

An Overview of New Mexico's Quantum Economy

From scientific leadership to commercial scale

Briefing to the New Mexico Science, Technology
and Telecommunications Committee

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Jake Douglass

IonQ | Federal Capture Director



Jessi Olsen

Elevate Quantum | CEO



Quantum Technologies are truly the next frontier

Quantum technologies are moving from research toward practical applications.



Quantum computing

Solve previously unsolvable problems.

Drug discovery • Grid optimization



Quantum networking & communication

Communicate with security guaranteed by physics.

Secure government networks • Protected data



Quantum sensing

Measure the previously undetectable.

Underground resources • GPS-free navigation



Space

Secure and strengthen space operations.

Secure satellite communications • GPS-resilient timing



Enabling technologies

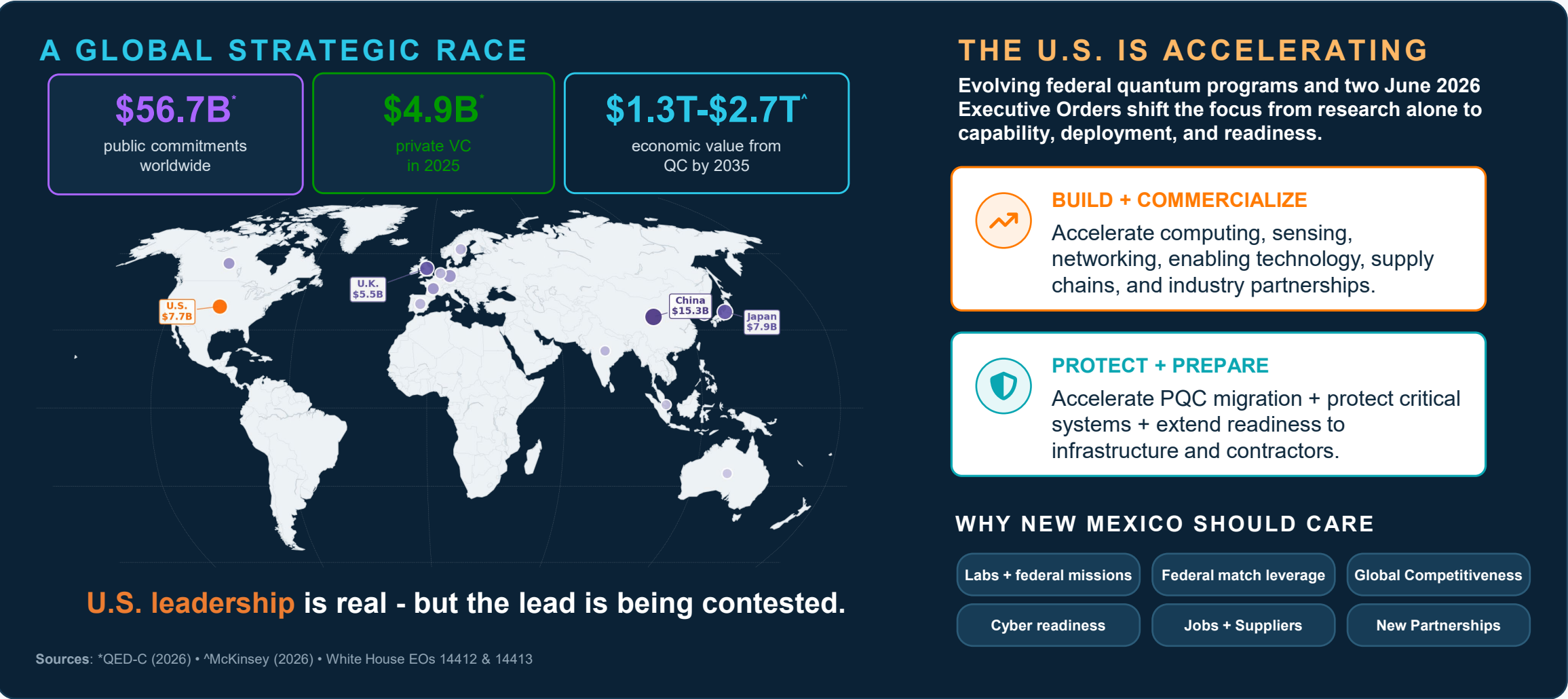
The classical technologies that make the quantum stack work.

