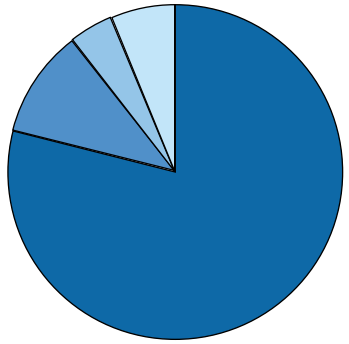
Quantum Computing Inc

- **An innovative, integrated photonics & quantum optics technology company**

Our Team & Facility

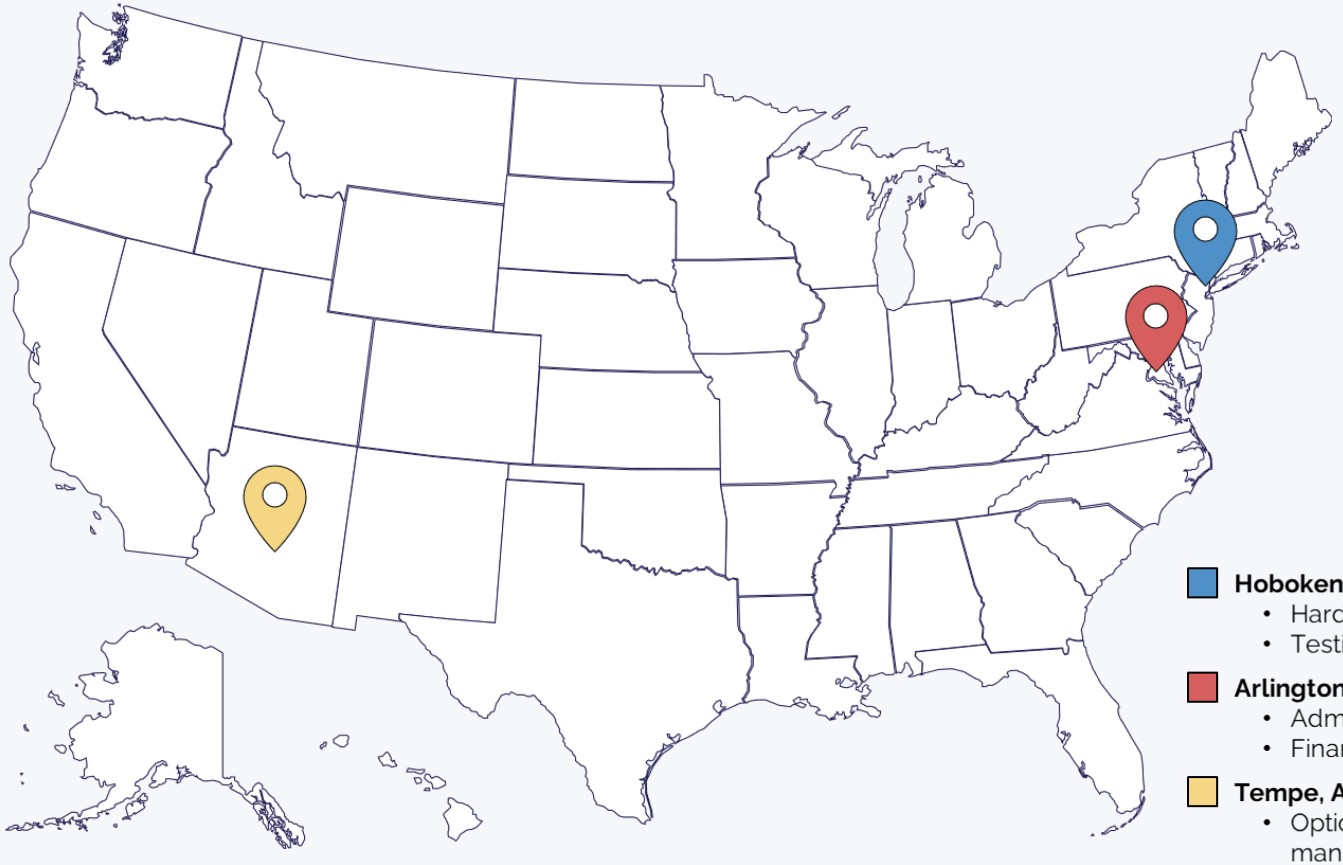


Our team makeup

- R&D (48% PhD)
- Management & finance
- Sales
- Other

Our team expertise

- Quantum Physics
- Optics
- Hardware / Electrical Engineering
- Nanofabrication
- FPGA / Embedded Design
- Mechanical Engineering / Product Design
- Quantum Algorithm Development
- Firmware and Software development



