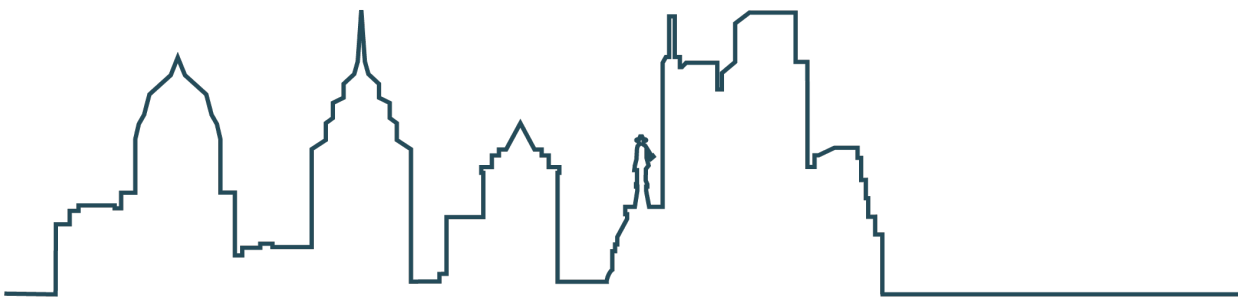


New Mexico Bioscience Authority Strategic Plan

Date: January 10, 2020

Submitted to: New Mexico Bioscience Authority



ESI ECONCONSULT
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Executive Summary

The original legislation establishing the New Mexico Bioscience Authority established the organization's mission, vision, and tasks. This strategic plan, completed by Econsult Solutions, Inc. on behalf of the Bioscience Authority, reaffirms these components, while updating the research, situation analysis and goals and strategies in response to new opportunities and pressures.

Vision, Mission and Role of the New Mexico Biosciences Authority

Mission

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

Vision

To grow a robust bioscience industry in New Mexico.

Roles

- 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
- Create Direct Investment Fund with state support
- Create Endowment for long-term investment with state support
- Encourage recruitment of bioscience businesses to New Mexico through state policy changes, incentives and the formation of a direct investment fund
- Work with organizations charged with promoting economic development in New Mexico

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Strengths, Weaknesses, Opportunities and Threats for the Biosciences in New Mexico

Key findings from the research phase were assembled into a SWOT analysis. This framework considers both positive and negative aspects of the state bioscience industry, and considers which aspects are internal to New Mexico and which are impacted by external forces.

Strengths	Weaknesses
<ul style="list-style-type: none"> • New Mexico Bioscience Authority created and in position to provide leadership on growing biosciences in NM • Robust university and national laboratory research • High amount of workforce production • High quality of life and low costs • Small, connected bioscience community • Diverse population 	<ul style="list-style-type: none"> • Lack of investment capital and financing • Weak bioscience supply chain • Lack of C-Suite executives in New Mexico • Inconsistent and unsustainable state economic development vision • Isolated from major cities and bioscience centers
Opportunities	Threats
<ul style="list-style-type: none"> • Budget surpluses provide opportunity to form NMBSA direct investment fund and endowment • Better leverage existing resources already in place • Increase awareness of bioscience potential for economic growth and international trade • Partner with activities and initiatives outside of New Mexico 	<ul style="list-style-type: none"> • State dependence on oil for economic development funding • Federal budget deficits lead to cut in research funding • Limited experience with economic growth models to incentivize start ups and relocation of bioscience companies • Growing international, national and regional competition

Goals and Strategies

The goals and strategies outline the approach that NMBSA will use to drive performance over the next five years. These goals are consistent with the role defined for the Authority by statute, with refined strategies to reflect current realities. Annual action plans will be developed to implement these approaches, and to continue to reflect changes in conditions, technology, etc. In addition, the plan includes Key Performance Indicators and measures of success for each strategy.

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NMBSA Key Performance Indicators

- Increase number of new bioscience company formation
- Bioscience employment growth approaching national averages
- Private venture capital per capita grows at rates approaching national average
- Increased amount of private equity investment

Goal 1: Establish NMBSA as a Model for Bioscience Development and Organizational Management

- Strategy 1: Create an organizational and governance structure that ensures direct investment fund, endowment and subsidiary formation within NMBSA
- Strategy 2: Create advisory boards as needed to allow for additional input from non-board members
- Strategy 3: Review and consider re-branding NMBSA name

Measures of Success

- Increased positive media mentions of NMBSA by both local and national business and economics media
- Formation of organizational and governance structure that allow for direct investment fund, endowment and business subsidiaries under the NMBSA
- Review of board membership at least once every two years by outside entity to assure that necessary expertise is present on board

Goal 2: Take Leadership Role within the NM Bioscience Ecosystem

- Strategy 1: Provide policy recommendations to the state administration and legislature for growing the biosciences in New Mexico
- Strategy 2: Serve as a connector within the bioscience ecosystem, facilitating relationships and connections to support efforts to grow and build the sector
- Strategy 3: Take a leadership role in identifying new opportunities for biosciences growth in New Mexico

Measures of Success

- Implement the BioReady Communities program in each municipality that applies
- Propose policy changes and report activities to legislature annually as required under statute
- Passage of key legislation supporting bioscience growth in New Mexico

