



NM Bioscience Authority Update & Request

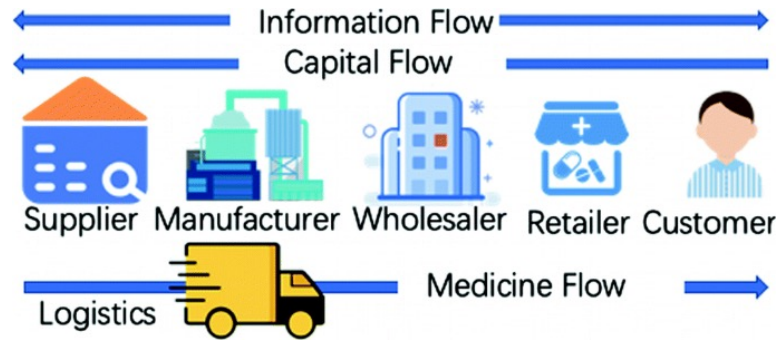
*Presenting on behalf of the New
Mexico Bioscience Authority:*

Richard Larson, M.D., Ph.D.
President, NM Bioscience Authority
Vice President of Research, UNM HSC

November 16, 2022
STTC Presentation



Diversified Economy



Green & Security of U.S. Supply Chain

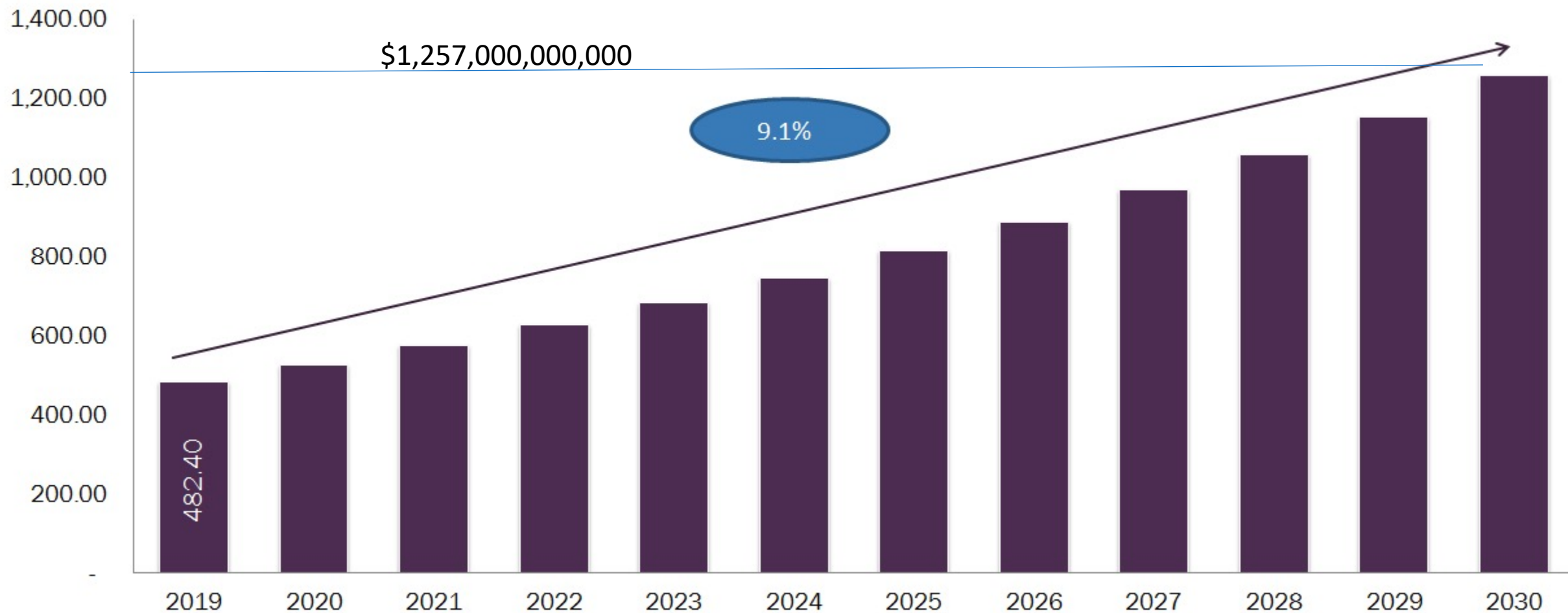


Growing & High Paying Jobs

Biosciences...

A State and Federal Priority

Prospective Global Biotechnology Market Growth (2019-2030)*



*The **Global Biotechnology Market** size is predicted to reach \$1.257 trillion by 2030 with a compound annual growth rate (CAGR) of 9.1% from 2020-2030.

New Mexico Economic Development Clusters

Aerospace & Defense

 **Biosciences**

 **Sustainable & Value-Added Ag**

 **Renewable & Green Energy**

Cyber Security

Global Trade

Intelligent Manufacturing



Federal Initiatives

THE INFLATION REDUCTION ACT:

What this means for the fight against climate change, tax inequality, and extreme health care costs.

\$669B



Presidential Order on Advancing Biotech and Biomanufacturing Innovation

CHIPS & Science Act

America invented the **semiconductor**, but today produces about 10% of the world's supply – and none of the most advanced chips. The new Act – worth nearly \$150 billion – will return manufacturing to the US, lowering costs, creating jobs, and strengthening supply chains.

\$52.7B

for American semiconductor research, development, manufacturing, workforce development

THE ACT INCLUDES

\$39B
Manufacturing incentives

\$13.2B
R&D, workforce development

\$2B
Legacy chips used in automobiles, defense systems

\$1.5B
Promoting, deploying, wireless technologies using open, interoperable radio access networks

\$500M
International information communications technology security and semiconductor supply chain activities

THE ACT AUTHORIZES

\$10B INVESTMENT

in regional innovation, **TECHNOLOGY HUBS** across the country

INVESTMENTS

Expanding geographic, institutional diversity of research institutions and the students, researchers they serve, including supporting **HBCUs and other minority-serving institutions, academic institutions providing opportunities to **HISTORICALLY-UNDER-SERVED STUDENTS**, communities

STEM EDUCATION

New and expanded investments in **SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM)** education and training from K-12 to community college, undergraduate, graduate education

\$1B RECOMPETE PILOT PROGRAM

at the Department of Commerce's *EDA, **ALLEVIATING PERSISTENT ECONOMIC DISTRESS**, supporting long-term comprehensive economic development, job creation in the most distressed communities

10 KEY TECHNOLOGIES

\$110B



U.S. DEPARTMENT of STATE

Critical and Emerging Technologies (CET) list:

- Advanced Computing
- Advanced Engineering Materials
- Advanced Gas Turbine Engine Technologies
- Advanced Manufacturing
- Advanced and Networked Sensing and Signature Management
- Artificial Intelligence
- Autonomous Systems and Robotics

Biotechnologies

- Communication and Networking Technologies
- Human-Machine Interfaces
- Networked Sensors and Sensing
- Quantum Information Technologies
- Semiconductors and Microelectronics
- Space Technologies and Systems

5 Newly added CET List:

- Advanced Nuclear Energy Technologies
- Directed Energy
- Financial Technologies
- Hypersonic Capabilities
- Renewable Energy Generation and Storage

What is Bioscience?

