



# Delivering Quantum Advantage: **Unbreakable Security Across Land, Sea, Air, and Space**



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Chairman & CEO, IonQ

December 2025



# Historic First-Mover Advantages Cemented Decade of Leadership

## Hardware & Software Leadership



MAR 1995



APR 2017



OCT 2018

### Monroe and NIST Make History

First-ever demonstration quantum logic gate, birth of QC

### IonQ System Powered On

Yb trapped ion system (Room Temp, 15 ions)

### IonQ Compiler Software Built

World's premier compiler based on published results

## Commercial Leadership



AUG 2020



OCT 2020



APR 2021

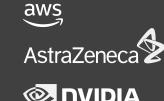
## Applications Leadership



MAR 2025



APR 2025



JUN 2025

# Unprecedented Momentum and Scale

## The Quantum Leader in Every Metric That Matters



Historic strategic acquisitions fueling  
**1,100+ patent portfolio moat**



World-class employees and domain experts  
**1,100+ and growing**

**Ansys** **AstraZeneca** 

**AIRBUS** **HYUNDAI** **Oak Ridge National Laboratory**

Leading demonstrations of **commercial advantage** with world-renowned customers



**IONQ HIGHER ON STRONG RESULTS**

First pure-play public quantum business to  
guide to **triple-digit revenue for FY25**



Strongest financial position with  
**\$3.5B in Cash and Investments<sup>1</sup>**

**99.99%**  
Two-Qubit Gate Fidelity

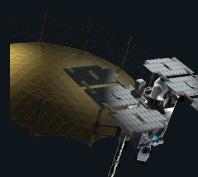


Achieved **record-breaking 99.99% two-qubit**  
gate fidelity

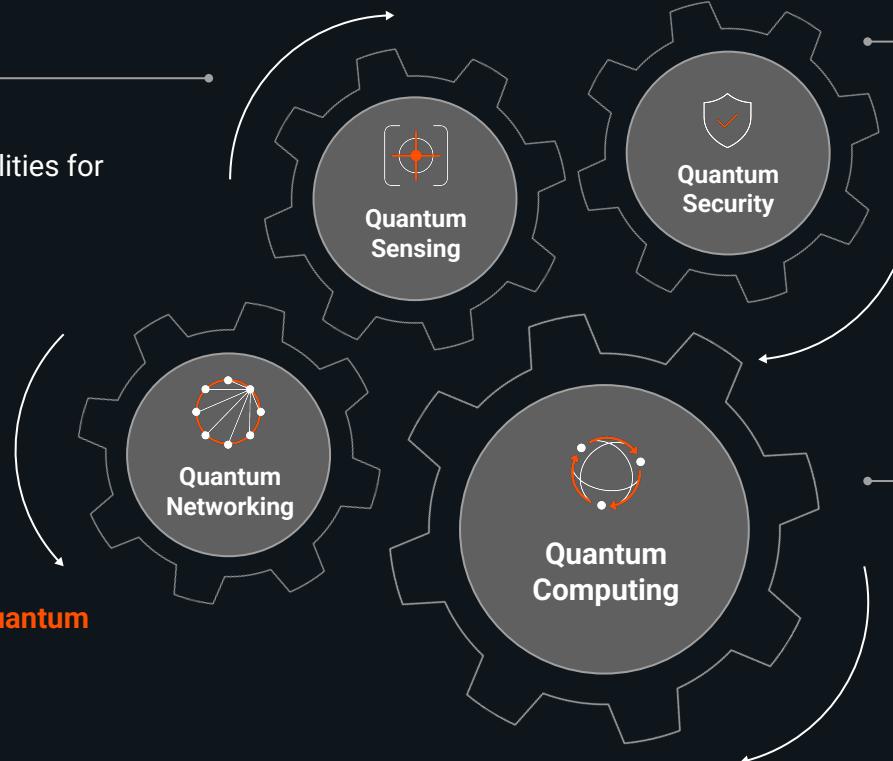
# The Only Full-Stack Quantum Platform for Defense and Security



Leveraging precise measurement capabilities for **ultra high precision and accuracy**



Building the **global quantum internet** for secure communications



Establishing real-world **quantum security** with **deployable PQC and QKD solutions**



Most powerful systems for **commercial deployment**



# IonQ Federal: Powering Global Quantum Strategy



## Mission

Established to **accelerate government adoption of quantum technology**.