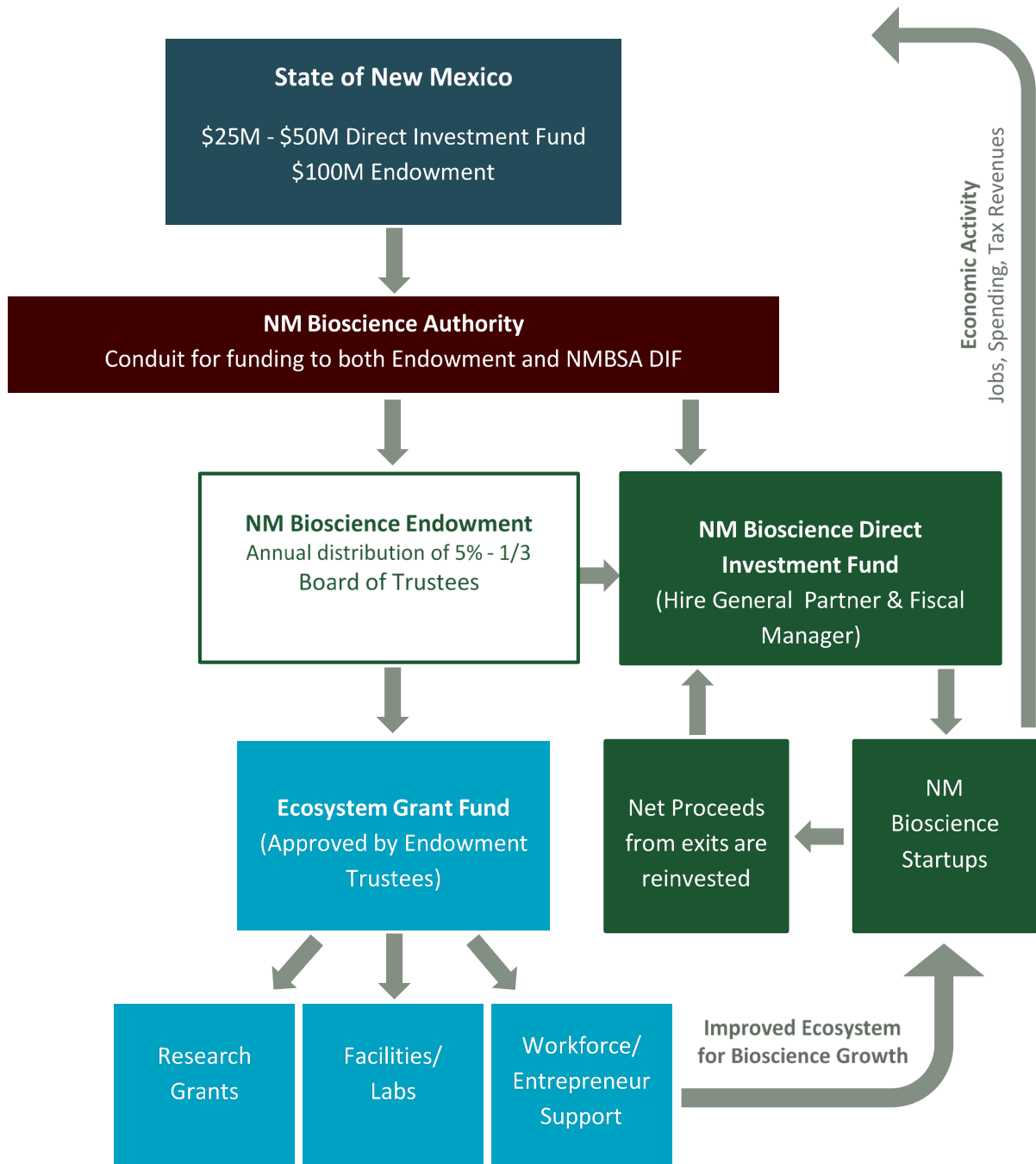
Goal 3: Provide Funding for NM Bioscience Growth and Innovation

- Strategy 1: Create the New Mexico Biosciences Direct Investment Fund

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- Strategy 2: Begin preparations to develop an endowment fund
- Strategy 3: Pass legislation that allows the Bioscience Authority to clarify the privacy of investors in the direct investment fund or the endowment fund.

Potential Funding Model for NMBSA



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Source: "Growing the New Mexico Bioscience Economy" Econsult Solutions, Inc. (2019)

Measures of Success

- Have allocated to NMBSA at least \$25-50 million in state funds to support the direct investment fund
- Attract private investment equal to 50% for each investment of the direct investment fund
- Require startup bioscience companies or companies re-locating to NM to have operations and jobs in New Mexico
- Create the organizational governance structure to support an endowment subsidiary

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1. Introduction

Purpose of Report

Econsult Solutions Inc. (ESI) was retained by the New Mexico Bioscience Authority to support the development of the Authority's organizational strategic plan. In partnership with HatchForm, a New Mexico based economic development consulting firm, Econsult led a collaborative process which maximized input and buy-in from stakeholders in formulating the strategic plan. This collective process created a clear sense of where organizational mission, organizational assets, key partnerships, programmatic momentum, funding interest, legislative initiatives and market needs intersect. The resulting 3 to 5-year strategic plan laid out in this report can be used as a roadmap for the New Mexico Bioscience Authority to shape the new organization and set it on a trajectory of success in building New Mexico's bioscience economy.

About the New Mexico Bioscience Authority

The New Mexico Bioscience Authority (NMBSA) is a nonprofit corporation committed to growing the bioscience industry in New Mexico. The bioscience industry includes the following categories:

- Agricultural bioscience
- Bioscience-related distribution
- Drugs and pharmaceuticals
- Medical devices and equipment
- Research and bioinformatics
- Testing and medical laboratories

Created under the Bioscience Development Act in 2017, the organization seeks to build a stronger bioscience economy in New Mexico by fostering public-private collaboration and promoting coordination between universities, research entities and the private sector. Through strategic funding, community outreach and policy recommendations, the Authority aims to create cohesive strategies to bring biotechnology to market, generate high-paying jobs, and strengthen the economy in New Mexico. NMBSA is not charged with promoting New Mexico as a place to do business or recruiting businesses to New Mexico, since several other organizations already perform that role in New Mexico.

About Econsult Solutions, Inc.

This report was produced by Econsult Solutions, Inc. ("ESI"). ESI is a Philadelphia-based economic consulting firm that provides businesses and public policy makers with economic consulting services in urban economics, real estate economics, transportation, public infrastructure, development, public policy and finance, community and neighborhood development, planning, as well as expert witness services for litigation support. Its principals are nationally recognized experts in urban development, real estate, government and public policy, planning, transportation, non-profit management, business strategy and administration, as well as litigation and commercial damages. Staff members have

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outstanding professional and academic credentials, including active positions at the university level, wide experience at the highest levels of the public policy process and extensive consulting experience.

2. SWOT Analysis

Overview

The consulting team met with the staff and board in October for a strategic planning retreat, with the focus being a discussion of the internal and external forces impacting the growth and development of the biosciences sector in New Mexico. That information, coupled with information from secondary research, stakeholder interviews and best practice research informed an analysis of the strengths, weaknesses, opportunities and threats that will have an impact on the goals, strategies and tactics of the New Mexico Bioscience Authority over the next five years.

As the Bioscience Authority undertakes its work, it will be important to undertake strategies that help to build on the strengths, address the weaknesses, put the state in better position to seize new opportunities and prepare for threats to the long-term success of the sector and the organization.

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Strengths	Weaknesses
<ul style="list-style-type: none"> • New Mexico Bioscience Authority created and in position to provide leadership on growing biosciences in NM • Robust university and national laboratory research • High amount of workforce production • High quality of life and low costs • Small, connected bioscience community • Diverse population 	<ul style="list-style-type: none"> • Lack of investment capital and financing • Weak bioscience supply chain • Lack of C-Suite executives in New Mexico • Inconsistent and unsustained state economic development vision • Isolated from major cities and bioscience
Opportunities	Threats
<ul style="list-style-type: none"> • Budget surpluses provide opportunity to form NMBSA direct investment fund and endowment • Better leverage existing resources already in place • Increase awareness of bioscience potential for economic growth and international trade • Partner with activities and initiatives outside of New Mexico 	<ul style="list-style-type: none"> • State dependence on oil for economic development funding • Federal budget deficits lead to cut in research funding • Limited experience with economic growth models to incentivize startups and relocation of bioscience companies • Growing international, national and regional competition

Strengths

There is a great deal of excitement about New Mexico’s potential to further develop and grow its bioscience economy. As the biosciences grow in importance in the national and global economy, New Mexico has a collection of assets and strengths that position the state well to capture a growing share of increased investment and economic activity.