Five Industries Make Up Bioscience Sector:

1. Agricultural feedstock and chemicals
2. Bioscience-related distribution
3. Drugs and pharmaceuticals
4. Medical devices and equipment
5. Research, bioinformatics, testing and medical laboratories

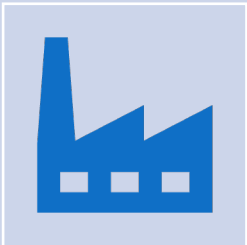




**Why Biosciences...
In New Mexico**



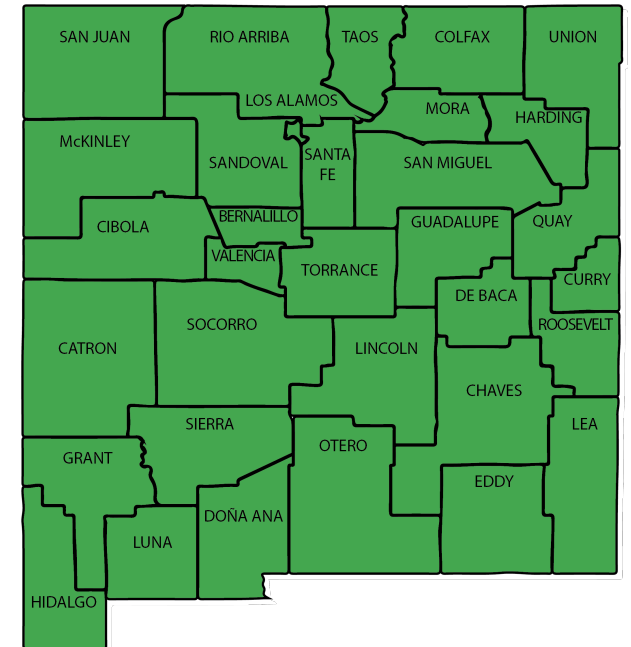
Bioscience Innovation



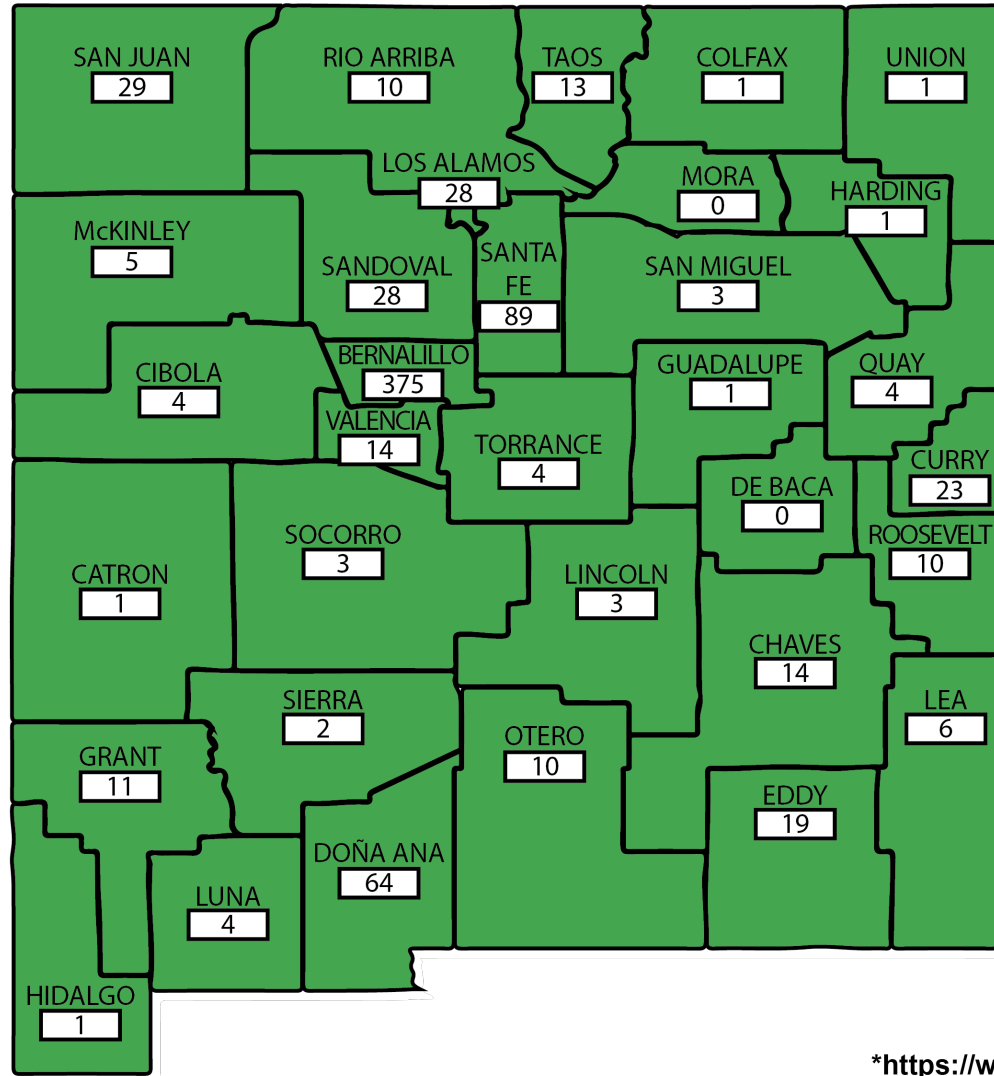
is a catalyst for improving our state's health, productivity, economic diversity, and economic development.

New Mexico is Bioscience Ready!

- We have the foundational elements!
 - University & National Lab research and patents
 - Workforce Generation
 - Existing companies & entrepreneurs
 - Some Venture Capital Financing available
- Creates high paying, green jobs
- Supports the creation of four times the number of direct jobs through indirect (supply chain) and induced (employee spending) impacts



Number of Bioscience Companies in New Mexico*



Legend

Number of Bioscience Companies per County

Key Takeaways

781 Total Companies

32 Companies with more than 50 employees

Relevant NAICS Codes*

- #3391 - Med. Equip & Mfg.
- #3254 - Pharma Mfg.
- #3253 - Agricultural Mfg.
- #3345 - Electromedical Mfg.
- #5417 - Science Res. & Dev.