Strengthening global presence across defense, research, and public-sector to **advance the world's quantum infrastructure**.

## Groundbreaking Initiatives

### DARPA

Selected by DARPA for **Quantum Benchmarking Initiative (Stage B)**



National Quantum Computing Centre

Strengthening UK's **national research muscle**

### AFRL

\$100M+ AFRL deals pioneering enterprise-grade quantum networking



Created the first **commercial US QC and networking hub**

## World-Class Team



### Robert Cardillo

Executive Chairman of IonQ Federal National Geospatial Intelligence Agency (NGA)



### Gen. Jay Raymond

Former Chief of Space Operations United States Air Force | United States Space Force



### Dean Acosta

Chief Corporate Affairs & Gov't Relations Officer Lockheed Martin | NASA



### Rick Muller

SVP, Federal Technical & Gov't Engagement Lead IARPA | Sandia National Labs

# Leader in Quantum Computing

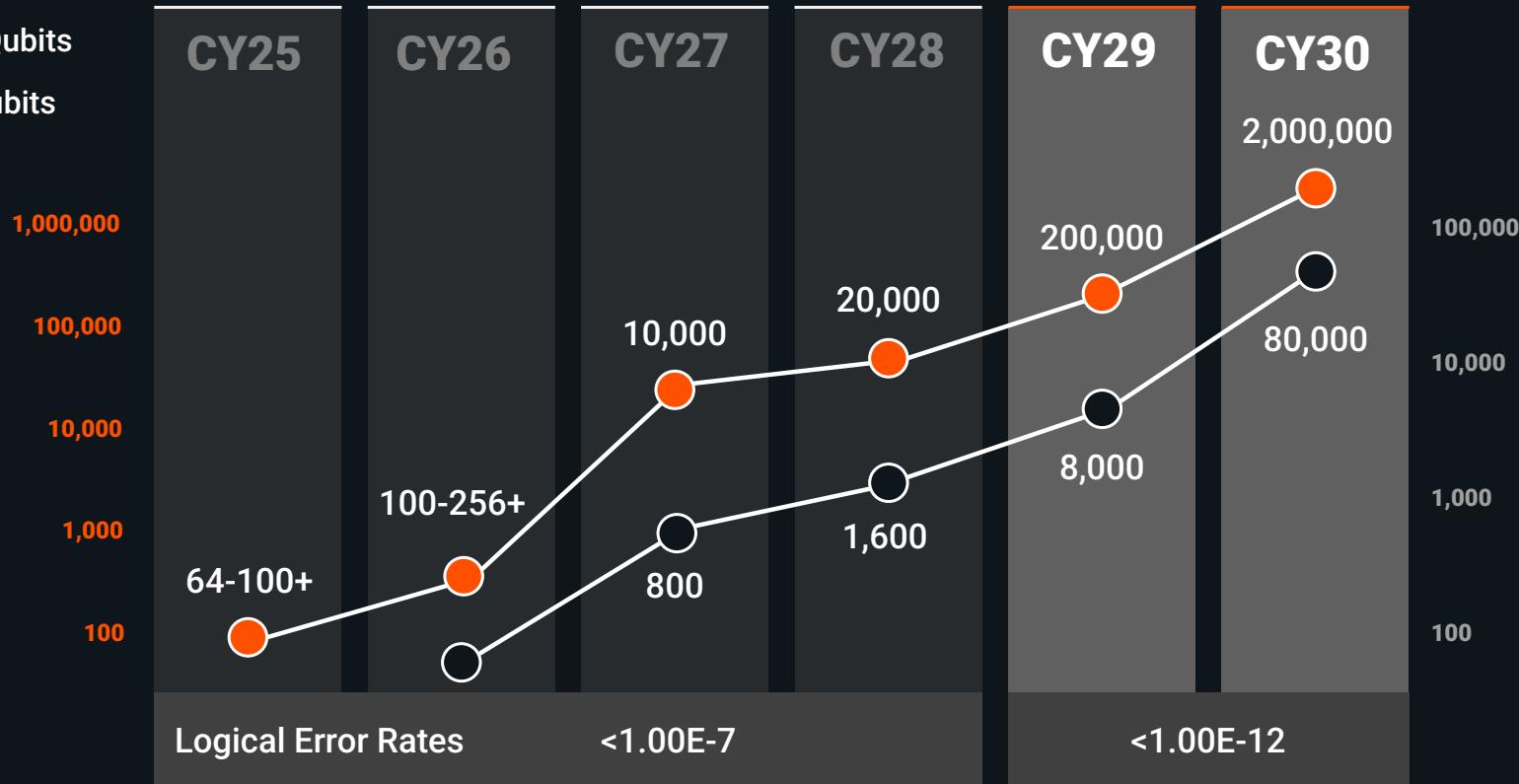
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# Leading Quantum Computing Technology Roadmap