The New Mexico Bioscience Authority was created by the legislature and is in position to take a leadership role in growing the sector in New Mexico. . Bioscience includes the following industries:

- Agricultural bioscience
- Bioscience-related distribution
- Drugs and pharmaceuticals
- Medical devices and equipment

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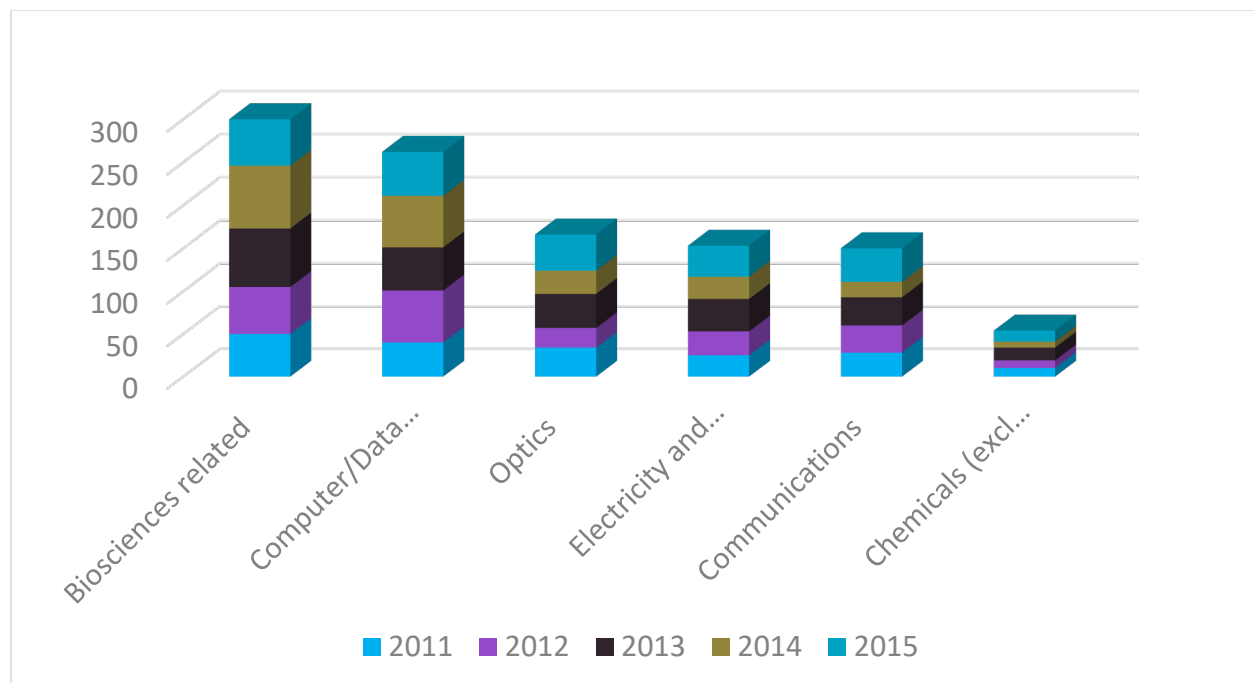
- Research and bioinformatics
- Testing and medical laboratories

As the official arm of one of the state’s focus economic sectors, NMBSA is seen as having a strong mandate with state support. NMBSA has a well-known board of directors representing a cross-section of the bioscience ecosystem. NMBSA has provided a visible and prominent focal point for bioscience leadership in New Mexico. NMBSA has already demonstrated its ability to innovate and reach new audiences through the development of the BioReady Communities program, and its ability to bring together the community for new initiatives.

New Mexico has robust research discovery and workforce production, led by research and discovery performed at New Mexico’s higher education and academic health care institutions and the state’s 3 Federal research labs. The state’s research intensive organizations bring new dollars into the state, and support technology creation and innovation that provide the source of business creation for the emerging entrepreneurial community. The research entities provide new expertise from their faculty and staff, numerous patents for licensing, and sponsor and manage incubators and accelerators eager to join entrepreneurs, faculty, staff and students in new ventures. Those research institutions also help fuel a strong talent pipeline which is available to growing companies.

Insert patent information and/or diagram here. Currently being updated.

New Mexico ranked 34th in the US for bioscience patents in 2018. The chart below depicts the specific areas of application for overall patents.



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Quality of life and low-cost living and businesses are strong selling points. New Mexico is well known for its quality of life, and with a 30 percent cost premium against leading regions, is in a strong position to attract senior-level talent looking for a long-term work-life balance option.

Small, connected and growing bioscience community. Sometimes small is an advantage – in New Mexico, it is relatively easy to get access to industry, academic and political leaders, making partnerships and collaboration a strength.

Diverse Population. New Mexico is a minority majority state, which looks like the US will in 25 years. As companies increasingly consider diversity both in terms of their employment base and the markets they want to serve, New Mexico's diversity can be a major selling point.

Weaknesses

While New Mexico's strengths are valuable assets in the development of the bioscience ecosystem, the state does suffer from a set of weaknesses that have developed over time that must be addressed to move forward and grow. Not all these weaknesses are the responsibility of NMBSA to address but provide context and background for many of the goals and recommendations.

State lacks investment capital and financing. As a relative newcomer to the world of startups and VC backed companies, New Mexico has a lack of venture capital, private equity and angel financing. Coupled with a lack of state investment focused on biosciences for direct investment and a lack of alternative financing, emerging firms often have to go elsewhere to seek the financial capital needed for growth and development. The LEDA and JTIP programs are substantial strengths but should be augmented with direct investment funding.

Supply chain for biosciences is weak, limiting economic impact. With a late start in developing a bioscience economy, New Mexico has not developed a robust set of suppliers and contractors with expertise and experience in the biosciences. Companies must often look out of state for their support, limiting the economic growth potential in the state.

Lack of C-suite entrepreneurial executives in NM. Another impact of a weak history in entrepreneurship and growing companies is that there is a lack of senior managers and executives with the experience of taking a company through commercialization to product development to exit or scale. One factor that hurts when recruiting leaders to come to New Mexico can be that there are only a limited number of attractive opportunities in the state, which can be a negative factor for trailing partners seeking new opportunities as well.