*<https://www.dnb.com/business-directory.html>

Why Bioscience is Good Industry to Grow in NM

Growth in Bioscience

Research Funding, UNM HSC¹

- 2022 (\$239M)
- 2004 (<\$90M)

Availability of Workforce (NM Graduates in Bioscience-Related Fields, 2011 – 2020)²

- Natural Sciences (6,389)
- Health Professions, excl. BSN (6,551)
- Engineering/Tech/CS (10,051)
- Business (16,369)

70% of NM bioscience graduates leave the state due to lack of jobs.

Employment Index Increase, 2020 – 2030⁴

- Bioscience (17% increase)
- Total Private Sector (7.7% increase)

Bioscience Leads NM Patents, 2011 – 2020³

- Biosciences-related (~ 325)
- Computer/Data science (~ 275)
- Optics (~ 175)
- Electricity (~140)
- Communications (~125)
- Chemicals (~40)



NM is 7th in nation in bioscience patents per capita

Bioscience is a Leader in 2022 NM Salaries⁴

- Engineering (\$107K)
- Computing (\$99K)
- Bioscience (\$93K)
- Aerospace (\$90.1K)
- Mining (\$73.5K)
- Communication (\$65K)



¹UNM HSC Annual Report

²NM HED Annual Report

³USPTO, Google Patents

⁴U.S. Bureau of Labor Statistics

Commercialization of Bioscience

Since 2004, over 75 new bioscience start-up companies have spun out of the University of New Mexico.

Companies focused on drug development, cancer therapies, molecular imaging, medical diagnostics, software development, genetics, and more.





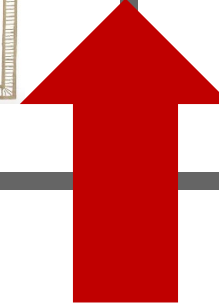
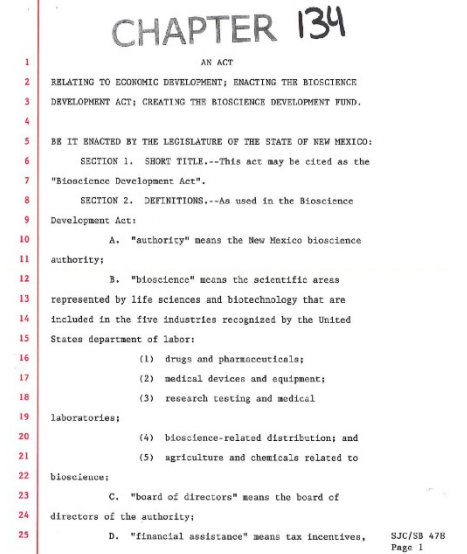
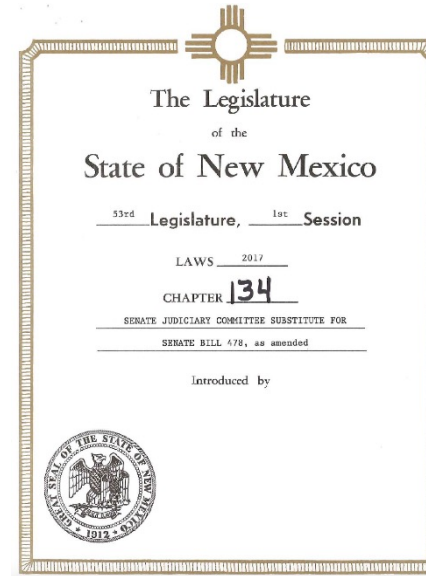
**Why NM
Biosciences
Authority?**

Research Results in Innovation

GrowBio

A PUBLIC-PRIVATE COLLABORATION

GrowBio is a public-private collaboration formed to promote a thriving biotechnology industry in New Mexico using economic incentives that nurture startups and encourage the transfer of new inventions and discoveries into commercial applications.



