative of these words or other similar terms or expressions that concern our expectations, strategy, plans, or intentions. Such statements are subject to a number of known and unknown risks, uncertainties, assumptions, and other factors that may cause the Company's actual results, performance, or achievements to differ materially from results expressed or implied in this letter. Investors are cautioned not to place undue reliance on these statements, and reported results should not be considered as an indication of future performance. Risks that contribute to the uncertain nature of the forward-looking statements include, among others, the effects of the COVID-19 pandemic on the Company's business, including as a result of new strains or variants of the virus, and the global economy generally; litigation, and other proceedings related to the Company's business in a variety of areas; the effectiveness of the Company's strategy and business initiatives; the Company's lack of liquidity; and changes in political, business, and economic conditions; as well as other risks listed or described from time to time in the Company's filings with the Securities and Exchange Commission (the "SEC"), including the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2021, the Company's Quarterly Reports on Form 10-Q for the quarters ended March 31, 2022 and June 30, 2022, and any subsequent filings, which are or will be on file with the SEC and available on the investor relations page of the Company's website. All forward looking statements are based on information and estimates available to the Company at the time of this letter and are not guarantees of future performance. Except as required by law, the Company assumes no obligation to update any of the statements in this letter.

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