Lasers & optics • precision chips • control software

Together, they turn quantum science into real-world capability.

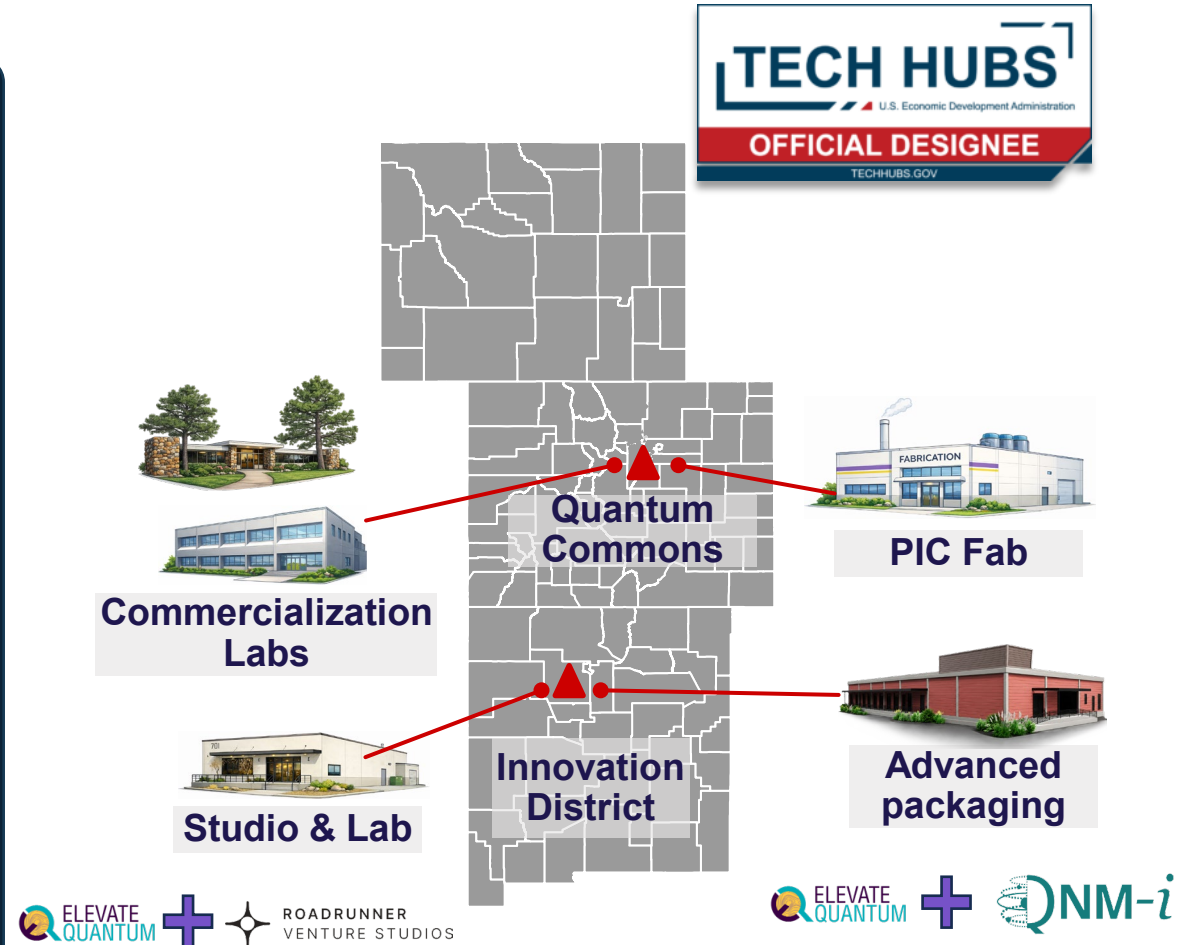
Why quantum, why now? The global race is accelerating

Nations are investing at scale - and U.S. policy is moving from research leadership toward deployment, commercialization, and security.



Elevate Quantum is the federal government's first and most mature place-based investment in a quantum tech hub

- > Awarded in 2024, Elevate Quantum represents the **U.S. Government's most mature place-based quantum investment**
- > EQ was funded by Tech Hubs, a CHIPS Act program that aimed to **create Silicon Valleys for next-gen tech, awarding up to \$1 billion each** to make it happen
- > Our mission, **"Dramatically accelerate the commercialization of Quantum"**
- > We operate open access **labs, fabrication facilities, workforce training programs**, and a wide variety of ecosystem building activities in support of commercialization



New Mexico is among the most vibrant and fertile regions for quantum in the world

RIGHT PLAYERS



15+

Leading quantum and quantum adjacent companies

RIGHT SUPPORT



#1

In State-backed quantum investments over the next 12 months (QNMI, RD&D, QBI, etc.)