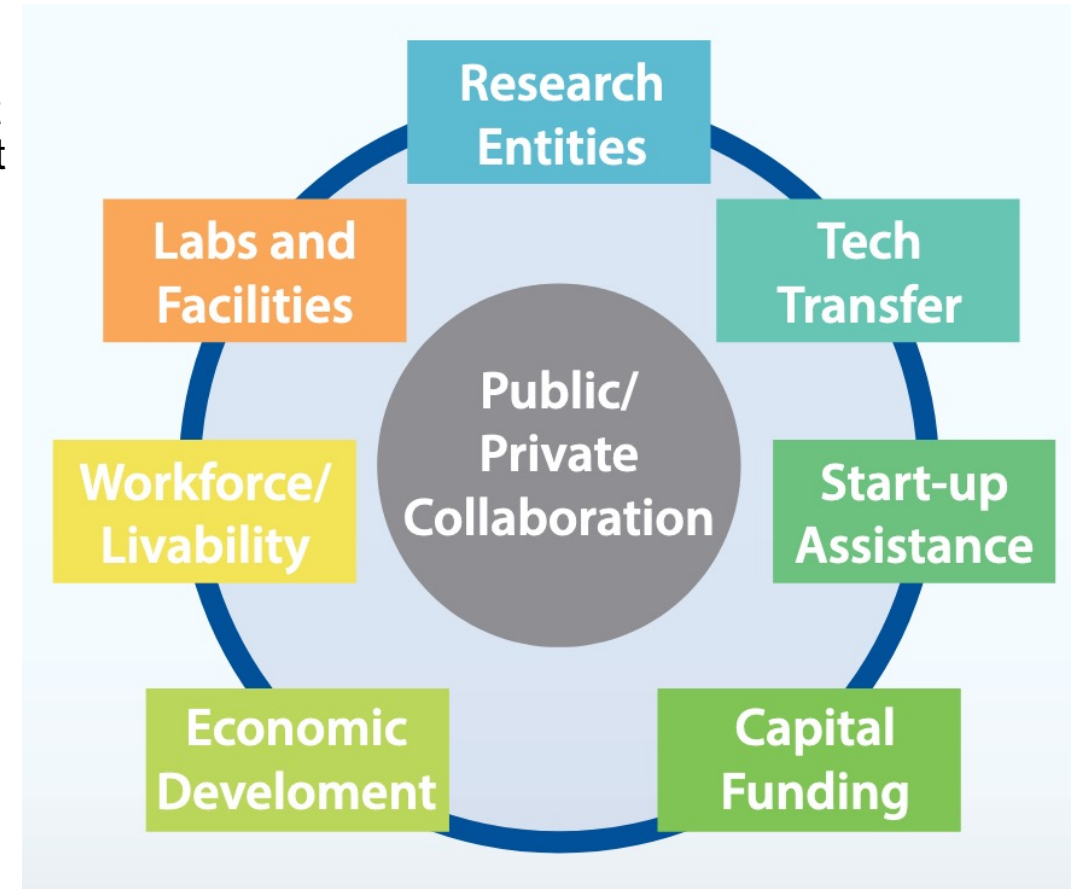
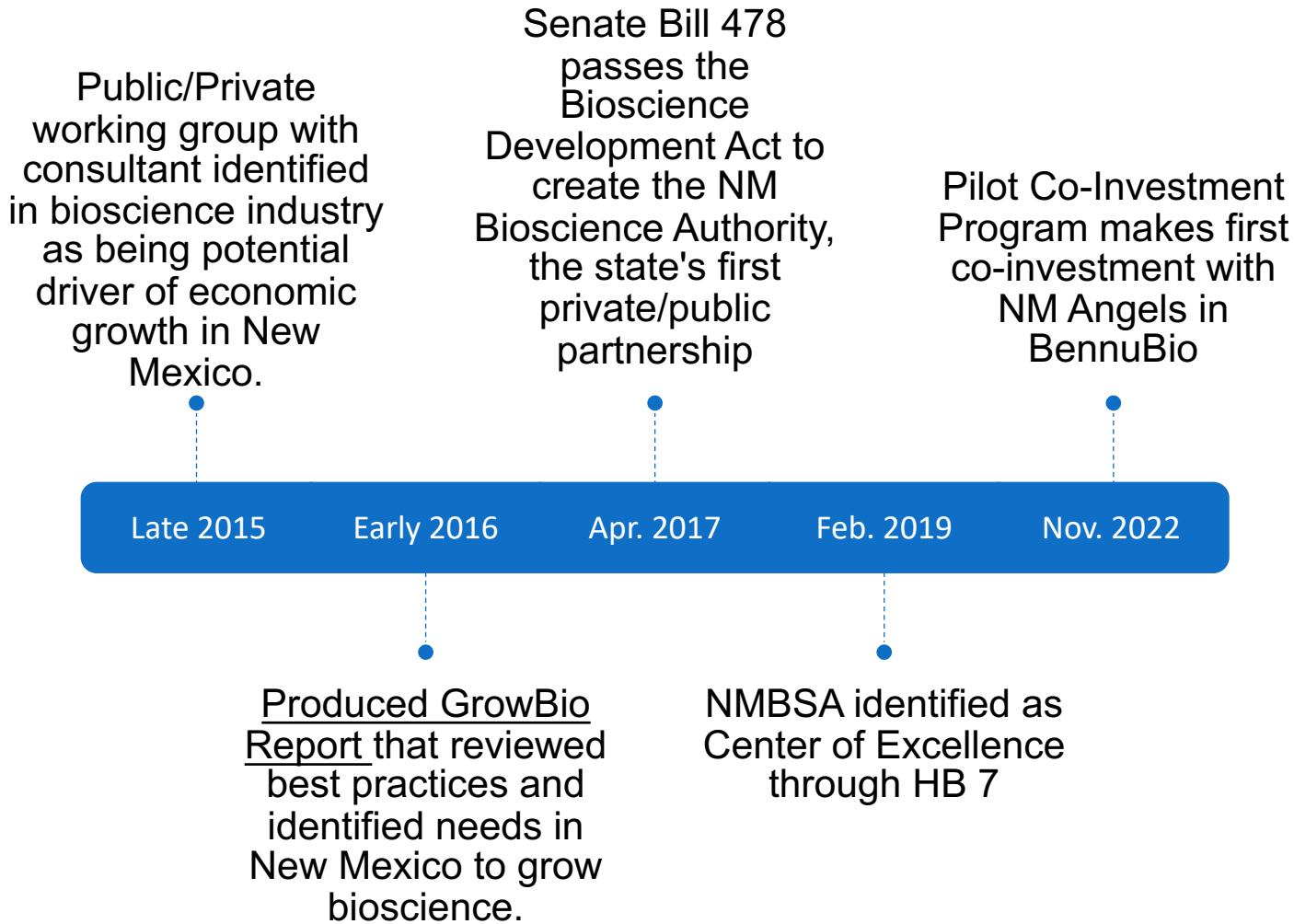
GROWING THE FUTURE

Developing New Mexico's Bioscience Industry

GrowBio

A PUBLIC-PRIVATE COLLABORATION

History of the NM Bioscience Authority (NMBSA)*



*NMBSA Reports annually to STTC (fall), Governor's Office (November), HED (fall)

NMBSA

Mission & Vision

Mission

To increase awareness and support for New Mexico's bioscience sector by attracting capital investors, influencing policy and assisting in infrastructure and business development. The NMBSA connects all necessary elements of: Research & Development, Technology Transfer, Investment and Funding and Workforce.

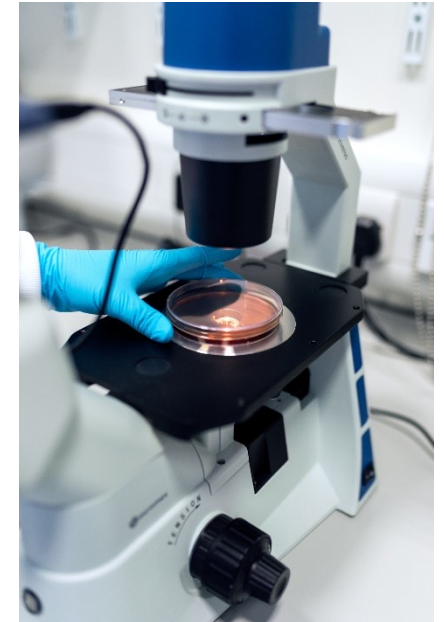
Vision

To grow a robust bioscience industry in New Mexico.



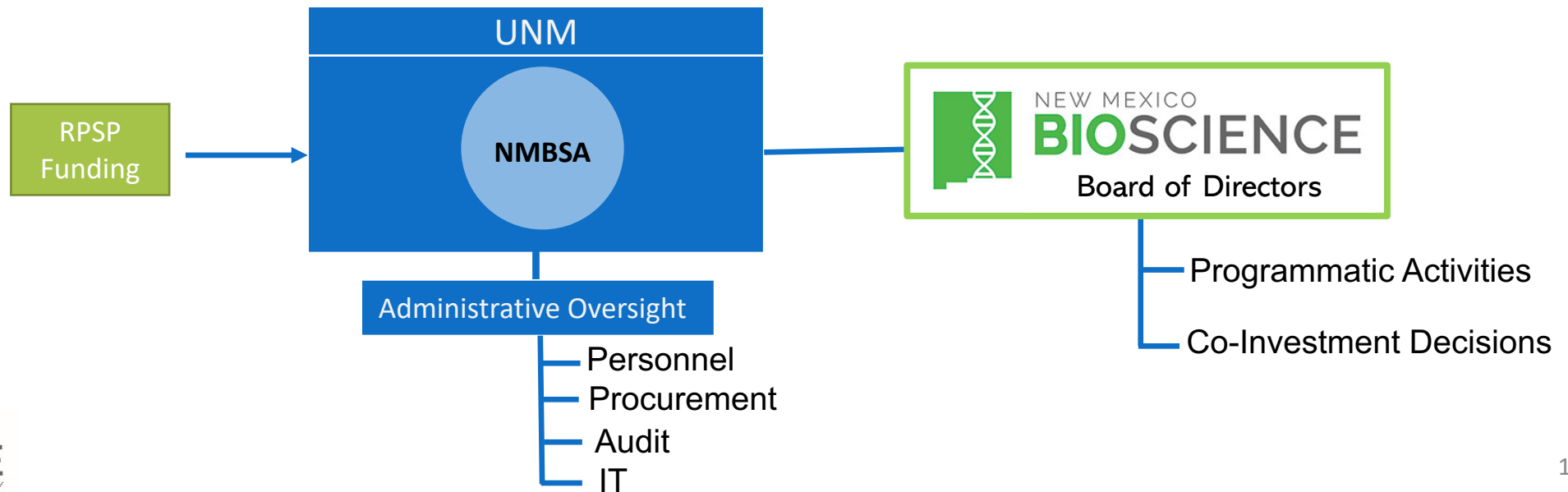
Activities by Statute of NM Bioscience Authority

