



# Investor Presentation

November 2024

**NASDAQ: QUBT**

# Forward Looking Statements

This presentation contains forward-looking statements as defined within Section 27A of the Securities Act of 1933, as amended, and Section 21E of the Securities Exchange Act of 1934, as amended. By their nature, forward-looking statements and forecasts involve risks and uncertainties because they relate to events and depend on circumstances that will occur in the near future. Those statements include statements regarding the intent, belief or current expectations of QCi and members of its management as well as the assumptions on which such statements are based. Prospective investors are cautioned that any such forward-looking statements are not guarantees of future performance and involve risks and uncertainties, and that actual results may differ materially from those contemplated by such forward-looking statements.

QCi undertakes no obligation to update or revise forward-looking statements to reflect changed conditions. Statements in this presentation that are not descriptions of historical facts are forward-looking statements relating to future events, and as such all forward-looking statements are made pursuant to the Securities Litigation Reform Act of 1995. Statements may contain certain forward-looking statements pertaining to future anticipated or projected plans, performance and developments, as well as other statements relating to future operations and results. Words such as “may,” “will,” “expect,” “believe,” “anticipate,” “estimate,” “intends,” “goal,” “objective,” “seek,” “attempt,” “aim to,” or variations of these or similar words, identify forward-looking statements. These risks and uncertainties include, but are not limited to, those described in Item 1A in QCi’s Annual Report on Form 10-K and other factors as may periodically be described in QCi’s filings with the U.S. Securities and Exchange Commission.

# Our Team

- **50+** employees nationwide
- **Degrees** in Physics, Chemistry, Optics, Mathematics, Computer Science, Applied AI, Mechanical & Electrical Engineering, Cybersecurity and Information Networking
- **52%** with postgraduate degrees

**100% dedication to changing the world**

## NJ INNOVATE100 LEADER Dr. Yuping Huang

QCi Chief Quantum Officer Dr. Yuping Huang, recently named to NJ Innovate100 Leaders List as Visionary Driving Innovation Forward

## 2024 EDISON PATENT AWARD

Two QCi engineers were recently honored for their groundbreaking work addressing cybersecurity threats

*Our vision* is to lead the revolution in photonics and quantum computing with scalable, accessible and affordable solutions for real-world applications





QCi is well positioned as an emerging leader in *integrated photonics and nonlinear quantum optics*, one of the fastest growing industries in the world today

## Photonic Integrated Circuit (PIC) Market<sup>2</sup>

**\$15.1B**

Market Size in 2024

**20.5%**

CAGR 2024- 2029

**\$38.4B**

Market Size in 2029

<sup>2</sup> Mordor Intelligence, 2024

We do one thing, and we do it well

Using integrated photonics and nonlinear quantum optics,  
we condition, manipulate, and measure photons

9

patents

200+

papers

14+

Use cases

8+

Hardware  
instantiations

In other words...