- Physical Qubits
- Logical Qubits





## AIR FORCE RESEARCH LABORATORY (AFRL)

# AFRL and IonQ Quantum Contracts Total **\$100M+**

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IonQ and Air Force Research  
Lab focused on  
**military-grade quantum  
computing and networking**

A dark, high-contrast photograph of a naval ship at sea. The ship's superstructure, including various masts, antennas, and a large cylindrical structure, is visible against a bright sky. An American flag is flying from the rear of the ship. The water in the background is slightly choppy.

U.S. NAVAL RESEARCH  
LABORATORY (NRL)

# Accelerating Corrosion Modeling Results from **Months to Hours**

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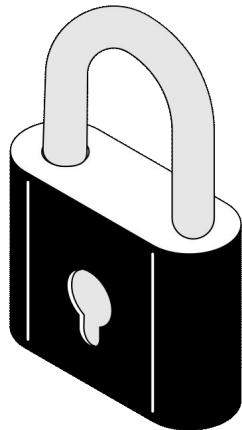
Unlocking paths to **reduce**  
**the Navy's \$20.6B annual**  
**corrosion cost**

# Leader in Quantum Networking & Quantum Security

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# Quantum Cryptography Progress Creates Risk to National Security



***“Cryptographically relevant quantum computers (CRQC) may be possible in as soon as three years. CRQCs would break all current encryption keys—posing an existential threat to national security and the global economy.”***

– U.S. Department of War Research & Engineering

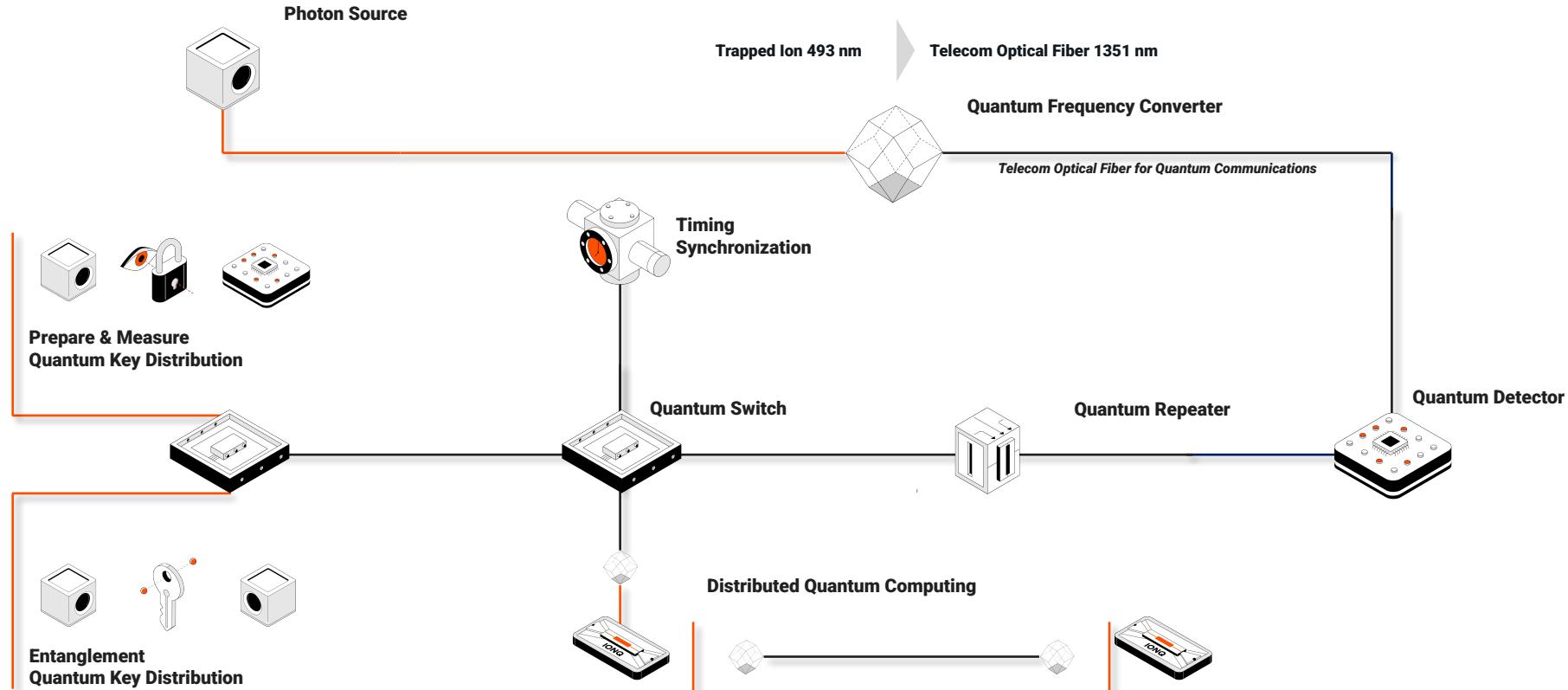
**Source:** DoD, Office of the Under Secretary of Defense for Research & Engineering (USD(R&E)), July 2025, Critical Technology Area Roadmap: Quantum Science, “Competing Concerns: The Duality of Quantum Computing,” p. 18.