- **Advise state leadership** on initiatives that may stimulate investment and provide jobs
- **Create programs** to expand bioscience economic opportunities
- Connect New Mexico and representatives of bioscience industries
- **Promote legislation** to grow the bioscience industry
- Produce promotional literature related to explanation and fulfillment of the NMBSA's goals
- Identify science and technology trends and be a clearinghouse for bioscience enterprise issues
- **Co-Investment & Funding**
- Endowment for long-term investment
- **Actively recruit** bioscience businesses to New Mexico



Organization of NM Bioscience Authority

- 13-person board (appointed by Governor, Speaker of the House, Senate Pro-Tempore, and University Presidents)
- Per the 2017 SB 478 legislation that created the NM Bioscience Authority, “The authority is administratively attached to and shall be considered an affiliated organization of the UNM Health Science Center” to assure conformity with state procurement rules, statutes, and guidelines and minimize costs.



NM Bioscience Authority Board of Directors



Dale Dekker, AIA, AICP, Chair
Reg. Architect & Founder of
Dekker/Perich/Sabatini Design



Tanner Schaub, PhD, Vice
Chair, Director, Research
Cores Program, OVPR, NMSU



Richard S. Larson, MD, PhD,
President, Vice President of
Research, UNM HSC



Christos Christodoulou, PhD,
Vice President, Dean of the
School of Engineering at UNM



Jennifer H. Gifford, PhD,
Secretary, Assoc. Professor at
NMSU Animal Range Sci. Dept.



Sheryl Arvizu, MBA, Board
Member, Board Director,
Pharmaceutical Specialist



Sarah Boisvert, Board
Member Entrepreneur &
Founder of Fab Lab Hub, LLC



Greg Byrnes, Board Member,
ED at NM Biotechnology &
Biomedical Association (NMBio)



Alex Greenberg, Board
Member, Director of Science &
Technology Office, NM EDD



Tom Kieft, PhD, Board
Member, Microbiologist NM
Tech Biology Department



Paul Laur, Board Member,
Chief Executive Officer, Spartina
Biotechnologies



Scott McLaughlin, Board
Member, Executive Director at
Spaceport America of NM



Prisca Tiasse, PhD, Board
Member, Founder & CEO,
Biodidact, The Community Lab



- 2 members appointed by UNM President
- 2 member appointed by NMSU President
- 1 member appointed by NMT President
- Secretary of EDD or Designee
- Executive Director of SpacePort Authority or Designee
- 4 members appointed by Speaker of the House and Senate Pro-Tempore
- 2 members appointed by Governor

NM Bioscience Authority Staff



Stephanie Tofighi, MSPP
Executive Director



Ryan Cangiolosi, MBA, MACCT
Strategy & Policy Director



Sterling J. Nichols III, BS
Program Specialist



**What are the
Current Initiatives
of the
NMBSA?**

Community Readiness Program

The Path to Make New Mexico Bioscience Ready

What Community Readiness means for New Mexico?

- Attract Bioscience companies and startups
- Foster Bioscience industry growth
- Help municipalities create innovation zones
- Facilitate Bioscience site selection
- Certified sites are currently in Albuquerque, Rio Rancho, Santa Fe, and Las Cruces

Community Readiness Rating:



BRONZE
Local governments have identified sites that are served by utilities and have a process in place to assist bioscience businesses.



SILVER
Local governments have 'shovel ready' sites, have development incentives and have identified point person to assist bioscience businesses through the process.



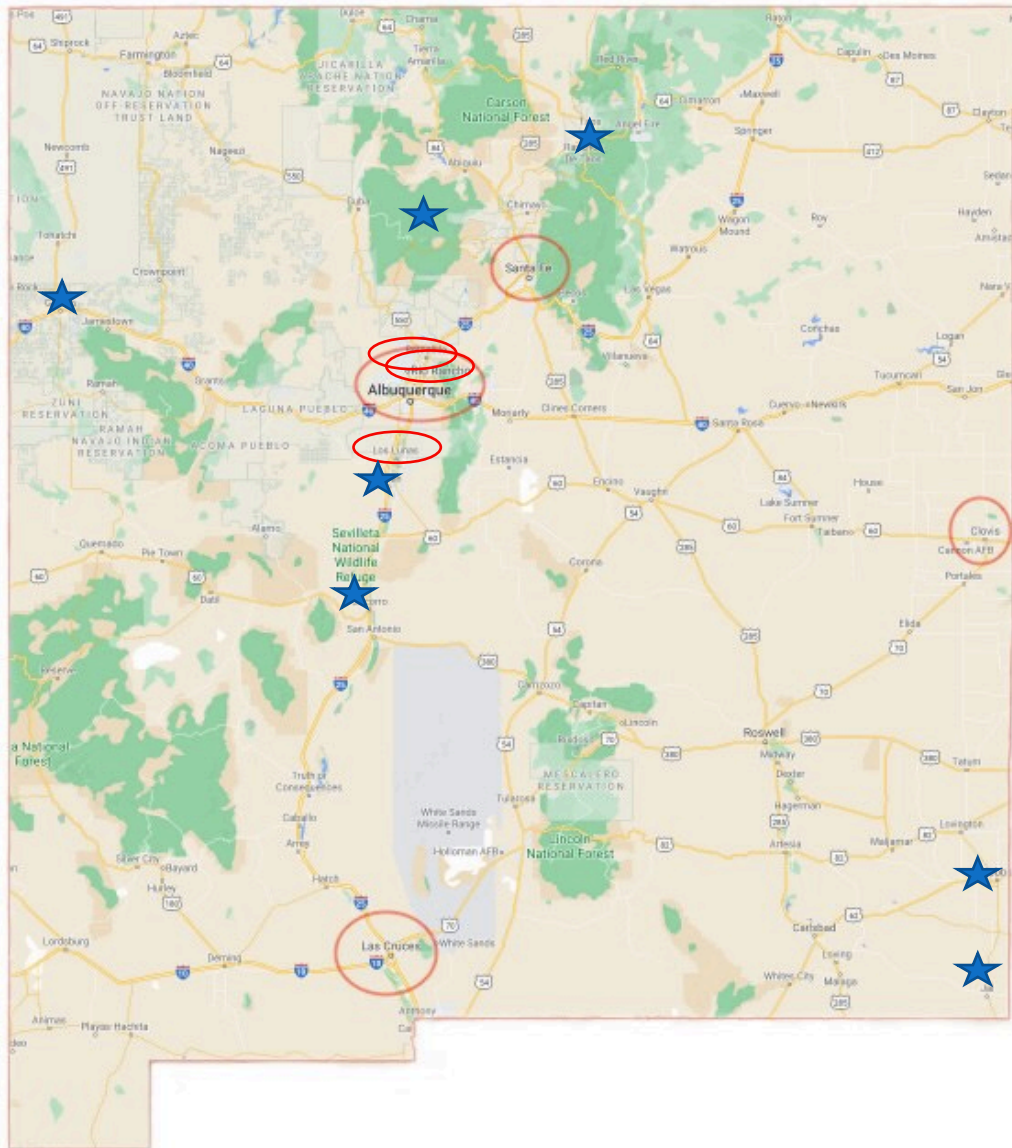
GOLD
Local governments have identified sites within Opportunity and/or tax advantage location, have expedited development processes, have available suitable buildings, have invested in enhanced transportation and logistics infrastructure and are partnering with universities and colleges to train workforce.