We put photons to work



**QCi's business model employs two complementary efforts to provide real-world solutions, today**

## Core technology

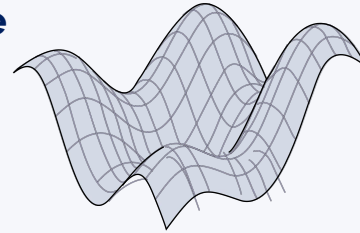


*We use nonlinear optical properties to count single photons in our machines*

## Domains

## Applications

**High Performance Computing**



Quantum optimization

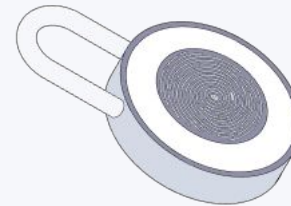
Reservoir computing

**Remote Sensing and imaging**



LiDAR

**Quantum Cybersecurity**



Quantum authentication

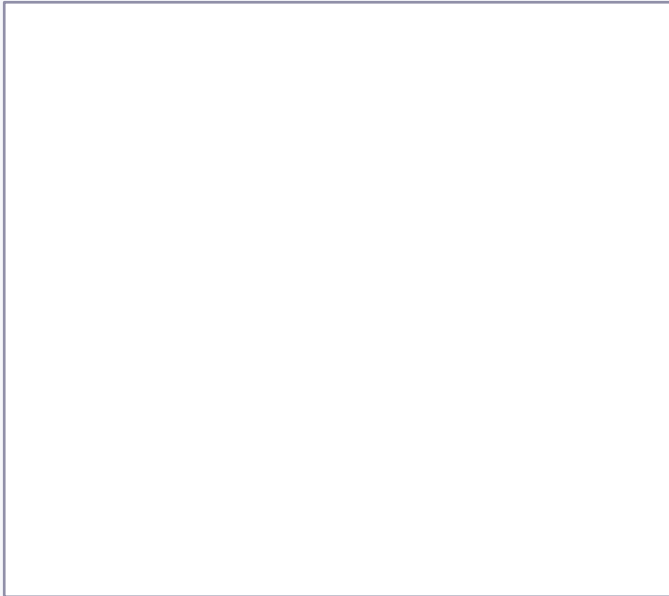
Quantum random number generation



## What we make

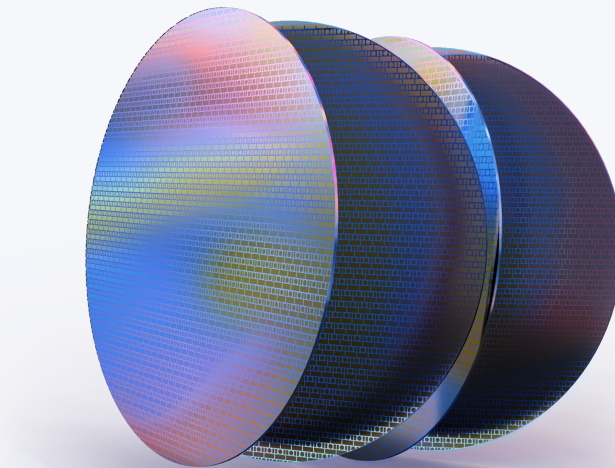
## How we put it to work

### Core technology



*We leverage the nonlinear optical properties through TFLN in our nanophotonic systems*

Thin film lithium niobate (TFLN) wafers for photonic interconnects



*A novel material that we believe will become **“the silicon of the future”***

Foundry services

Low loss TFLN photonic integrated circuits

Passive devices (Micro rings)

Linear devices (EOMs)

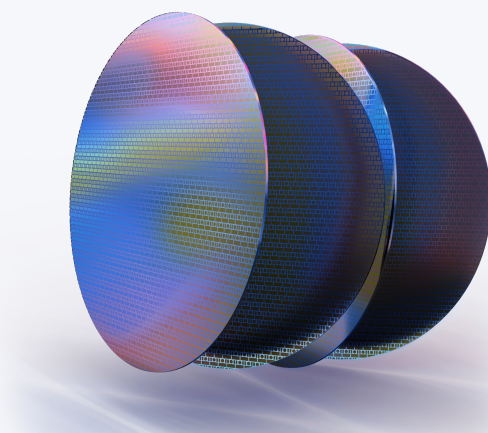
Non-linear devices (PPLN)



# Our future state

QCi's Foundry will first generate the photonic components used in our quantum machines, then miniaturize them to be available at a PCIe card scale

FOUNDRY

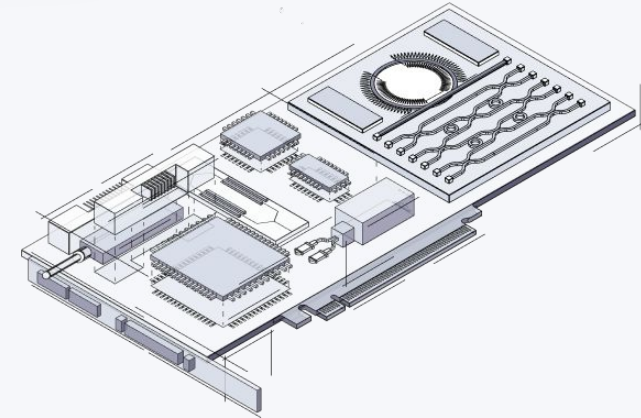


MACHINES



**Miniaturization**

*Photonic circuits integrated into PCIe card*



**Our *long term vision* is to fully integrate our two primary efforts**

# Investment Highlights and Differentiators

## Only pure-play

nonlinear quantum optics and  
integrated photonics public  
company

Well-positioned to capitalize  
on **early-mover advantage**  
in an emerging, rapidly  
growing photonics market