Hoboken, NJ
- Hardware design team,
- Testing & development lab

Arlington, VA
- Administration
- Finance

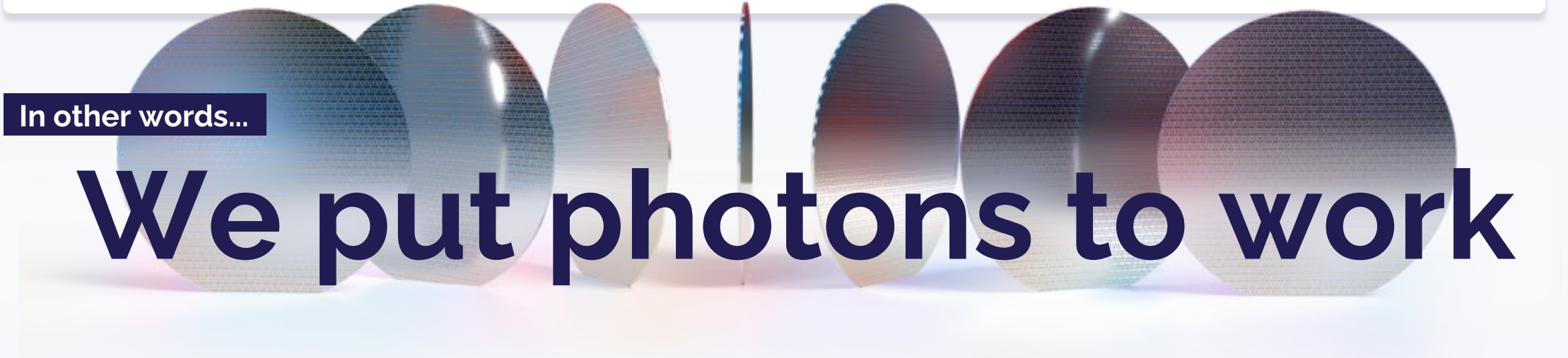
Tempe, AZ
- Optical chip manufacturing
- Advance prototyping
- Hardware assembly

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

We do one thing, and we do it well

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

9	200+	14+	8+
patents	papers	Use cases	Hardware instantiations



In other words...

We put photons to work

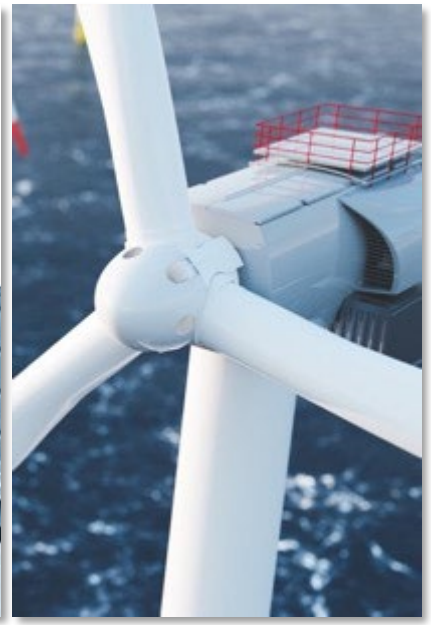
Solving Real World Problems with One Solution