New Mexico has not had a consistent economic vision. The state needs a sustained and consistent commitment to developing the bioscience industry in New Mexico. Included is the need of governmental entities to understand bioscience as a potential growth engine.

New Mexico is isolated from the major cities and bioscience centers. A lack of direct flights limits access to national experts and funders and limits the potential of partnerships and collaboration with other regions of the country.

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Opportunities

The Bioscience Authority should be a leader in helping New Mexico to seize future opportunities in the biosciences. Most economic experts expect that the biosciences will be one of the fastest growing sectors in the global economy, and New Mexico needs to be able to share in that growth.

Budget surpluses provide opportunity to increase capital for direct investment in New Mexico. The recent energy boom has provided New Mexico with record budget surpluses, and an opportunity to direct this one-time capital into new financing methods that are emerging in NM and available to the bioscience authority. Converting these short-term gains into long terms sources of capital, through a direct investment fund and potentially an endowment fund, could provide the long-term investment capital needed to create a thriving biosciences ecosystem.

As biosciences drive more economic growth globally, leverage New Mexico's existing resources by better connecting federal and university research discovery and innovation with private sources. New Mexico has developed an admirable set of innovations, patents and economic development tools to commercialize research coming out of its academic and federally funded research labs. But participation of the private sector has been modest. Boosting those interactions could create a more robust climate for commercialization and ensure that New Mexico ideas are commercialized in the state, rather than elsewhere.

Increased awareness of biosciences creates potential for economic growth. As more New Mexico companies succeed, there is an opportunity to use those success stories to inform state legislature and congressional delegation members as to the potential or the state's economy. At the same time, there is an opportunity to better link the state's bioscience companies and institutions to trade missions, partnerships with other states, and ultimately fulfill the global need for bioscience solutions.

Take advantage of our lifestyle and lower cost of living. Many of the top bioscience companies are in the most expensive regions of the country. New Mexico costs are low compared to other bioscience leaders creating a potential advantage for recruiting companies and talent. New Mexico also has some other advantages, including abundant, reliable energy. The low costs and high quality of life can also be leveraged for talent attraction – near-retirees from other states could be a big opportunity for talent attraction to NM leadership positions.

Threats

Many threats to the sector are not in the control of the Bioscience Authority, but it is important to be prepared for potential setbacks and risks.

State dependence on oil for economic development funding is a short-term benefit, but with long-term limitations. Shifts to alternative fuels and high-mileage or electric vehicles are putting significant pressure on energy prices and could create significant challenges for future state budgets.

Federal budget challenges and rising deficits could impact university and federal research lab funding, reducing the research output of those institutions. Few states are as dependent on federal research funding as New Mexico is with its three federal labs.

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New Mexico governmental agencies have limited experience with economic growth models and have not had a sense of urgency on the need for new sources of growth. A lack of focused incentives from state and municipalities for attracting existing bioscience companies to NM leads to a concern that too many small investments can drain rather than stimulate growth.

Competition internationally and nationally. The low-tech end of biosciences is very competitive, and the United States is no longer the largest market for the biosciences. There is a real risk that the US will suffer a loss of leadership and investment capital and talent will flow elsewhere.

3. Goals and Strategies

Overview of Goals and Strategies

The New Mexico Bioscience Authority is at a key point in its development. Established in 2017 as a public body connecting state government, research institutions, national laboratories and private industry to stimulate and grow the biosciences in New Mexico, the organization is now on the cusp of a new phase of its development. With the potential development of a direct investment fund, the organization embarked on this strategic planning effort to establish a framework for the next three to five years that the staff and board of the organization can use to guide their strategy and tactics.

This strategy reviews the overall vision and mission of the organization, and then focuses on three key goals for the organization:

- Establish NMBSA as a State and National Model for Bioscience Development
- Support and Strengthen the New Mexico Bioscience Ecosystem
- Funding for New Mexico Bioscience Growth and Innovation

Within each goal there are a set of strategies to serve as guiding principles for the Bioscience Authority over the next three to five years. They are accompanied by a set of measurements by which the organization can determine its success.

Vision, Mission and Role by Statute

The original legislation establishing the New Mexico Bioscience Authority established the organization's Mission, Vision and tasks. This strategic plan reaffirms these components, while updating the research, situation analysis and goals and strategies in response to new opportunities and pressures.

Vision

To grow a robust bioscience industry in New Mexico.

Mission

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

Role by Statute

- 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

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- Identify science and technology trends and be a clearinghouse for bioscience enterprise issues
- Create Direct Investment Fund with State support
- Create Endowment for long-term investment with state support
- Encourage recruitment of bioscience businesses to New Mexico through state policy changes, incentives and the formation of a direct investment fund
- Work with organizations charged with promoting economic development In New Mexico

Key Performance Indicators:

- Increase number of new bioscience company formation
- Bioscience employment growth approaching national averages
- Private venture capital per capita grows at rates approaching national average
- Increased amount of private equity investment

Goal 1: Establish NMBSA as a Model for Bioscience Development and Organizational Management

As a state-sponsored non-profit organization, it is crucial that the Bioscience Authority is recognized as an organization that is organized and governed by its board and staff leadership to the highest standards expected by public, private, government and civic leaders in New Mexico, and can serve as a trusted representative of the state and the sector to potential investors and partners from within and outside the state.

Strategy 1: Create an organizational and governance structure that ensures direct investment fund that targets bioscience industry, endowment and subsidiary formation within NMBSA.

The board structure of the Bioscience Authority is established by statute and requires legislative approval to change. As a means of ensuring that the structure keeps pace with changes in the bioscience industry and the state bioscience ecosystem, the board structure and bylaws should be reviewed and reaffirmed every two years to allow for sufficient time if legislative adjustments are needed to the structure.

As NMBSA works to establish potential direct investment funds and other potential funding vehicles, it is important that it review and clarify issues that arise from the creation of new entities and, if necessary, develop legislation to ensure that the subsidiaries can be successful and attractive to outside investors.

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Strategy 2: Create advisory committees as needed to allow for additional input from non-board members

As the Bioscience Authority increases its visibility and role in the bioscience ecosystem, it will be important to engage key partners and stakeholders as advisors to the board and staff. In similar organizations, advisory boards serve as important means of communications, engagement and involvement for the broader bioscience and economic development community. The Board of Directors should consider establishing one or more advisory boards to increase awareness of NMBSA in the broader ecosystem, increase support for NMBSA legislative and policy recommendations, and create an information exchange that can inform and support NMBSA's funding strategies. Potential advisory boards could include: Ecosystem Development, Scientific Advisory and Talent development.