**Sustainable roadmap and  
growth model**  
with two complementary  
revenue streams

**Best-in-class use cases** in  
energy, automotive, and  
financial portfolio optimization

**High-margin revenue potential**  
with U.S.-based foundry  
services and proprietary  
TFLN<sup>1</sup> chip design

Innovative technology  
**addressing the energy  
consumption challenges of AI**

<sup>1</sup>TFLN –Thin Film Lithium Niobate – a high-performance, low-power optical semiconductor material

# Why Photons have a Technical Advantage

As the demand for faster and more efficient data processing grows,  
**photonics will be a critical component of future technological advancements**



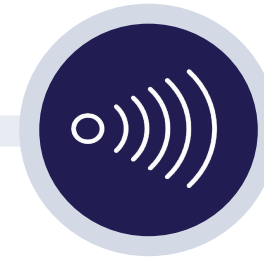
**HIGH-BANDWIDTH &  
FAST PROCESSING**



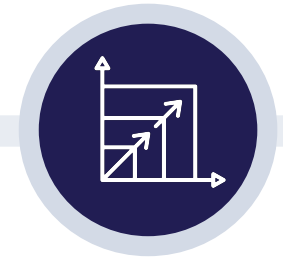
**DATA OVER  
DISTANCES**



**LOWEST ENERGY  
CONSUMPTION**



**PRECISION &  
SENSING**



**MINIATURIZATION &  
SCALABILITY**

# Solving Real World Problems with One Solution

Our technology shows promise for applications across multiple verticals and cross-cutting domains



**Healthcare**



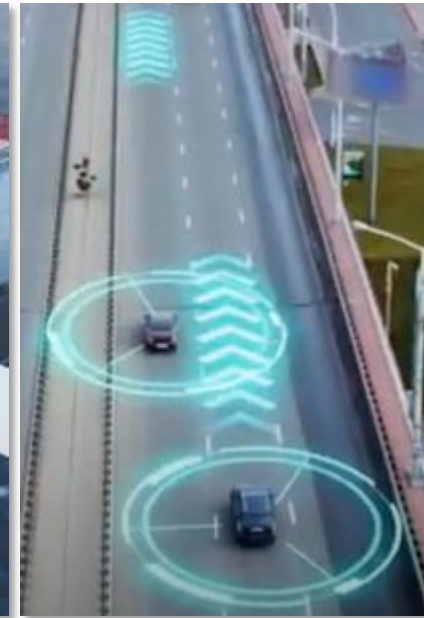
**Financial Services**



**Supply Chain**



**Energy Management**



**Autonomous Vehicle**



**Molecular Modeling**



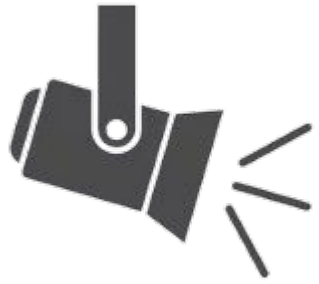
## ARTIFICIAL BRAIN



# Our Partners

We are proud to work with a growing number of government agencies, scientific institutions and industry leaders as we advance our hardware solutions from conception to deployment





# Partner Spotlight



## QCi Awarded 4 Grants From NASA

*QCi continues to support NASA's goal of lowering the cost of spaceborne missions and to obtain more precise data to better understand the effects of global warming*

1  
LIDAR SNOW  
DEPTH  
EVALUATION

### Completed

QCi quantum LiDAR system demonstrated snow depth measurements with cost-effective satellite deployment.