RIGHT LEADERS



5

National laboratories (3); R1 universities (2) in the State (UNM, NM Tech)

RIGHT TALENT



350+

Quantum jobs in the region projected by end of year

Over the last 12 months the New Mexico quantum ecosystem has seen major wins

KEY ACHIEVEMENTS AND IMPORTANT MILESTONES

 **20%**

Total Job Growth

ACROSS QUANTUM SECTOR

 **2**

New Startups Created

EMERGING QUANTUM VENTURES
LAUNCHED

 **7**

New Site Selection Wins

STRATEGIC FACILITY EXPANSIONS
SECURED

 **100%**

Quantum Company Retention

EVERY COMPANY RETAINED IN THE
REGION

 **\$ 270M+**

Capital Raised

+\$1B IN FOREIGN PARTNERSHIP
INVESTMENTS

We specialize in
**commercially-
ready quantum
technologies**

The breadth of our
ecosystem makes
it one of the **most
dynamic places
for quantum
innovation
globally**



New Mexico is home to leading quantum start ups

These companies, many who started in New Mexico, are solving today's most complex issues



BANDÉLIÉR

Developing sensing technology for advanced awareness and secure communications for both defense and commercial industries

Santa Fe, NM



MANZANO

Delivering advanced integrated photonic-based systems for quantum computing and neuromorphic signal processing

Albuquerque, NM

MesaPhotonics

Developing and manufacturing advanced ultrafast laser pulse measurement systems for quantum computing, sensing, & networking

Santa Fe, NM

STAR
CRYOELECTRONICS

Supplying SQUID sensors and readout electronics, cryo systems, and foundry services for superconducting thin-film device fabrication

Santa Fe, NM



PHOTON
QUEUE

Developing quantum memories that can store, synchronize, and release photons, ultimately connecting quantum computers

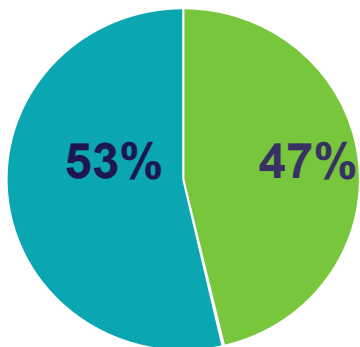
Albuquerque, NM

Maybell

Creating near-zero temperature environments necessary to manipulate and communicate with qubits, enabling quantum breakthroughs

Albuquerque, NM

Quantum is cutting edge, but the jobs these companies are creating are accessible to all



TODAY, HALF OF QUANTUM JOBS DON'T REQUIRE ADVANCED DEGREES (closer to 80% for enabling hardware)

SHARE OF TECHNICIAN JOBS EXPECTED TO DOUBLE IN 5 YRS

2x



THE AVERAGE QUANTUM JOB PAYS >\$125,000/YR

QUANTUM CORE LASER ENGINE

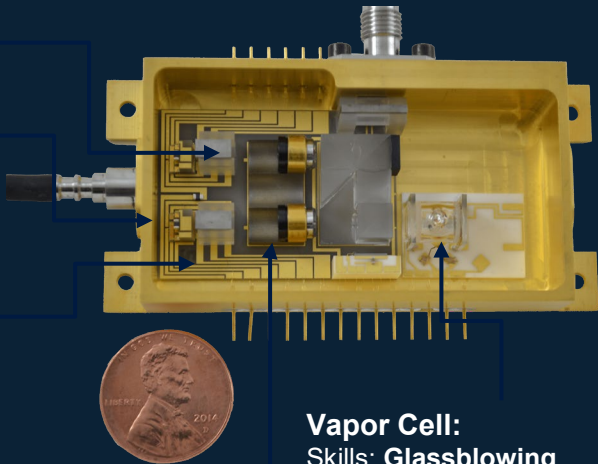
Lens Mount:
Skills: Special Materials Machinist
Education Requirement: Trade/CC