Strategy 3: Review and consider re-branding NMBSA name

The use of "Authority" in the name of NMBSA projects a certain governmental image that doesn't fit with the role that NMBSA is playing as a connector and leader in biosciences. Best practices suggest that the brand should project the partnership role that NMBSA is projecting, the history and legacy of NM scientific achievement and success, and forward momentum in growing the biosciences in New Mexico. It also can help to distinguish the Bioscience Authority from some of its partners in the ecosystem, and carve out a distinctive national image for the state and the organization.

Measures of Success

- Increased positive media mentions of NMBSA by both local and national business and economics media
- Formation of organizational and governance structure that allow for direct investment fund, endowment and business subsidiaries under the NMBSA
- Review of board membership at least once every two years by outside entity to assure that necessary expertise is present on board

Goal 2: Take Leadership Role Within the NM Bioscience Ecosystem

NMBSA should be clear in defining its role with the NM biosciences and economic development ecosystems. By statute, NMBSA exists to provide leadership and enable relationships that support the growth and development of biosciences research, talent, funding and successful companies in New Mexico. NMBSA is not in competition with key elements of ecosystem but exists to help fill gaps and enhance current offerings, particularly in terms of raising funds to fill private funding gaps and facilitate the growth of private funding for support of startup and emerging bioscience companies.

Strategy 1: Provide policy recommendations to the state administration and legislature for growing the biosciences in New Mexico

As the state-created and recognized leader in biosciences development, it is important for the Bioscience Authority to be active in developing policy recommendations for how the state can bring in outside funding and talent to support the growth of the biosciences in New Mexico.

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Strategy 2: Serve as a connector within the bioscience ecosystem, facilitating relationships and connections to support efforts to grow and build the sector

While NMBSA should not be viewed as the funder for other efforts to build and support the biosciences in New Mexico, it can leverage its knowledge and connections to increase collaboration and partnerships within the sector. NMBSA should serve as an important information resource for the sector and serve as a leading voice for advancing the interests of the biosciences in the state.

Strategy 3: Take a leadership role in identifying new opportunities for biosciences growth in New Mexico

As leaders in the field, NMBSA's staff and board can take a leadership role in identifying new opportunities for bioscience growth, and in supporting or piloting new or replicating initiatives from other states that could benefit the New Mexico economy. A priority should be expansion and promotion of the BioReady Communities program throughout New Mexico as a model for how communities can leverage state and private investment in the biosciences to benefit their communities.

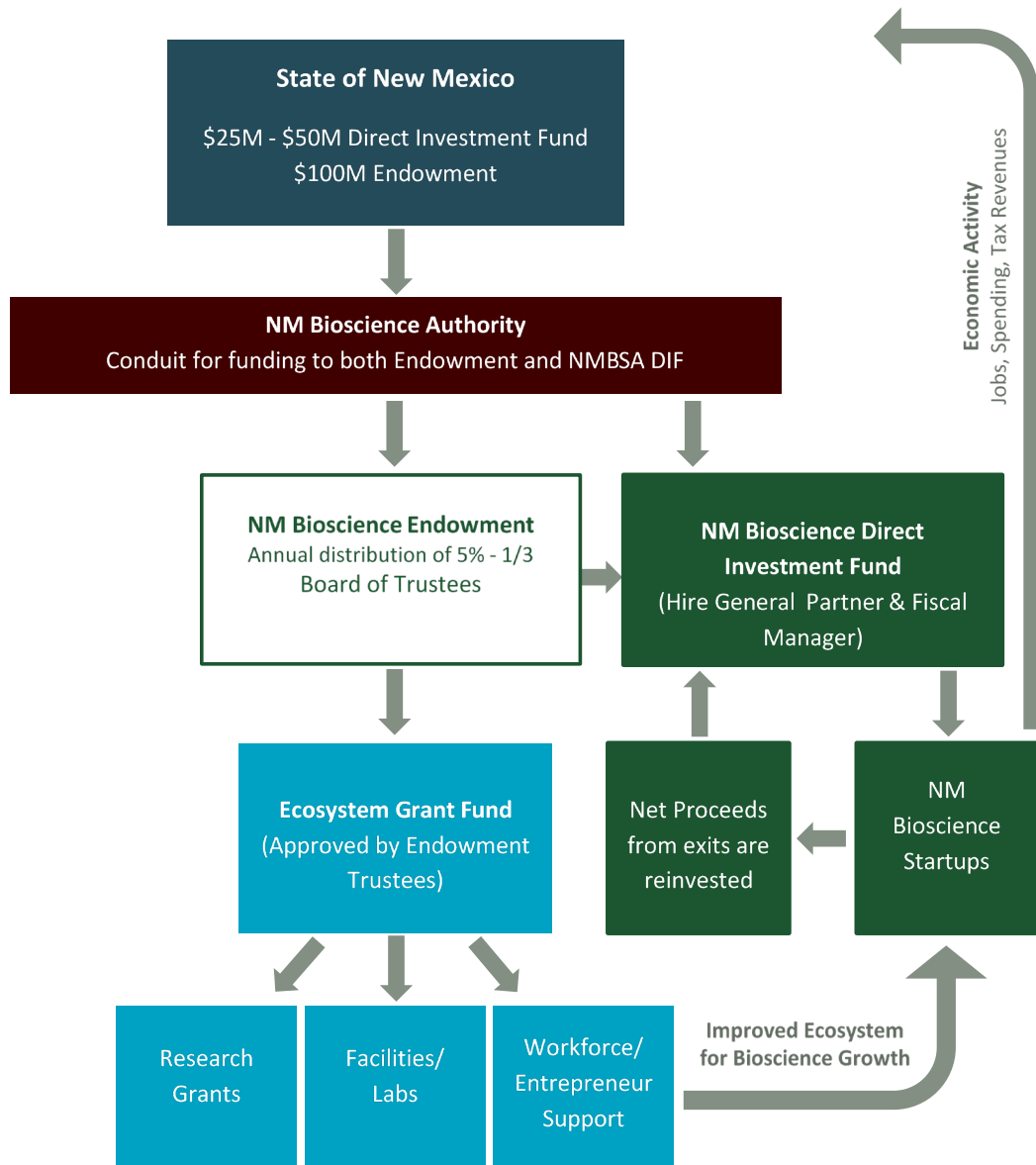
Measures of Success

- Implement the BioReady Communities program in each municipality that applies
- Propose policy changes and report activities to legislature annually as required under statute
- Assist in passage of key legislation supporting bioscience growth in New Mexico

Goal 3: Provide Funding for NM Bioscience Growth and Innovation

“The biggest missing piece in New Mexico’s portfolio of economic development programs, incentives and funding for the growth and development of the biosciences in the state is locally based, long-term, patient investment capital that provides a directed, but flexible stream of funding for bioscience development. What is needed is a source of funding that can meet the long-term needs of the sector without concern for the immediate success of a company or venture. In addition, without a strong bench of local funders, such funding needs to be available over a long period of time, not subject to the ups and downs of annual budget or economic cycles.” (*Growing the New Mexico Bioscience Economy, 2019, Econsult Solutions, Inc.*)

Figure 3.1 Potential Funding Model for NMBSA



Source: "Growing the New Mexico Bioscience Economy" Econsult Solutions, Inc. (2019)

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New Mexico lacks significant homegrown financial capital for direct investment in bioscience enterprises and needs dedicated funding for both company growth and ecosystem development. The organization has identified two potential paths for fund development and should begin the process of raising the funds to make those paths reality. Building on the plan described in the 2019 report, “Growing the New Mexico Bioscience Economy,” the Bioscience Authority should seek state funding support for a direct investment fund and begin the process of establishing an endowment to support long-term investment in both private firms and the general ecosystem (See Figure 3.1).