2  
SOLAR  
BACKGROUND  
NOISE REDUCTION

### Completed

QCi's reservoir computer prototype for pattern prediction and recognition performance improvements.

3  
ACCURATE  
MEASUREMENT OF  
AIR PARTICULATES

### Completed

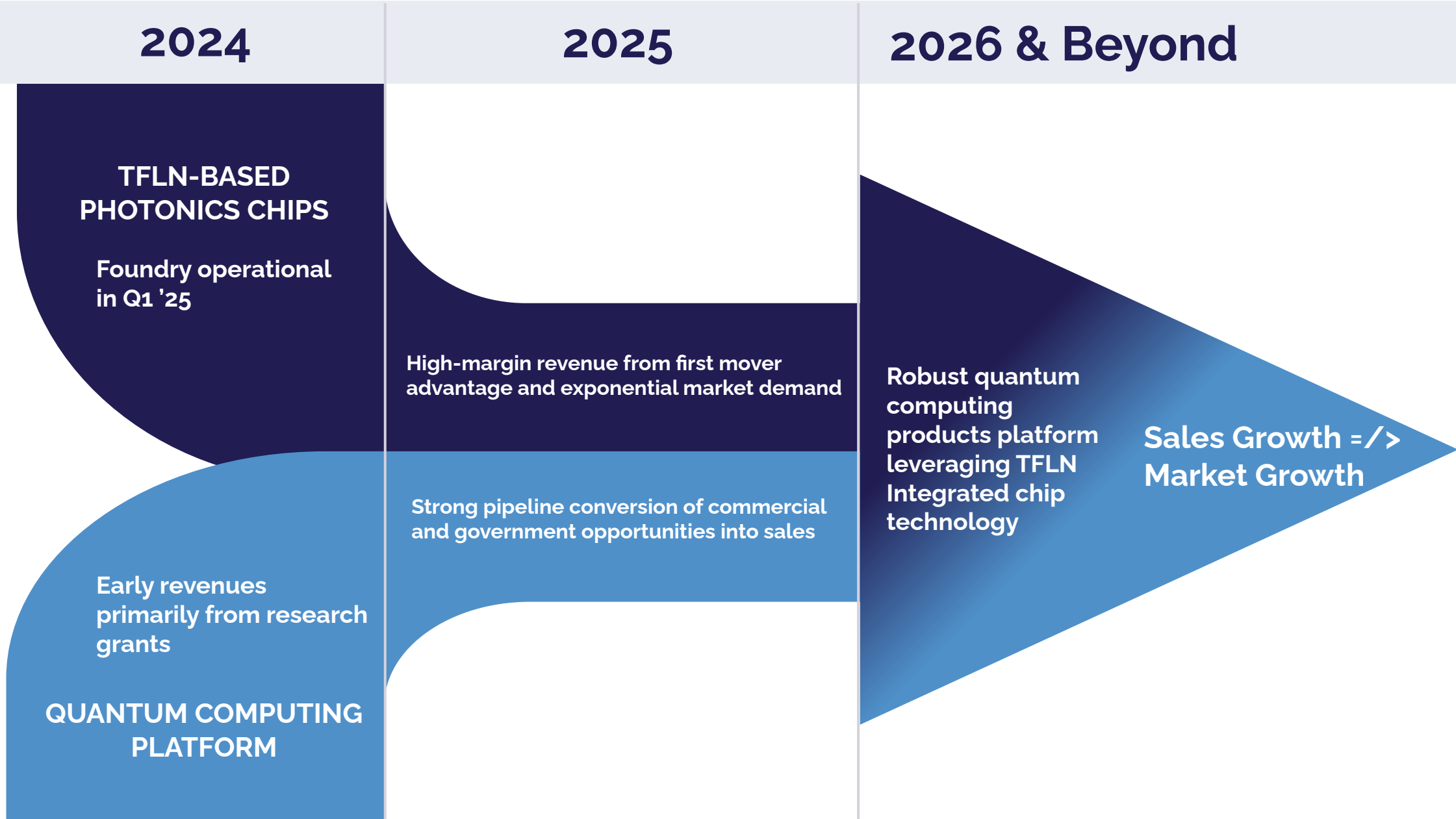
Designed and delivered a new, compact photonic sensor package to accurately measure light scattering through clouds and aerosols.