Laser Chips:
Skills: Epitaxial Growth
Education: Trade/CC/Undergrad

Optical Coating:
Skills: Dielectric Deposition
Education: Trade/CC

Opto-Block
Skills: Optical Assembler
Education: Trade/CC/4 year

Vapor Cell:
Skills: Glassblowing
Education: Trade/CC



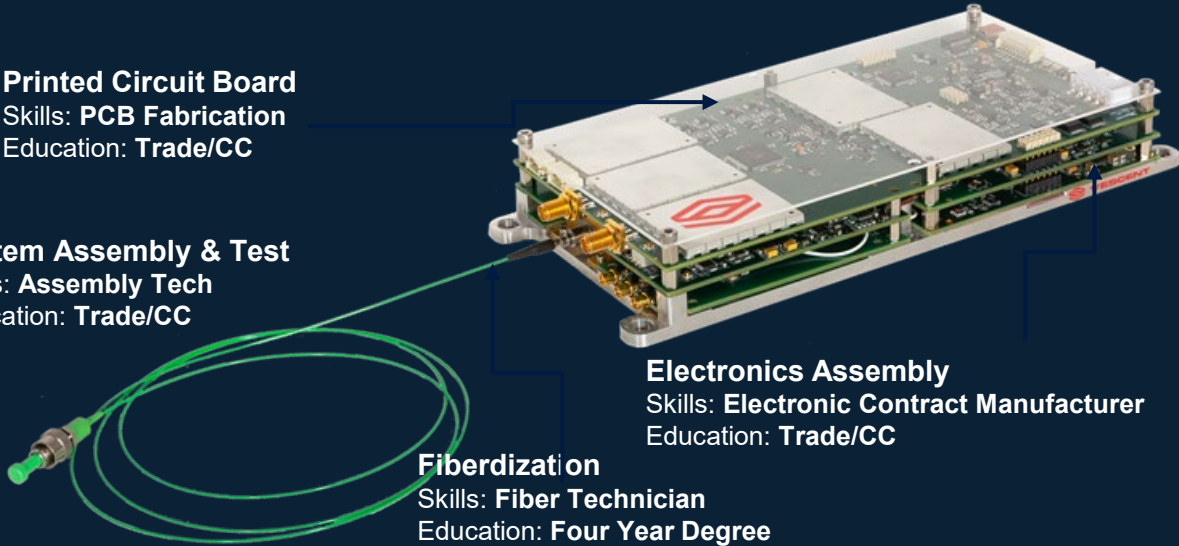
CO-PACKAGED LASER / ELECTRONICS
QUANTUM LASER SUBSYSTEM

Printed Circuit Board
Skills: PCB Fabrication
Education: Trade/CC

System Assembly & Test
Skills: Assembly Tech
Education: Trade/CC

Electronics Assembly
Skills: Electronic Contract Manufacturer
Education: Trade/CC

Fiberdization
Skills: Fiber Technician
Education: Four Year Degree



State quantum workforce investments are already showing results

Continued investment across K-12, 1–2-year certifications, and funding for higher education is imperative

CONNECTED PATHWAYS



K-12 + EDUCATORS

- QCaMP
- QuanTime teacher training



TECHNICIANS

- CNM / QuLL • EQ EQUIP • Assc. Pathways



UNIVERSITY + RESEARCH

- QNM-I/UNM • NMSU • NM Tech • CNM



EMPLOYERS + UPSKILLING

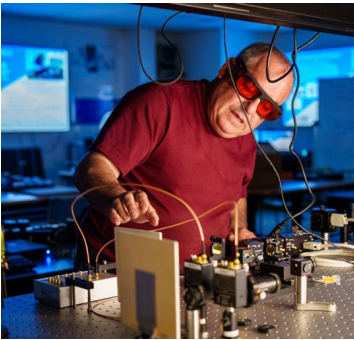
- Badges
- Apprenticeships

DEMAND IS GROWING

8,200+

New quantum-related job + internship openings globally in 2025

NM PROGRAMS IN ACTION



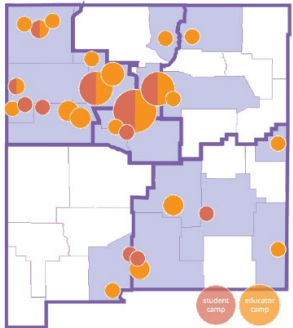
Technician Bootcamps

- QuLL (est. 2025)
- 20 students trained, 17 placed, 12 more starting in 9/28/26
- 20+ additional engagements, including workshops, briefings, and train-the-trainer events