Strategy 1: Create the New Mexico Biosciences Direct Investment Fund

An important step in establishing the Bioscience Authority as a force in growing the New Mexico economy is to work with the legislature and administration to identify at least \$25 million for the establishment of a direct investment fund. The fund should have 2 areas of focus:

- Seed or angel funding to target early stage investments – These investments will provide a key signal to other investors and encourage additional private investment.
- Later stage funds to be co-invested alongside private investors – The late stage funding will match private investments and provide an incentive for companies to stay and grow in New Mexico.

Both funds should be managed by an outside investment fund manager with experience in bioscience startups.

Strategy 2: Begin preparations to develop an endowment fund

To develop a long-term, sustainable source of funding for the Bioscience Authority, NMBSA should begin to take the steps needed to create an endowment/foundation subsidiary that can receive both state and private support. Such a fund would reduce the risk associated with long-term government funding and create a stable funding source for both direct company investment and investments in bioscience infrastructure.

Strategy 3: Pass legislation that allows the Bioscience Authority to clarify the privacy of investors in the direct investment fund or the endowment fund

Measures of Success

- Have allocated to BSA at least \$25-50 million in state funds to support the direct investment fund
- Attract private investment equal to 50 percent for each investment of the direct investment fund
- Require start up bioscience companies or companies re-locating to NM to have operations and jobs in New Mexico
- Create the organizational governance structure to support an endowment subsidiary

4. New Mexico Bioscience Ecosystem

New Mexico Bioscience Ecosystem

The work of the New Mexico Biosciences Authority takes place within the context of the existing state bioscience ecosystem. A collection of public, private and non-profit organizations and initiatives have been working to grow and support the biosciences in the state, and NMBSA was created to support and complement those efforts. The ESI team undertook secondary research about the State's bioscience ecosystem and organizations and conducted confidential interviews with key ecosystem stakeholders to build context and understanding of how the ecosystem works and where there are opportunities for NMBSA to make a difference through its investments and activities.

Programs and Services

New Mexico has several programs and services aimed at assisting small businesses and startups grow and achieve success. The services offered to early stage startup companies through to scaling companies and established firms in the biological and life sciences is limited.

Incubators and Accelerators

There are a few incubator and accelerator programs that cater to bioscience companies.

- The Bioscience Center in Albuquerque is almost exclusively dedicated to incubating early stage bioscience companies.
- The Santa Fe Business Incubator has a bioscience category with an advisory council and specialized programming and equipment (a shared bioscience lab).
- The Santa Fe Community College offers lab space to bioscience companies, with their most notable company being NTXBio.
- The Arrowhead Center at New Mexico State University runs industry-specific Sprints (accelerator programs) related to bioscience including AgSprint, HealthSprint, and an AgriBusiness Accelerator located in Las Vegas, NM.
- NMSU is also an I-Corps site (Aggie I-Corps). Arrowhead Center also runs the NM Fast program that works with companies to complete SBIR proposals.
- Makerspaces and Fabrication Labs in New Mexico also play an important role in prototyping and small batch production. Many also offer training and entrepreneurship support. A few organizations like the Fab Lab Hub and Biodidact have clients in the bioscience industry.
- The University of New Mexico Health Sciences Center leads the ASCEND Hub with 13 other Mountain West state universities including New Mexico State. The ASCEND is an accelerator initiative to train faculty in SBIR/STTR applications, enhance networking between the entrepreneurial and academic communities in order to accelerate commercialization activities and increase SBIR/STTR applications and funding. The program supports an entrepreneurial

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resource directory, events, mentoring, business advising and technology funding and development

Research Institution Programs and Facilities

New Mexico's national research labs and higher education institutions support small business development efforts through programs and facilities.

- The Clinical and Translational Science Center at UNM Health Sciences Center provides training, pilot funding and facilitates networking to enhance new discovery, patents and business creation in the bioscience space throughout New Mexico.
- Both Sandia and Los Alamos National Labs offer the New Mexico Small Business Assistance (NMSBA) Program where any NM small business (including biosciences companies) can receive up to \$40,000 per year in technical assistance from the labs, some universities, and the MEP.
- ABQid, a traditional GAN/Techstars modeled accelerator, ran a Health and Wellness specific cohort in 2017 but has not repeated that industry specific program since.
- Innovate ABQ and the Rainforest building in downtown Albuquerque offer space and connection points for startups and entrepreneurs, and while they don't have biosciences/life science specific facilities/programs, many of their clients are bioscience startups.

Technology Transfer Activities

- The tech transfer offices at Sandia National Laboratory, Los Alamos National Laboratory, University of New Mexico, New Mexico State University, New Mexico Tech, and the Air Force Research Laboratory all engage with companies inside and outside of New Mexico. Their individual focus areas differ by technology portfolios maintained by each institution. Many have bioscience related intellectual property available for license and many have support programs and resources aimed at entrepreneurs and innovators in the ecosystem.

State Economic Development Programs

The New Mexico Economic Development Department and its Office of Science and Technology have programs that can benefit biosciences and life science companies but nothing particularly focused on the industry.

- SBIR Matching grants offer up to \$50,000 to match a Phase I or Phase II award.
- The Innovation Vouchers provide up to \$2,000 to offset the rent or other program costs to a designated service provider (accelerator, incubator, etc.).
- The department also recently rolled out a program that helps cover the cost of licensing technology from an in-state institution (lab or university).
- LEDA, JTIP and other direct investment funding activities are discussed below.