4  
SOLAR NOISE REMOVAL  
FROM SPECTRAL MAPPING  
IN LOWER EARTH ORBIT

### Underway

QCi's DIRAC-3 Entropy Quantum Computing offers NASA a potentially superior and affordable alternative for denoising LiDAR spectral information.

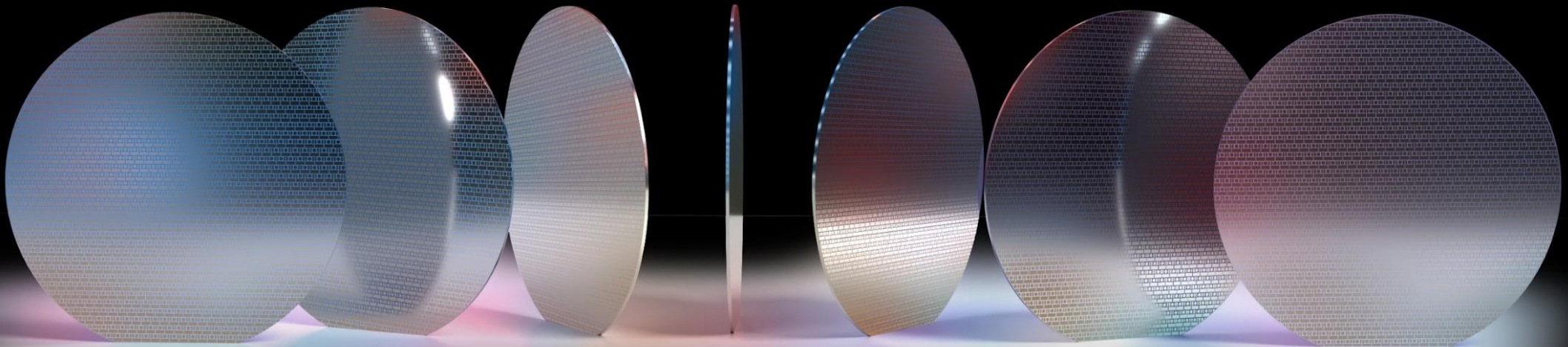
# Our Growth Roadmap



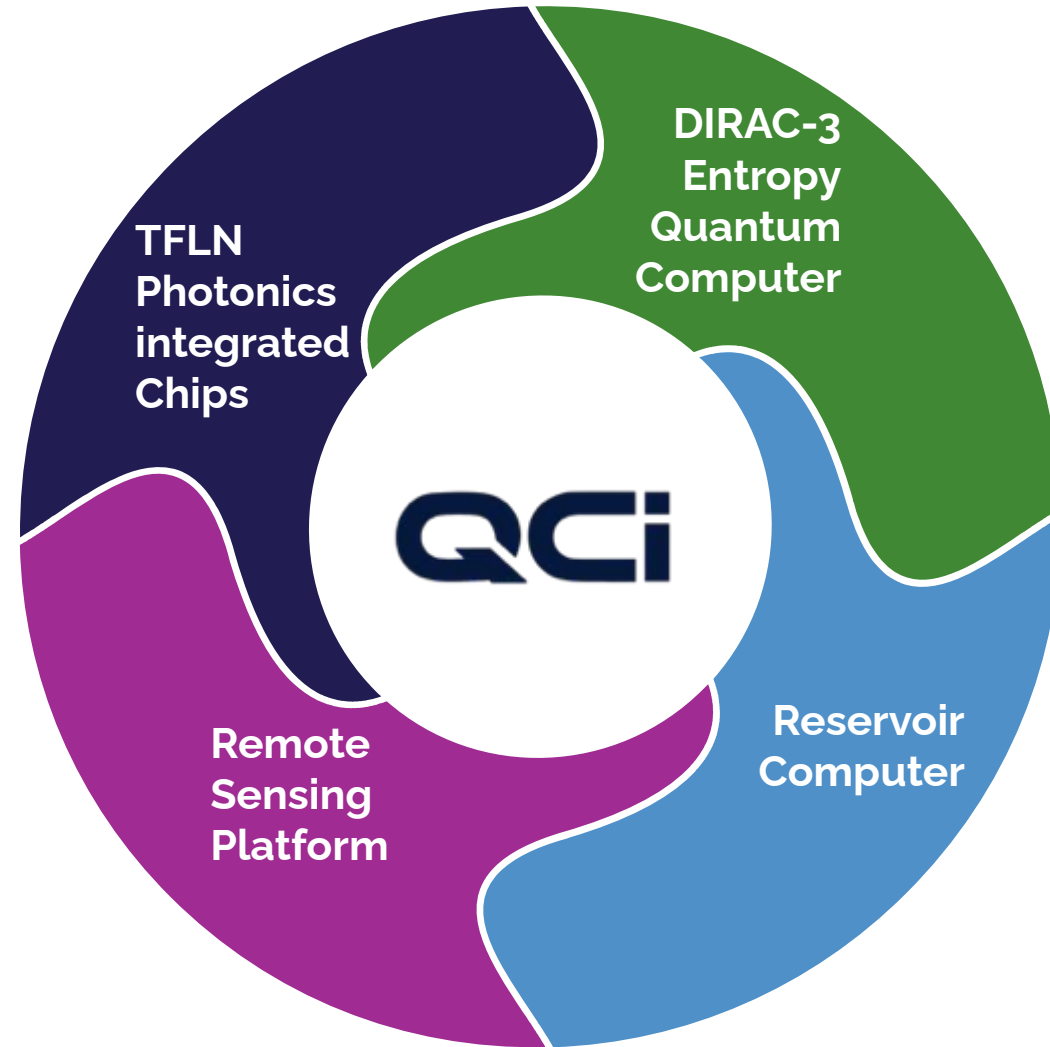
# How We Get There

- **Proactively evolve our go-to-market strategy** for our quantum products
- **Successfully transition pipeline** of commercial and government opportunities into sales
- **Expand distribution** by adding sector/industry vertical specific technology partners with robust sales networks globally
- **Maintain momentum** in the rollout of Dirac-3 for commercial and government clients
- Continued emphasis on **innovation and investment** to meet evolving market needs and maintain leadership position

# Product Appendix



# Our Product Flywheel





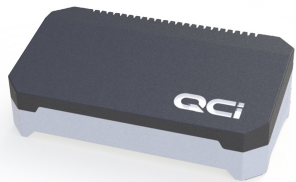
# Our flagship offerings



Foundry services

Quantum optimization