PLATINUM
Local governments have an inventory of suitable buildings and sites, sites are pre-permitted for bioscience uses, sites have completed NEPA review, and local governments assist bioscience businesses with identifying funding sources.

Community Readiness Program

Mapping Our Progress



Sites Currently Being Certified (circled)

- **Los Lunas, Santa Ana Pueblo, and Clovis**
 - Currently working on certification process
- **Albuquerque - 8 certified sites**
- **Rio Rancho - 1 certified site**
- **Santa Fe – 1 certified site**
- **Arrowhead Center – 5 certified sites**
- **Las Cruces – 1 certified site**

Next Steps (starred)

- Developing relationships to start the process in these communities
 - Los Alamos, Socorro, Taos, Gallup, Jal, Hobbs, and Belen

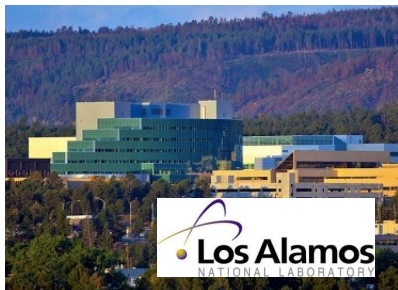
Centralization of State Resources for Bioscience Businesses

- NM BSA website was enhanced and serves as a conduit to investors, entrepreneurs, and inventors to gain awareness of and direction to state resources and economic development incentives.
- Individual support pages direct these three types of users to resources across the state specific to their needs.



NM Bioscience Authority's SBIR/STTR Bioscience Business Accelerator

- The BSA's bioscience business accelerator expands a federally funded UNM based bioscience business accelerator primarily geared toward the commercialization of biomedical innovation.
- Includes SBIR/STTR grant training, mentoring, workshops, and network facilitation to support the commercialization of bioscience innovation
 - Statewide mission to train university and research institution faculty and staff to work effectively with entrepreneurs to start bioscience businesses.
 - Latest events:
 - NIH SBIR/STTR training cohort led by Arrowhead Center's NM FAST
 - Panel discussion on How to Improve Academic/Industrial Collaborations in Biosciences at UNM's Team Research Symposium.
 - NIH NCATS SBIR/STTR Webinar



Enhance Communication with Stakeholders

- Track visitor traffic to our recently redesigned website and adjust to users' needs appropriately
- Stakeholder listserv was developed to directly share bioscience related information
- Developed annual NM BSA newsletter but will transition to biannual and then quarterly to celebrate bioscience innovation and commercialism throughout NM
- Use social media (LinkedIn & Twitter) to reach a more inclusive audience
- Seek out opportunities for public presentations (DisrupTECH, etc.)



Support Bioscience Innovation & Training Events



- Annual UNM HSC Clinical & Translational Science Center (CTSC) BioVenture Partnership Event where inventors practice pitching to investors
- Bi-annual CTSC Health Hackathon teams clinicians, engineers, entrepreneurs, programmers, scientists and students working to seek solutions to pressing health care challenges
- Annual UNM Biodesign Course for graduate students to develop commercially viable biomedical technology solutions to existing barriers and needs in health care