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

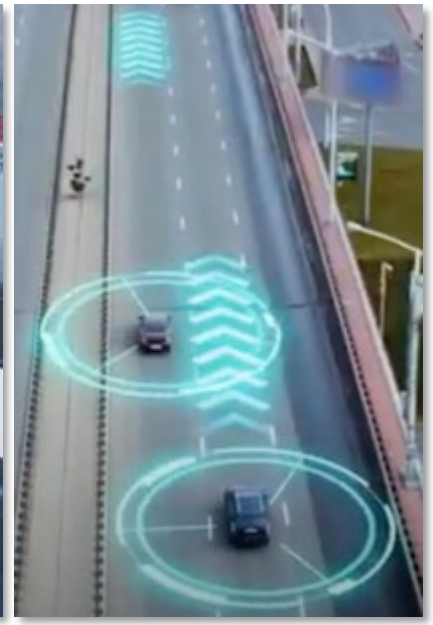
Healthcare

Financial Services

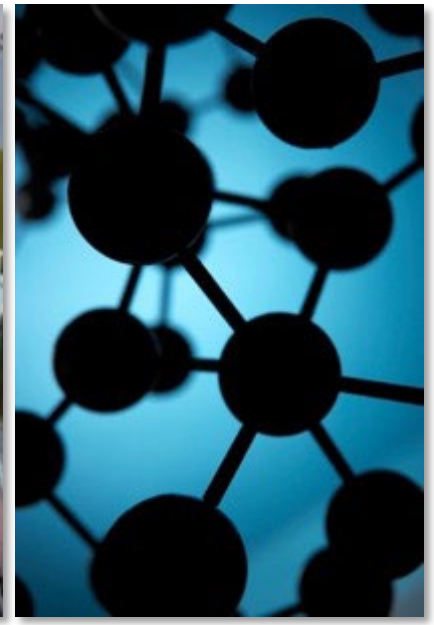
Supply Chain



Energy Management



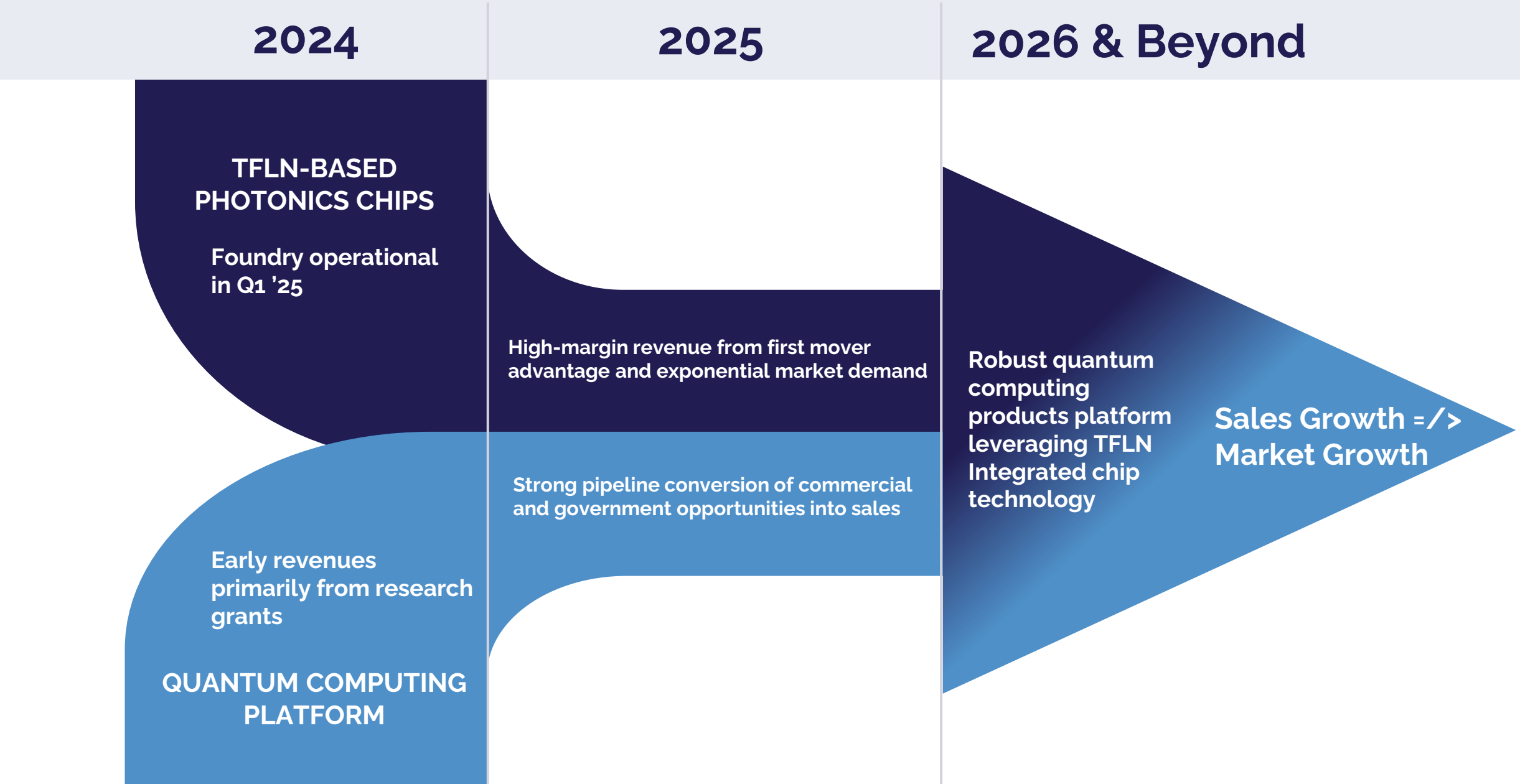
Autonomous Vehicle



Molecular Modeling

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

Our Growth Roadmap

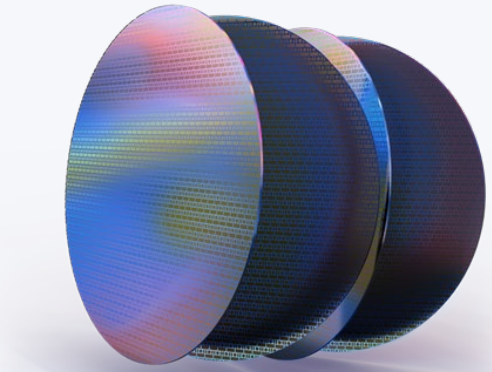


Our future state

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

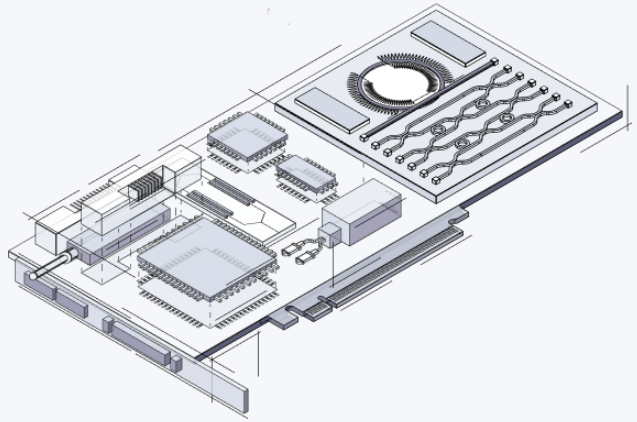
QCi FOUNDRY

QCi MACHINES



Miniaturization

Photonic circuits integrated into PCIe card



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

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-BANDWITH & FAST PROCESSING

DATA OVER DISTANCES

LOWEST ENERGY CONSUMPTION

PRECISION & SENSING

MINIATURIZATION & SCALABILITY

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[1] chip design

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

[1]TFLN –Thin Film Lithium Niobate – a high-performance, low-power optical semiconductor material

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[2]

$15.1B

Market Size in 2024

20.5%

CAGR 2024- 2029

$38.4B

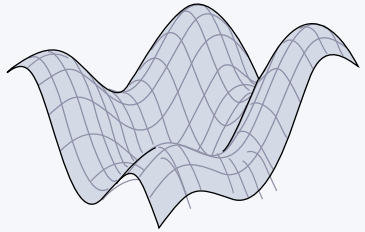
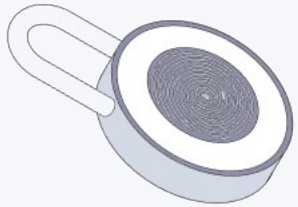
Market Size in 2029