## Our R&D offerings



*Reservoir computing*



*Sensing and imaging*



*Cybersecurity*



*uQRNG*



# Thin Film Lithium Niobate

- TFLN is rapidly emerging as the **new darling child of the telecom and datacom industries**
- Modulators built using TFLN **consume very little power**, are capable of operating with extremely **high bandwidth**, and hold the promise of **miniaturization**
- TFLN is in **limited supply**, coming exclusively from China
- TFLN is already in **high demand**; a processed six-inch TFLN wafer can potentially yield over \$3 million in sellable inventory

## TFLN Modulator Market<sup>1</sup>

**\$185M**

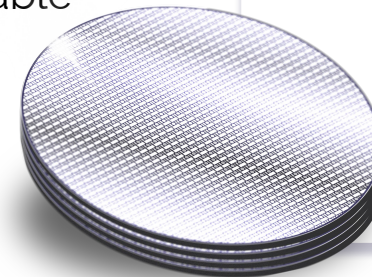
**Market Size in 2022**

**41%**

**CAGR 2023- 2029**

**\$2B**

**Market Size in 2029**



<sup>1</sup> QY Research; Sept 2023



# QCi's Early Mover Advantage in TFLN



## First US-Based TFLN Foundry Operational in Q1'25

The fab will enable components and integrated circuits for **electro-optic modulators, frequency converters & photonic integrated circuits (PIC)**