# Quantum Key Distribution Is Today's Solution



# IonQ Delivers One-Stop-Shop Quantum Networks



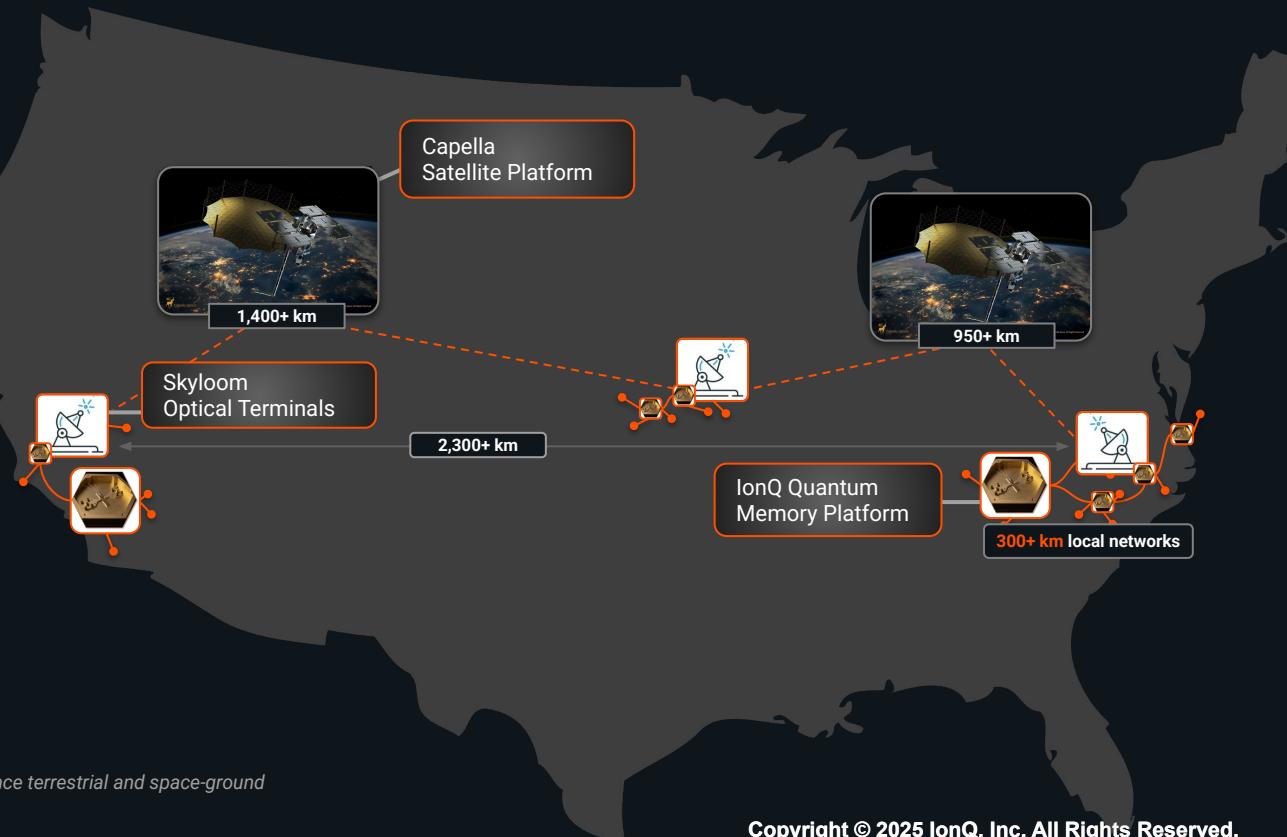
# Enabling U.S. Entanglement-Driven Quantum Networks