[2] Mordor Intelligence, 2024

QCi MACHINES

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**

QCi FOUNDRY

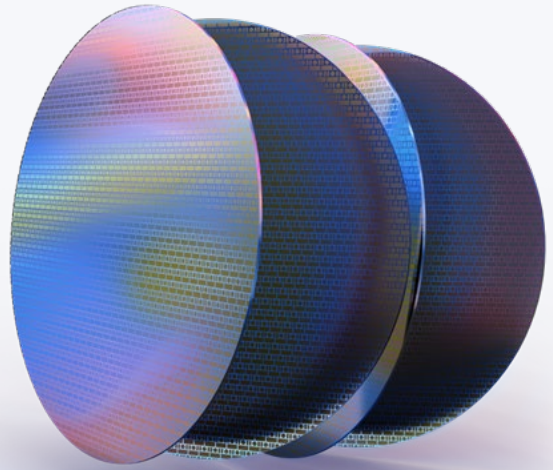
QCi

Core technology

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

What we make

Thin film lithium niobate (TFLN) wafers for photonic interconnects



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

How we put it to work

- **Foundry services**
- **Low loss TFLN photonic integrated circuits**
- **Passive devices (Micro rings)**
- **Linear devices (EOMs)**
- **Non-linear devices (PPLN)**

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

NASA + QCi

QCi Awarded 4 Grants From NASA

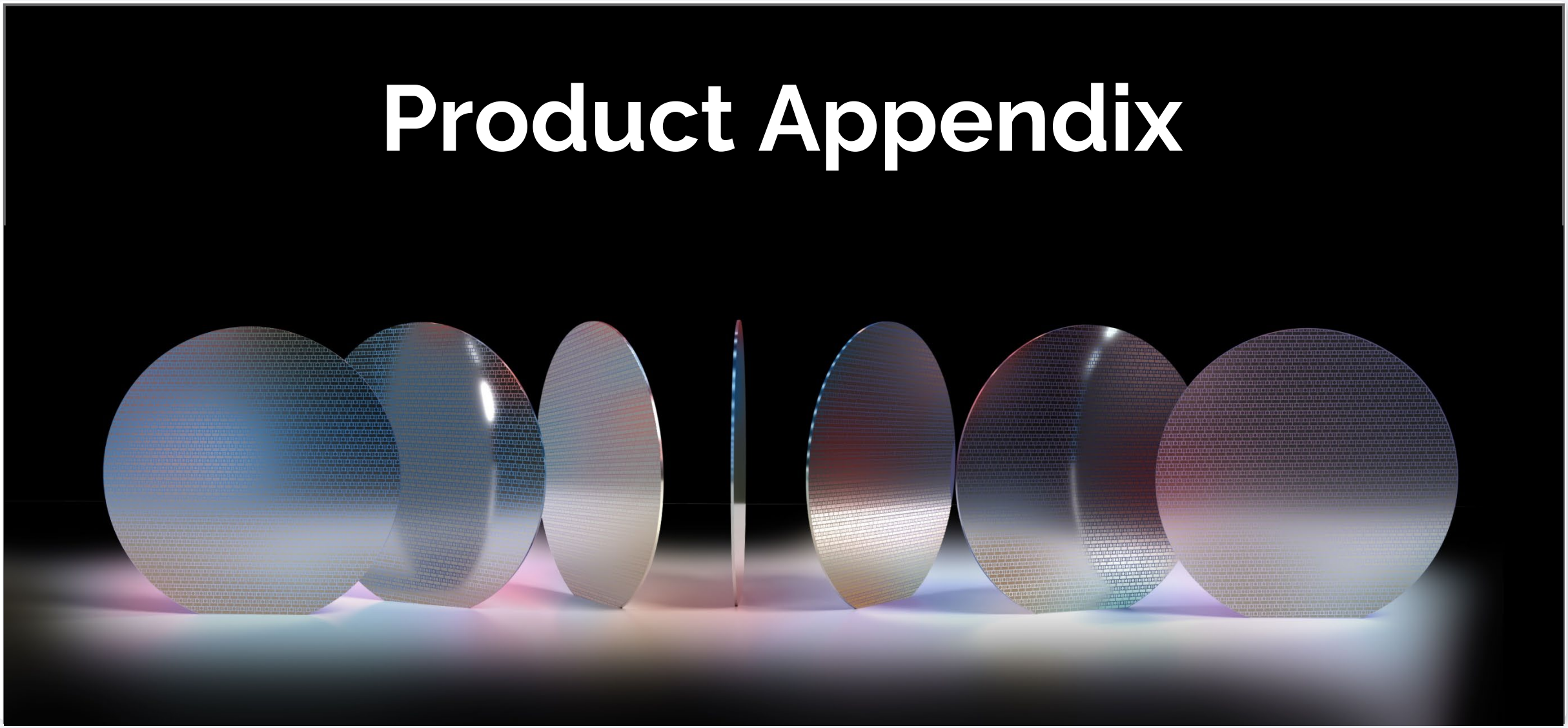
QCi continues to support NASA's goal of lowering the cost of spaceborne missions and to obtain more precise data to better understand the effects of global warming

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.