## Unmatched Capabilities

QCi is the only US company capable of processing 150mm wafers; in the first full year of production, QCi may be capable of producing **\$180M in sellable inventory**



## Barriers to Entry: Opportunity to Grab Market Share

The supply chain constraint is prohibitive for large-scale semiconductor companies (IBM, Samsung, Intel); QCi is in a **"Goldilocks" position to capture and grow significant market share**



## Initial Offtake Agreement Received

As of March 2024, QCi has an **offtake agreement with Comtech Telecommunications Corporation** to produce wafers for its satellite communications



# QCi DIRAC-3

## Entropy Quantum Computer

- The world's most powerful quantum analog machine
- Revolutionary and patented approach using entropy and the quantum vacuum
- The first and only system to natively solve integer problems using high-dimensional quantum digits (qudits), each qudit having a dimension of 200 discrete modes



**Rack mounted &  
air cooled**



**On-premises installation  
or web-based access**



**Power < 80W**



**\$300k/unit**



# DIRAC-3 Growing Use Case Library Driving Interest



Industry/Market	Challenge	Use Case Evaluation	Application Demo	PoC Engagement
INTELLIGENCE	IRS Drone Routing			
ENERGY	Power Grid Optimization			
DEFENSE	Remote Sensing Landmine Detection			
AUTOMOTIVE	Sensor Design Optimization			
MANUFACTURING	Supply Chain Optimization			
FINANCE	Investment Portfolio Optimization			
INSURANCE	IT Operations Optimization			
INSURANCE	TV Ad Spend Alloc. Optimization			
BANKING	Fraud Transaction Detection			
GOVERNMENT	Drone Flight Risk Optimization			
ENERGY	Wind Farm Design Optimization			





# Sample Use Case:

BMW Autonomous Vehicle; Sensor Placement Optimization

## CHALLENGE



Optimize the configuration of vehicle sensors to maximize coverage while minimizing costs

### COMPLEXITY:

Involved 3,854 variables and >500 constraints

## QCI'S SOLUTION

### TECHNOLOGY USED:

Entropy Quantum Computing (EQC) system

### ACHIEVEMENT:

Solved problem in 6 minutes

### RESULT:

Delivered a sensor configuration of 15 sensors

yielding 90% coverage



# QCi Reservoir Computer

## Edge Computing

- The world's first-to-market reservoir computing hardware device for “compute at the edge” efficiency
- Superior performance and speed using minimal training data and maximum energy efficiency
- Enabling transversal technologies, such as clean energy, mobility, advanced connectivity, applied AI, space technologies, and more...



Accelerates machine learning & AI



Seamless Interface with a host ethernet machine



Consumes 80-95% less power than cloud-based reservoirs



Accessible Low cost and small size for small businesses



# QCi Remote Sensing Platform

## Focusing on LiDAR-Based Applications

- Innovative and cost-effective solution for various remote sensing applications over challenging operational environments, including long distance, low visibility, and interfering backgrounds
- Variety of civilian and defense applications



Unparalleled detection accuracy at the single photon level



Unmatched speed in data collection and processing



High-resolution observations



Improved non-destructive evaluation testing



# Successful Sale of Quantum LiDAR Prototype To



JOHNS HOPKINS  
UNIVERSITY

“

This collaboration will play a pivotal role in enhancing our understanding of **phytoplankton movement, nutrient distribution**, and the **physical behavior of water bodies** under varying conditions.

Together, these **advanced capabilities** will equip researchers and policymakers with the **detailed data needed for comprehensive environmental management** and protection strategies, aligning with QCi's mission of delivering **practical and affordable quantum technologies for the world**.

**Dr. William McGann, Chief Executive Officer**  
QCi Press Release April 2024



**NASDAQ: QUBT**