Technician Badging

- EQUIP (est. 2026)
- 10 students trained, 7 placed in first cohort (August 2026)
- Offers flexible night course options focused on hands on repetition



K-12 Outreach

- QCaMP (est. 2022): 105 students & 104 educators trained
- QuanTime (Est. 2025): >1000 community members engaged
- >6000 students reached via classroom implementation

New Mexico's policy tools are translating strategy into real activity

From an industry perspective, NM has built a rare mix of research, workforce, commercialization, and matching-fund tools.

WHY INDUSTRY NOTICES



Full ecosystem support

QNM-I • faculty • workforce pathways • shared infrastructure • public-private collaborations



LEDA

Support for infrastructure development in NM for QIS companies is critical.



JTIP

Supporting high-wage job creation and growth in NM is very competitive.



TRGR

Funding for national-lab engagements on industry's hardest problems is differentiating.

What industry sees: a state willing to support the whole journey - talent, research, lab access, outside capital, and scale.

Critical enacted & future programs

Quantum Frontiers

Innovation Hubs

RD&D

Matching Grants

QIS User Facility

Cloud Access

Ecosystem Enablers

QNM Institute

Roadrunner Quantum Lab

NM Innovation Hub

RECENT EXECUTION

NMEDD is moving fast, and industry is paying attention

JUN 1 FOUNDATION	TIN Advisory Board launches	Formal ecosystem voice and governance for the RD&D Fund.
JUL 13 FY27	Targeted Federal Match opens	First RD&D grant; helps leverage qualifying federal awards.
JUL 14 FY27	\$1.2M Quantum Technologies Awards	Six companies funded; two establishing a New Mexico presence.
AUG 24 FY27	\$3M QNM-I agreement	Expands research capacity, workforce, and commercialization.
AUG 27 FY27	Quantum federal match expands	QBI Stage C + QuantumEAGLe added as eligible federal programs. Adaptability is key.
AUG 31 FY27	Capital Leverage Grant opens	\$1M+ outside investment can unlock \$1M+ in state co-investment.

NM has a strong ecosystem - other states are entering the fray

The competition is not only about spending. States are combining strategy, infrastructure, incentives, workforce, anchor institutions, and industry partnerships.



The strategic choice: sustain momentum or let value scale elsewhere

NM has assembled rare ingredients. Policy continuity determines whether they compound into durable economic and mission outcomes.

IF MOMENTUM CONTINUES



LEVERAGE

State dollars attract federal, private, and philanthropic capital



RETAIN

Researchers, graduates, IP, and companies have reasons to stay and scale locally



UTILIZE

Shared facilities and workforce programs gain users, revenue, and operating relevance



DEPLOY

Mission demos create reference customers and accelerate technology transition



GROW

Suppliers, applications, jobs, and company expansions deepen the ecosystem

IF MOMENTUM STALLS



EXPORT

Research and IP commercialize in regions with stronger translation and capital pathways