Program and Service Offering Gaps and Concerns

There are gaps in the service offerings for bioscience companies at all stages. These include:

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- A shortage of laboratory space for mid-sized companies and knowledge of/connection to lab space for startup companies
- Lack of connections to larger bioscience companies as advisers/mentors or product/business model validation
- Availability of 2nd stage Incubation and assistance for biosciences and life science companies
- Entrepreneur training and technology licensing assistance for individuals and teams interested in starting a bioscience company or leaving the lab/university to start a company
- Need for Industry focused accelerator program with larger bioscience firm support and funding (out of state connections and mentoring)

Funding and Risk Capital

The funding landscape for biosciences and life science companies in the state is probably the weakest piece of the ecosystem. Very few funds exist with an emphasis on early stage biosciences and life science companies and fewer still are capitalized to the point where they can spread out investments and take calculated risks.

Early Stage Funding

The New Mexico Catalyst Fund, LP is a fund-of-funds investment vehicle. The Fund will invest \$1 million to \$5 million in emerging and existing venture capital funds in New Mexico – collectively the “Portfolio Funds.” These Portfolio Funds will focus on making seed and early stage venture capital investments in startup companies in the State of New Mexico. The Fund will be managed by Sun Mountain Capital, LLC.

The Catalyst Fund will invest in existing and emerging Portfolio Funds located across the State of New Mexico. The Fund will not have a sector focus. Sun Mountain expects to make approximately 8-10 investments in Portfolio Funds, averaging \$1.5-\$2.0 million per investment for a total of \$20 million. These Portfolio Fund investments will require a private capital match of at 50% of the total Portfolio Fund size.

Funds that have received Catalyst Funds dollars:

- Cottonwood Catalyst Fund
- Tramway Venture Partners
- ABQid Fund I Sidecar
- Arrowhead Innovation Fund
- Bluestone Ventures
- NMA Ventures
 - Tramway Ventures and Bluestone Ventures have an investment strategy focused on biosciences and life sciences. While NMA Ventures doesn’t have a similar biosciences-focused approach, it is willing to entertain biosciences related investments (though no investments have been biosciences related to date).
- Tramway Ventures, Bluestone Ventures and NMA Ventures are all part of the catalyst fund. Tramway Ventures and Bluestone Ventures have an investment strategy focused on biosciences

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and life sciences. While NMA Ventures doesn't have a similar biosciences-focused approach, it is willing to entertain biosciences related investments (though no investments have been biosciences related to date).

- The NM Angels have invested in biosciences and life sciences companies as has the NM Startup Factory though neither have a biosciences specific investment strategy.
- Individual high net-worth investors round out the risk capital pool for the state. Successful investors and entrepreneurs who have had success in New Mexico are an important piece of the individual investors pool.

State Incentive Programs

Due to an anti-donation clause in the State constitution, New Mexico is prevented from investing directly in companies. In order to create some direct investment funds, several state and state-related vehicles have been created. These include the Local Economic Development Act (LEDA) Fund and the State Investment Council.

- LEDA is promoted as the "State's closing fund" and is used to help local or relocating companies purchase land, finance construction, equipment, or other capital assets. LEDA is very closely tied to the economic development return the state can expect for its investment. These are usually represented as new jobs created, wages paid, and new revenue generated.
- The State Investment Council manages the State's permanent funds, endowments, and other state agency funds. A rather small portion of their money under management is used for direct investment in companies. They use investment consultants RVK, Inc., The Townsend Group, and Mercer to source these investments and handle unsolicited communication.

Funding Gaps

There are clear gaps in funding for bioscience companies:

- There are few funds with a focus and expertise in biosciences and life sciences
- Risk capital for investment in early stage companies is very limited
- Very little capability to participate in large Series A rounds or higher
- The state's outside investment funders tend to employ risk-averse investment strategies

Technology and Intellectual Property

As noted from the interviews conducted as part of the strategic planning process, the production of technology and intellectual property is a bright spot for New Mexico and the bioscience industry.

- Los Alamos National Laboratory's B Division is a world leader in biosciences and life science research and development especially in the study of infectious diseases and microfluidics.
- Biosciences and life science related technologies also make up a significant percentage of available technologies for license at Sandia National Lab, New Mexico State University and UNM (i.e. STC.UNM).

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- The Sandia Science and Tech Park, the Los Alamos Commerce and Development Corporation's Los Alamos Research Park, and the NM Consortium are aimed at assisting in the transfer of technology from the labs. They also include anchor or established tenants.

Technology and Intellectual Property Gaps and Concerns

A few gaps exist in the technology and intellectual property space:

- Options and other licensing can be cumbersome. Some suggested that the federal labs could benefit from a NASA style licensing format
- No central statewide repository of technology available for license – must reach out to each institution separately
- Scientists attracted to national lab or university work are not necessarily interested in creating businesses (publish vs patent)
- Technology readiness levels often low - need a lot of technical development and market validation to make a case for funding
- Technology developed at national labs has a longer time to market than tech originating in other institutions
- Very few private (non-academic) organizations engaged in basic research and technology creation/development (Only Pebble Labs comes to mind)

Workforce Quality and Development

An educated, trained and qualified workforce is key to sustaining and retaining biosciences and life science companies currently in New Mexico and attracting companies to relocate or open branch operations in New Mexico. Interviews conducted with funding organizations, national labs, and service providers indicated that an entrepreneurial culture is lacking in the state. The result of that is that technology ready to be transferred out of a national lab or university does not always have a place to land and launch from within New Mexico.

Current Workforce Efforts

Current workforce efforts that can benefit bioscience companies include:

- The State's two- and four-year colleges and universities produce an adequate number of entry-level and administrative employees according to interviews conducted as part of the strategic planning process and anecdotal evidence.
- The Job Training Incentive Program (JTIP) is a state program that assists in offsetting the costs associated with training new members of a company's workforce. This incentive is typically reserved for larger employers who can promise a high economic development return for the money.
- WIOA is a federal program that operates in Albuquerque and Santa Fe that helps offset new employee training costs. The barriers to accessing Workforce Innovation and Opportunity Act (WIOA) are much lower than JTIP.
- Stem Boomerang is an emerging private program that encourages students with STEM degrees who were raised in New Mexico to find jobs in state and return home.

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Workforce Gaps and Concerns

There are numerous gaps that exist in the workforce and training space:

- Management and C-suite level candidates are harder to find, especially seasoned CEOs with rolodexes and the ability to fundraise and rely on connections to funders located around the country.

Training programs like coding boot camps do not exist for the needs of biosciences companies (lab tech boot camps, etc.)

- Few entrepreneurs able to adequately transfer technology and create companies
- There is not enough opportunity to move within the industry inside of the state (if you leave one bioscience firm you may not be able to find a job in New Mexico)
- Scientists and researchers at Federal Labs and Universities are content to stay in their positions and reluctant to move to private companies

New Mexico Biosciences Ecosystem Map

The ecosystem map illustrates resources available in New Mexico (within yellow area), funding resources that are available regionally, and funds/firms that have made investments in New Mexico companies. The funding portion of the ecosystem map shows that there is a much larger and more diverse funding pool operating in New Mexico but headquartered outside the state than internal sources of investment. This is true of all companies including in the bioscience sector.