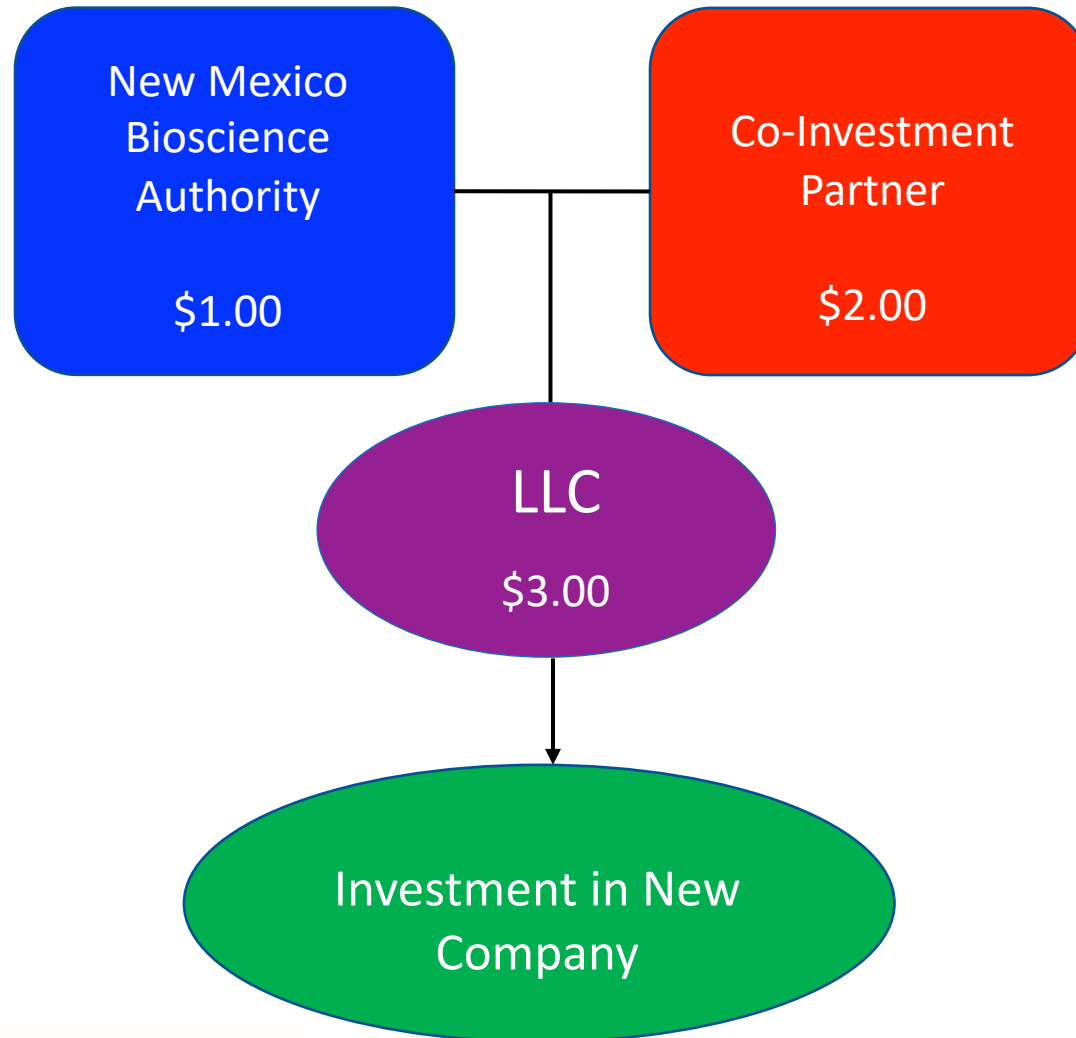


Growing a Sustainable Biotech Industry In New Mexico through Co-Investment

“Biosciences is a nascent and growing industry that has strong potential to become a major high-technology cluster in New Mexico. As such, it is one of 9 priority industries to diversify New Mexico’s economy.”

2021 NM Economic Development Department Strategic Plan

NMBSA Co-Investment Program Organization



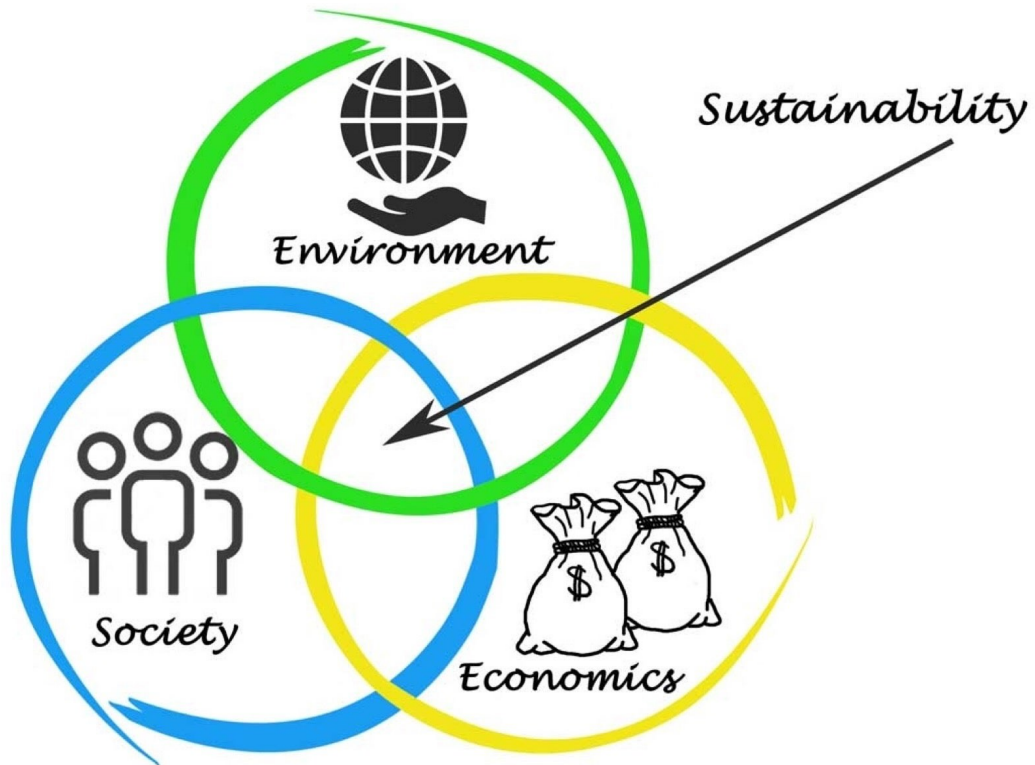
Main Objective

- Create and/or Grow NM Companies & Jobs
- Encourage Investing in NM Bioscience
- Increase capital for investments

Investment Partner Criteria

- **Qualifies to be lead investor**
- Will provide a **2:1 match of funds**
- **Is actively sourcing, vetting and investing in companies**
- **Has investment experience in bio-related industry**
- **Has existing capital for co-investment and is currently investing in bioscience companies**

Co-Investment Program Has Broad Impact and is Self Sustaining



- This is a **new economic development approach** that is different from other agencies in the state.
- **All size municipalities can benefit.**
- Includes Main street businesses, higher tech companies making new drugs or devices, and light manufacturing or distribution shops
- It is **self-sustaining** because capital to **reinvest** will be gained when investments are sold or exited **which will grow a substantial return on investment.**

\$50M Co-Investment Program Request



Will be matched 2:1 by private investors for total \$150M in investments over 5 years



Co-Investment of state and private dollars through LLC to start new companies or recruit companies



Will Invest in all stages of business growth (pre-seed, Series A, B,C; Main Street and high tech)



LLC will invest \$100K to \$1.5M per company



If successful, will return funds so program will be self-renewing and sustainable.



Will build economy throughout state.



How did we get here?