Building World-Leading Quantum Ground & Space -to-Ground Networks

**Establish U.S. leadership** in  
1,000+ km entanglement-based  
quantum networks

**Unlock modular quantum  
computing**, advanced sensing,  
and secure communications

**Secure the U.S. quantum**  
networking supply chain



*Example deployment: World's largest, highest-performance terrestrial and space-ground networks with end-to-end entanglement distribution.*



APPLIED RESEARCH  
LABORATORY FOR  
INTELLIGENCE AND SECURITY  
(ARLIS)

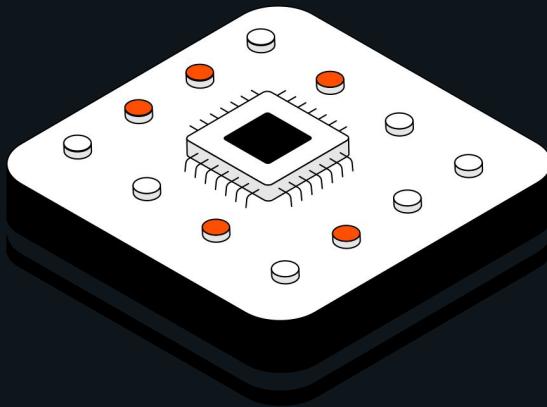
# Designing the Nation's **First** **Networked Blind QC** **System**

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Awarded project to design  
networked quantum  
processors for **intelligence**  
**and security missions**

# Leader in Quantum Sensing

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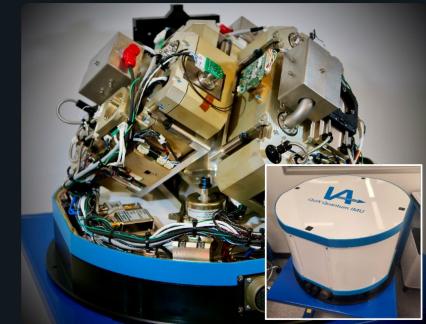
# Ultra-High Precision and Accuracy for Position, Navigation and Timing **Across Sea, Air, Land and Space**



Gravimeters **keep naval vessels on course** by locking onto Earth's unique gravity fingerprint



Atomic clocks **keep aircraft systems perfectly synchronized** for secure comms, data links, and coordinated maneuvers



Atomic gyroscopes **provide ultra-accurate navigation** and orientation for space vehicles



Navigation



Communications



Radar



Oil & Gas



Mining



Climate

# Rising DoW Momentum in Quantum Sensing & Timing



Driving Demand for IonQ's Full Quantum Stack



## \$20M+ U.S. Navy Contracts

### Miniature Ultra-Stable Iodine Clock

Designing, developing, and building prototype miniature ultra-stable iodine clocks, building on prior optical clock efforts



## \$11M U.S. Army Contract

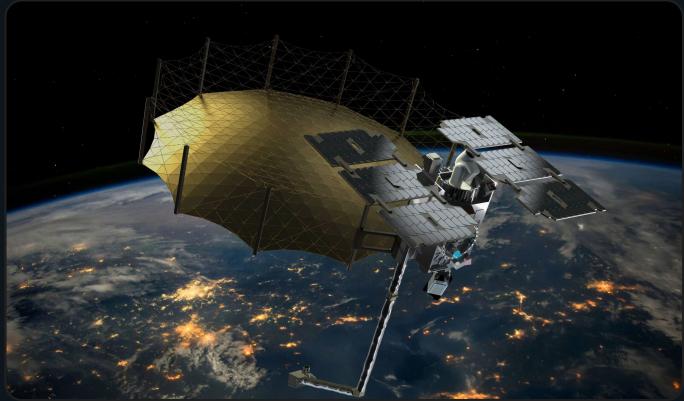
### Resilient Timing Systems

Scaling manufacturing of resilient, GPS-independent quantum timing systems for near-term deployment