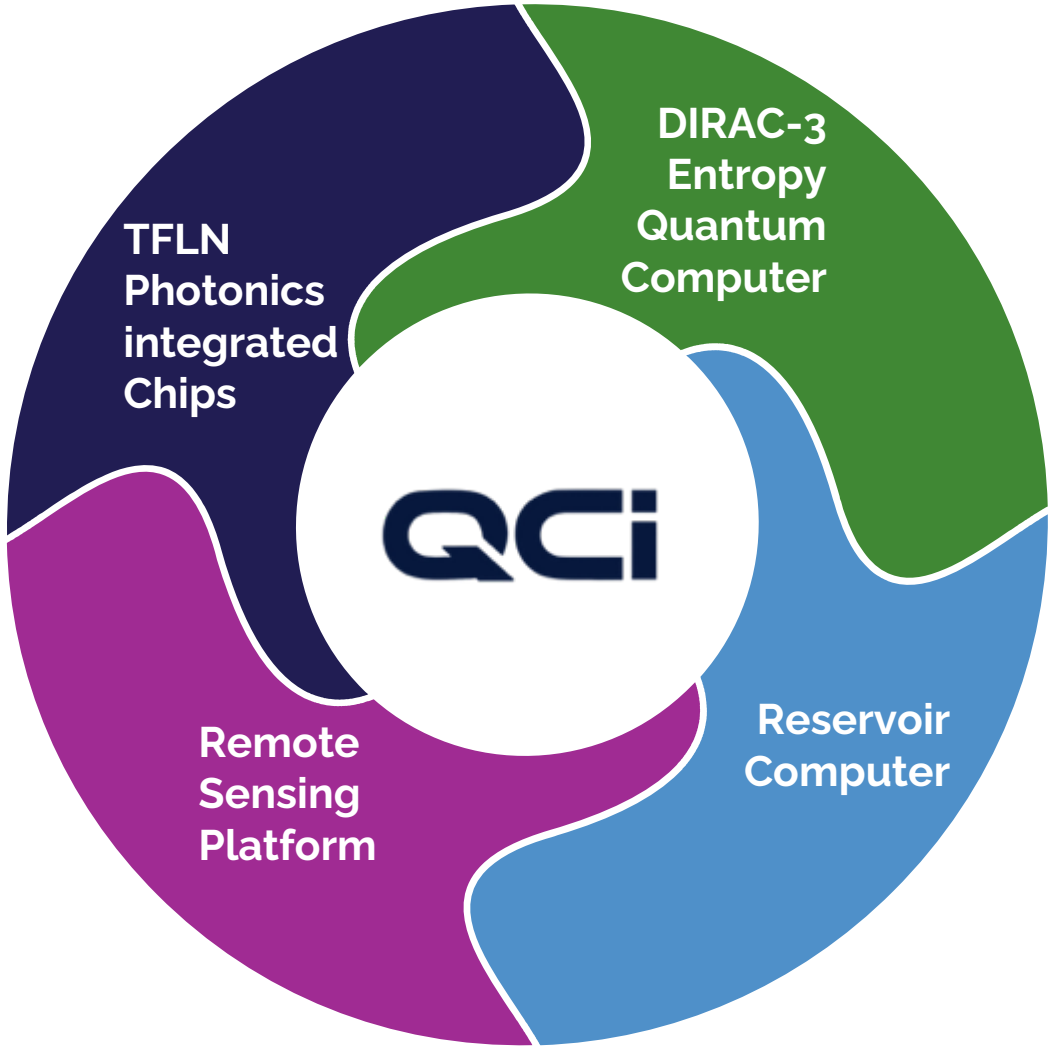
How We Get There

- **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

[illegible]

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[1]