Expert Analysis and Recommendations

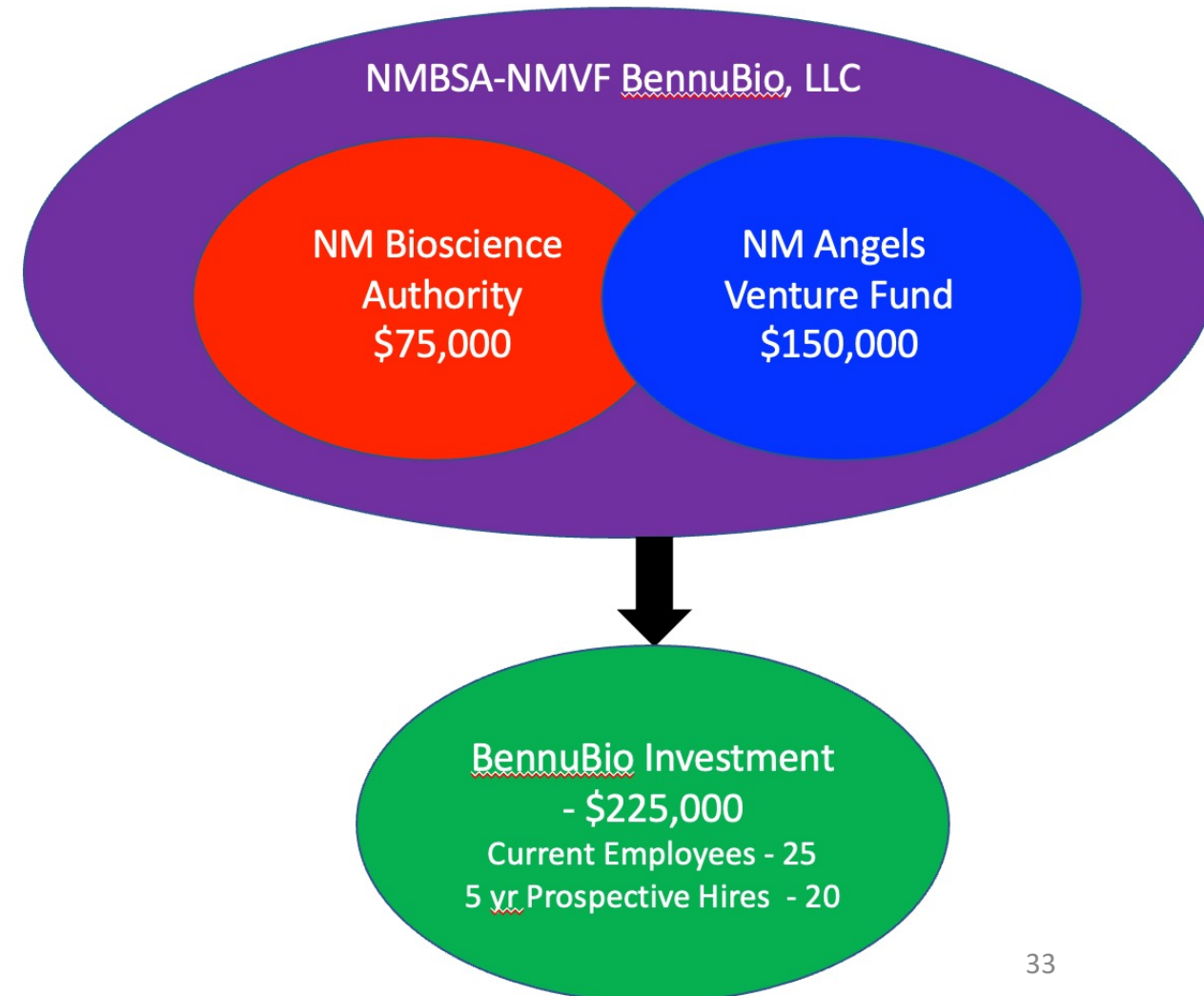
- In 2019, the NMBSA had an analysis done by Econsult Solutions Inc. (ESI) that recommended, based on their evaluation of other states pursuing the advancement of biosciences (AZ, MA, NC), that the best way to grow the bioscience industry in NM was to create a \$25M-\$50M bioscience co-investment fund.
- In response to the ESI report, the STTC legislative committee and the full BOD requested a comprehensive legal opinion by the Modrall Sperling Law Firm to assure 1) that co-investment in NM based bioscience companies by the NMBSA and an investment partner conforms with state law and regulations, and 2) the approach of forming an LLC is legal and appropriate. In 2020, the NMBSA received those opinions that confirmed both.



How did we get here?

Organization of Co-Investment Program

- After receiving the legal affirmation, the BOD voted unanimously to move forward with a pilot version of the co-investment program using \$150,000-\$250,000 in reserved funding to demonstrate the capacity of the fully funded program.
- Following RFP process through UNM Procurement Office in summer 2021, BOD approved partnerships with NM Angels and Anzu Partners



Co-Investment Fund Organization

Roles & Responsibilities of Investment Partner

- Seasoned investor with at least 5 years experience investing in New Mexico based companies
- Not related to anyone on the NMBSA Board of Directors
- Independently vets prospective bioscience companies to invest in and then presents options to NMBSA BOD to agree on decision as part of the 50/50 governance of the LLC
- Contributes 2-1 match of NMBSA funding to bioscience companies

Roles & Responsibilities of NM BSA

- Selects co-investment partner using evaluation criteria approved by UNM Procurement Office following State procurement guidelines
- Enters into a limited partnership or LLC with seasoned investor with equal governance over investment into company to ensure effective oversight of state funding
- Provides \$1 for every \$2 investment partner invests in agreed upon company

Good for Business = Good for New Mexico

Return on Investment (ROI) for New Mexicans

- For each bioscience job, four more jobs are spun out because of supply chain and impacts
- For every dollar put in by state of NM funds, there will be a \$2 match by our co-investment partner
- Selection process will be transparent and qualifications-based following state procurement rules
- Companies supported must be based in New Mexico
- Will support all municipalities and counties in NM

Funding Source for Co-Investment Fund

- General Fund funding through the State budget
- Strategic Investment in a growing industry
- Diversify the economy
- Attract more bioscience jobs to NM
- Create a sustainable source of funding
 - Accumulate additional funds through investment company exits and growth

Proposed Co-Investment Funding Model for NM Bioscience Authority

State of New Mexico
\$50M Co-Investment Fund

NM Bioscience Authority
Conduit for funding to the NMBSA Co-Investment Fund

NM Bioscience Authority
Co-Investment Fund
Partner with Private Equity Firms
+2:1 Match of State Funds

Net Proceeds from exits are reinvested

NM Based Bioscience Businesses



\$650K Bioscience Business Accelerator Program Request

- Hire **SBIR/STTR Grant Training & Network Facilitator** to train bioscience inventors and small business owners throughout the state to submit funding requests to the federal SBIR/STTR grant programs and to catalyze networking between New Mexico based bioscience entrepreneurs and inventors.
- Costs will support annual salary and fringe of personnel as well as relevant supplies to manage the program.





Summary of Request

- \$50 Million for Co-Investment Program
- \$650,000 for Bioscience Business Accelerator Program



Next Steps of the NMBSA



1. Keep expanding **Community Readiness Certification Program** to identify zones throughout NM that are suitable to host bioscience businesses
2. Continue to develop **Co-Investment LLCs** with selected firms and invest in businesses that meet NMBSA evaluation criteria
3. Hire **NMBSA SBIR/STTR Bioscience Business Accelerator Trainer** to facilitate small business grant training throughout the state and networking events between university/National lab researchers and small businesses
4. Continue to enhance **NMBSA website** making it more user friendly for inventors, entrepreneurs, and investors
5. Enhance communication – **newsletter & social media**

Questions?

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<https://www.nmbioscience.org/>