New Mexico is a Quantum State

Quantum New Mexico Coalition:
New Mexico's Quantum Future

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4/1/22
Origins of the Quantum New Mexico Coalition

- The Quantum New Mexico Coalition (QNM-C) vision arose in response to the Economic Development Agency Build Back Better (EDA BBB) funding opportunity in Fall 2021.

- Aspiration was to combine the full stack of NM talent and set NM on a path to displace Silicon Valley with the Quantum Rio Grande Valley.

- Requires a coalition of NM’s national labs, academia, industry, economic development groups, and non-profits.
Support from ~30 institutions for QNM-C’s BBB proposal was seen from across the state.
# QNM-C Areas of Interest and Impact

*Bringing stakeholders together to build the QIST Ecosystem in NM*

## QNM-C THRUST AREAS

<table>
<thead>
<tr>
<th>FOUNDATIONAL ASSETS</th>
<th>POTENTIAL FOCUS AREAS</th>
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</table>
| CQuIC (UNM), CHTM (UNM), MESA (Sandia), QPL (Sandia), CINT (Sandia/LANL), etc. | • Broaden basic and applied research programs  
• Support QNM partner R&D priorities and strategies  
• Joint proposals |
| UNM College of Arts and Science, UNM School of Engineering, Quantum Summer CAMP, Internship programs, etc. | • Support growing QIST academic programs  
• Develop new QIST pathways across all education levels  
• Identify opportunities for Internships, fellowships, and apprenticeships |
| Academic and National Lab programs, state and local economic development offices, national labs, etc. | • Support QIS industry engagements  
• Establish unified economic development strategy  
• Create resource for QIS business & policy coordination  
• Build QIS Infrastructure |

*New Mexico is a Quantum State*
Thrust 1: Science & Engineering R&D

• Integration of quantum technology research
  • Information Science
  • Materials Engineering
  • Advanced Manufacturing
  • Novel Applications

• Highlight connections to quantum adjacent fields
  • Art (e.g. visualizations, displays, and security)
  • Film and Digital Media (e.g. CGI and communication)
  • Bioscience and Health Science (e.g. novel sensing and diagnosing)
  • Agriculture and Climate Change (e.g. sensing and predicting)
  • Energy and water use (e.g. less power = less water)
THRUST 2: Education and Workforce

• All success requires more people
  • Great jobs are waiting and New Mexicans want them
  • We must provide the pathways and networks

• All success requires greater diversity
  • Brilliance is everywhere and diversity is New Mexico’s strength
  • This is why we will continue to be thought leaders

• Greater equity and access will get us there
  • All of our highlighted alumni and our current students took different paths into and out of our programs
THRUST 2: Continued

- TURN PATHWAYS INTO NETWORKS
  - Multiple points of entry and exit, support what we heard yesterday
THRUST 2: Continued

• DEVELOP PATHWAYS
  • Educational
    • Cross-institutional programs
    • Pre-Quantum and quantum adjacent – large base of students
    • Career development: retraining and certificates
    • Quantum thought leaders
  • Entrepreneurial
    • Expand existing training and assistance programs
    • Create new MS in Business Creation and Scaling – take leave, get a degree
    • Develop new models for assisting start-ups, lower cost and expertise barriers
  • Partnerships
    • Industry internship programs
    • QIST workforce specific pathways

• TURN PATHWAYS INTO NETWORKS
  • Multiple points of entry and exit
THRUST 3: Enabling Infrastructure

• Broadband to enable access
  • Assist with large State and Federal investments
  • Bring training and knowledge with connectivity for equity

• High performance computing capabilities
  • Partnering with industry
  • Developing state-wide resources
    • Computational power, Data commons
    • Backbone for sensor networks

• Manufacturing infrastructure
  • Build and supply the quantum pieces everyone will need

• Physical hub and spokes
  • Shared spaces for collaborative research, community engagement, quantum-adjacent connections, and economic development
BBB unfunded, so what is the Coalition concept now?

- **Still Work to Build the Quantum New Mexico Coalition**
  - Create a world class quantum science collaborative technology hub in NM
  - Formalize a coalition structure
  - Help build a diverse, equitable, accessible, and inclusive quantum ecosystem
  - Focus efforts across thrust areas spanning from Science and Engineering through Economic Development

### QNM-C THRUST AREAS

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<th>Enabling Infrastructure &amp; Resources</th>
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What will we be doing the rest of the year?

QNM-C will be hosting a number of events to meet our goals

- **QNM Technical Exchange Workshop (May-June 2022)**
  - Learn about the areas of interest and expertise from researchers across the state

- **Quantum 101 Briefings (June 2022 – July 2022)**
  - Help educate the broader community about QIS

- **Building the Next Generation Quantum Workforce (July-August 2022)**
  - Identify current state of academic programs and discuss ways to strategically and collectively support QIS programs

- **Building a Regional Quantum Cluster (September-October 2022)**
  - Identify practical ways to kickstart a quantum cluster in the state
Getting involved

• QNM-C is in the early stages of establishment, and is looking for partners to help lead QNM-C efforts

• We would love to hear feedback on how to:
  • Ensure QNM-C can build a diverse and inclusive community
  • Create a sustainable program that supports partners across the state
  • Better engage and support QIS industry
  • Anything else you can think of!

• To get engaged or learn more about QNM-C, reach out to:
  • David Hanson, Interim Assistant Vice President for Research, UNM: dthanson@unm.edu
  • Jake Douglass, Quantum Business Development Lead, Sandia: jsdougl@sandia.gov
Questions?