$185M

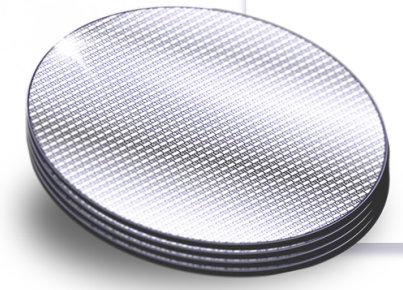
Market Size in 2022

41%

CAGR 2023- 2029

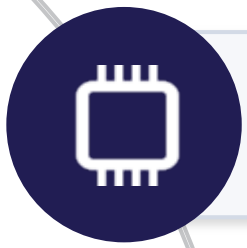
$2B

Market Size in 2029



[1] QY Research; Sept 2023

QCi's Early Mover Advantage in TFLN

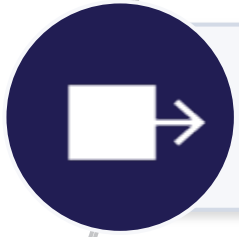


First US-Based TFLN Foundry Operational in Q1'25

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

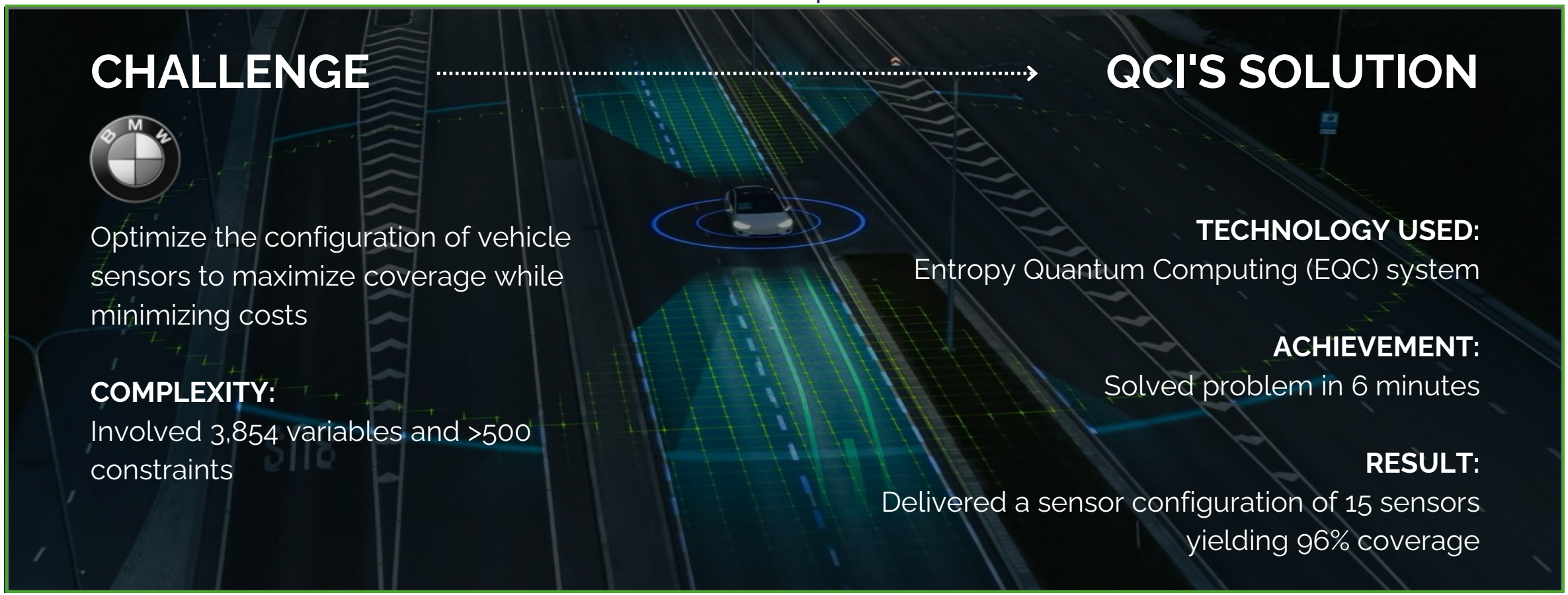
$300k/unit

DIRAC-3 Growing Use Case Library Driving Interest

Industry/Market	Challenge	Use Case Evaluation	Application Demo	PoC Engagement
INTELIGENCE	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 96% 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

Thank you

Learn more at
https://quantumcomputinginc.com/

NASDAQ: **QUBT**