LOSE TALENT

Students and experienced workers follow companies and opportunity elsewhere



UNDERUSE

Facilities become isolated assets rather than connected platforms for growth



MISS CAPITAL

Other states capture federal programs, private investment, and company expansion



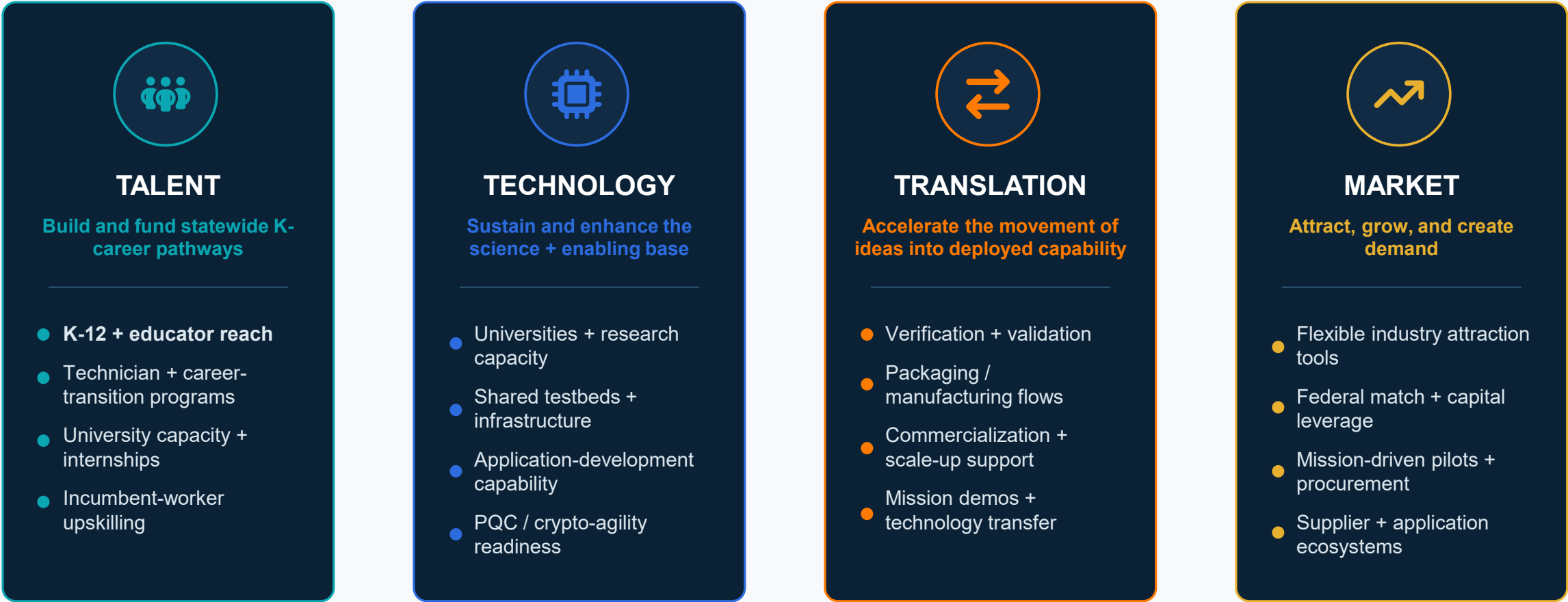
STOP SHORT

Research excellence remains - but downstream economic value leaves

Continuity matters: companies, talent, and infrastructure respond to credible multi-year signals - not one-off programs.

A 2027 quantum policy package can be organized around four durable pillars

The strongest package would connect people, technology, commercialization, and market demand - with statewide access and measurable outcomes.



CROSS-CUTTING: statewide access • coordination • measurable outcomes • public-private leverage • national-security relevance

BOTTOM LINE

New Mexico has a head start. Keep it.

A quantum economy is not built by any single company, laboratory, university, technology, or program. It is built by connecting all of them.



Federal policy is accelerating both quantum opportunity and quantum-safe security planning.



We are at a critical inflection point for commercialization. Link research, applications, infrastructure, workforce, capital, and customers to capitalize.



Create pathways from classrooms and technicians to engineers, researchers, and entrepreneurs.



Use a coherent 2027 package to turn momentum into durable missions, companies, and jobs.

CONNECT THE SYSTEM

Questions & discussion

Jake Douglass | IonQ Federal | jake.douglass@ionq.co
Jessi Olsen | Elevate Quantum | jessi@elevatequantum.org

Appendix

Additional detail for committee questions

- IonQ Overview
- Workforce Spotlight: QuLL & EQUIP
- PQC and Q-Day Readiness
- Quantum applications for NM



IonQ: The World's Only Quantum Platform and Merchant Supplier Delivering **Integrated Solutions**



QUANTUM SOLUTIONS



Quantum Computing

Industry-leading quantum computers, with our 5th generation 100-qubit machine now in the market and our 6th generation, 256-qubit machine expected to begin commissioning in 2027.

Quantum applications across a wide set of industries.



Quantum Networking

The only quantum networking platform intended to support connections between **all qubit modalities** creating the first-ever quantum internet.



Quantum Sensing

The world's highest performing, fielded atomic clocks and jam-proof quantum sensors for **ultra-high precision and accuracy**.



Quantum Cybersecurity

Deploying full-stack hardware and software quantum cybersecurity solutions today, before encryption is expected to be broken.



Quantum in Space

Extending quantum into space, including ultra-fast, ultra-secure optical interconnects for greater bandwidth as we invest in quantum-grade positioning, navigation, timing, and communications.