# Leader in Quantum Infrastructure

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# Enabling U.S. Quantum Timing and Space Infrastructure

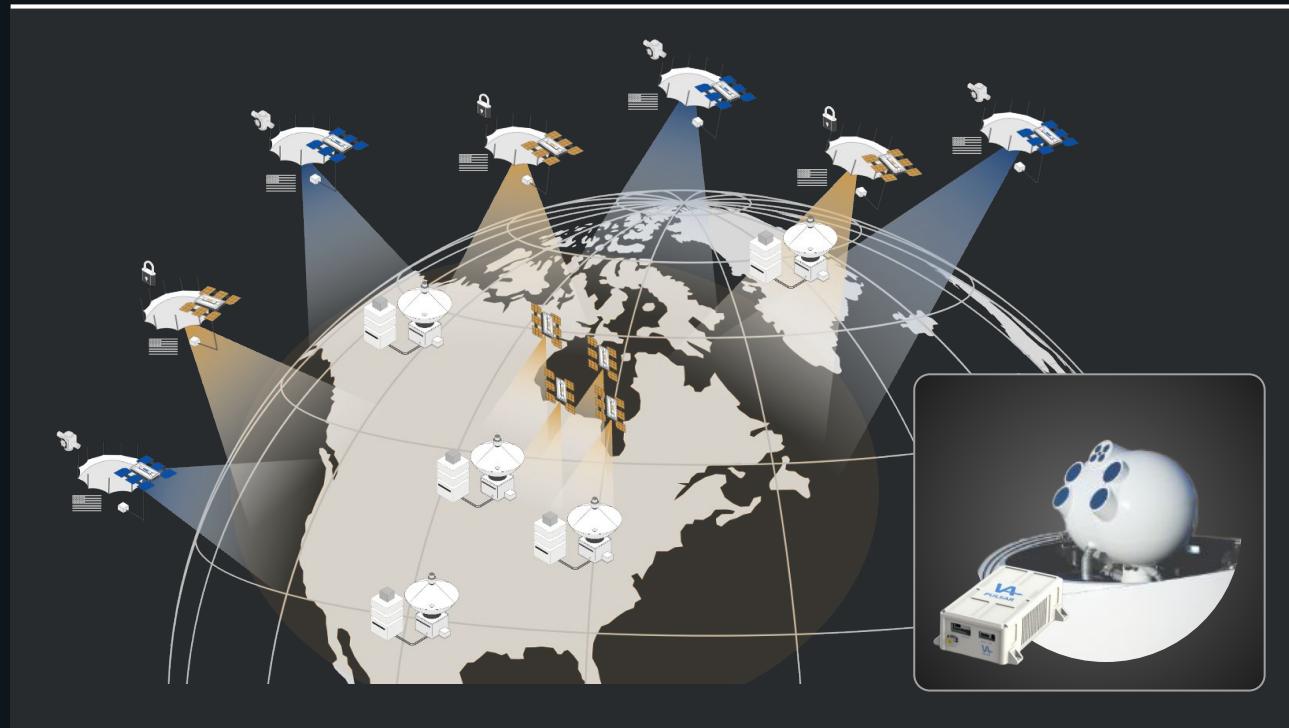


1000x Improved Timing for GPS and Ultra-Precise PNT

**Modernizes U.S. timing with next-gen Positioning, Navigation, and Timing (PNT), and adds GPS-resilient inertial navigation**

**Improves accuracy in autonomous navigation, communications, and distributed computing**

**Builds a critical U.S. supply chain** for advanced quantum sensing and space systems



*Example deployment: 1000x GPS improvement via space-based quantum tech.*

# Advancing Defense with Quantum-Secure Autonomous Drones

IonQ quantum technologies will be integrated into Heven Aerotech's hydrogen **Unmanned Aircraft Systems**

Drone communications will be **ultra-secure and protected against hacking**

Will provide **Alternative Positioning, Navigation, and Timing (PNT)** for contested or GPS-denied environments

Supporting long-range autonomous operations with **quantum-enhanced planning and data processing**



# Powering the Next Era of U.S. National Security



Secure U.S.-only program that delivers a **full-stack sovereign quantum capability**.

- Quantum compute, sensing, and security to **strengthen mission readiness**
- Quantum-safe Zero Trust to **counter emerging cyber threats**
- Quantum-enabled JADC2 to **improve joint force coordination across all domains**
- Quantum support for Replicator to speed development and **deployment of attritable autonomous systems**