QUANTUM MANUFACTURING

Workforce Spotlight | We are building a new type of technician, meeting a market need for non-advanced degree talent

QuLL | Quantum Learning Lab

PROGRAM OVERVIEW

A 10-week, full-time immersive training program (400 hours) requiring no prior math or science background - designed to transform career-changers into job-ready quantum technicians

CURRICULUM

Optics and Photonics • Ultra High Vacuum Systems • Quantum Phenomena • Superconducting Qubit Calibration • Algebra, Trigonometry, Statistics • Problem Solving & Documentation • Soldering & Lean Manufacturing Certs

GRADUATE SPOTLIGHT



Sergio Arvizu

Sergio, an army veteran, completed the bootcamp as a full-time student and was hired by Bandelier Technologies, a company working on national security quantum sensing applications

EQUIP | Elevating Quantum Upskilling through Industry Proficiencies

PROGRAM OVERVIEW

Stackable badges (10–40 hours each) delivering hands-on cryogenics and vacuum training at EQ's Commercialization Lab — using the same commercial grade equipment used in the field

STACKABLE BADGE MODULES

Vacuums, Pumps, Gauges & Seals • Helium Leak Detection • 4K Dry Cryostat Basic Operations • Dilution Refrigerator Basic Operations • Systems Integration & RF Measurement • Vacuum / Electrical / Gas Feedthroughs

INDUSTRY VALIDATION

"All the badges reflect the skills associated with a cryo-engineer position."

– Nir A., GM — Quantum Machines

"One-to-one mapping alongside our internal priorities... aligns with level 3 cryo technician."

– Alex P. — Google Quantum AI

"Troubleshooting and SOP-level hands-on work are essential. Excited by badges that reflect actual competencies."

– Ben R. — Maybell Quantum

Backup: Q-Day, PQC, and why preparation starts now

Q-Day is uncertain. The migration clock is not.

WHAT IS Q-DAY?

Q-DAY

Shorthand for the point when a quantum computer becomes powerful enough to break much of today's widely used public-key encryption, including RSA and elliptic-curve cryptography.

NO ONE KNOWS THE DATE

The risk is real before Q-Day because sensitive data can be stolen now and decrypted later.

Post Quantum Cryptography (PQC) = new encryption and signature algorithms designed to resist attacks from quantum computers.

WHY PREPARE BEFORE Q-DAY?

TODAY



Data is already at risk

“Harvest now, decrypt later” means encrypted data captured today may still be valuable when Q-Day arrives.

MIGRATE NOW



The replacement takes years

NIST has finalized PQC standards and says organizations should begin migration now.

Q-DAY



Prepared systems keep working

Unmigrated public-key encryption may be exposed; prepared systems use quantum-resistant algorithms.

PRACTICAL STATE ACTIONS NOW



Inventory

Know where vulnerable cryptography is used.



Prioritize

Start with long-lived data and critical systems.



Build crypto-agility

Require systems and contracts that can change algorithms.



Pilot + prepare

Train teams and test migration with key partners.

FEDERAL SIGNAL

NIST migration pilot by Dec. 31, 2027 • high-value federal assets: key establishment by 2030; digital signatures by 2031

New Mexico's missions can be the first customer for quantum

National-security demand can pull new technology into use - and the same capabilities can create value across the civilian economy.

MISSION PULL

Problems New Mexico already needs to solve

DOE • DoD • Space



Navigate without GPS

Keep aircraft, spacecraft and vehicles operating when satellite signals are jammed or unavailable.



Secure critical communications

Protect government, space and infrastructure networks - now and as quantum threats grow.



Model complex missions

Use advanced simulation and optimization to plan operations, allocate resources and reduce risk.

MISSION
DEMAND
DE-RISKS
EARLY
USE

SAME TECHNOLOGY, BROADER VALUE

Where the benefits can spread



Better batteries

COMPUTING

Model materials that could improve batteries, catalysts and advanced manufacturing.



New medicines

COMPUTING

Screen drug candidates and model molecular interactions more rapidly and with far less trial and error.



Smarter grids & logistics

COMPUTING

Optimize power systems, routes, schedules and supply chains when choices get complicated.



Water & underground sensing

SENSING

Detect underground water, resources, voids and infrastructure changes that are hard to see today.

NM advantage: mission customers can help prove technologies early - then local companies, workers and institutions can scale them into broader markets.