Organizations with a focus on assisting bioscience companies or otherwise involved in the bioscience industry in New Mexico are indicated by a blue colored dot next to their name. Local organizations involved in multiple areas of the local ecosystem are indicated by connecting white lines. Looking at the connections across areas of the ecosystem can indicate which organizations are most involved or most well connected across the ecosystem in its entirety.

Organizations like the NM Consortium, Arrowhead Center, and the Bioscience Center are well positioned within the ecosystem and share connections across various areas. These well-connected organizations, again as indicated by number of lines across the map, should be targeted for partnerships or mutual cooperative agreements. Partnering with these organizations allows access to many areas of the ecosystem at once and can decrease time to impact.

Again, this map is illustrative and should be edited, updated and periodically reviewed for accuracy and changes in the landscape. It is important to note that space constraints limited the ability to include every organization on the ecosystem map. Just as all 700+ bioscience companies in the state could not be included on the map, all the myriad organizations working to assist business in the state could not be listed. The ecosystem map is illustrative and not perfectly accurate by volume.

In the blue section of the map a listing of bioscience companies is included along with support organizations in the state. Support organizations are defined as programs, projects, firms, or other organizations primarily engaged in assisting companies in the state launch, grow, and/or scale. The sizes of the circles next to each name represents the impact each organization has on bioscience companies

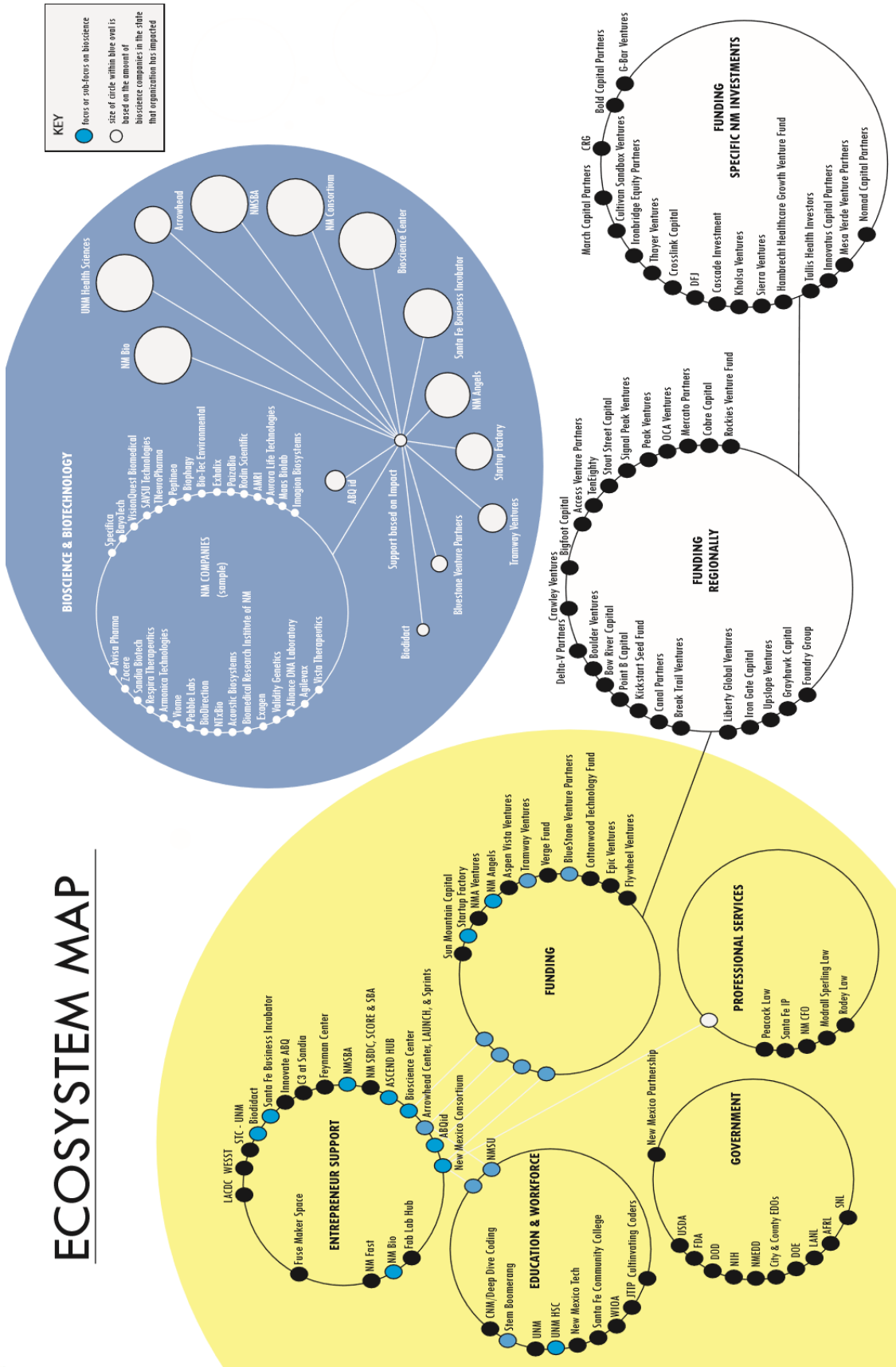
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in the state and how large a focus there is on the bioscience industry. Impact in this sense refers to amount of bioscience companies served during the existence of the program. For instance, the circle for the New Mexico Angels is smaller than the circle for the Bioscience Center because the Bioscience Center has worked with more bioscience companies than the New Mexico Angels and because the Bioscience Center has more of a focus on the bioscience industry. Size of impact along with connectedness in the ecosystem is another measure that can be used to target partnerships or mutual cooperative agreements.

The ecosystem map also illustrates gaps in the general ecosystem and in the bioscience industry more specifically. One glaring gap is the number of organized funders and firms operating in the state. This number is much smaller when looking at those with even just a sub focus on bioscience companies. In contrast there is a much larger pool of funders and firms from outside the state that have participated in funding in-state companies. This is also reflected in the interviews conducted as part of the strategic planning process where interviewees identified lack of in-state funding opportunities as a barrier to industry growth. Another often identified barrier to industry growth was the lack of experienced entrepreneurs. This is partially shown in the ecosystem map by the lack of accelerator programs operating specifically in the bioscience sector. The only accelerator pictured is the ABQid accelerator which ran one Health and Wellness cohort and then ceased operating it. While accelerator programs don't in and of themselves produce high achieving entrepreneurs, they do introduce the fundamentals of starting and running a venture backed and scaling company. With few exceptions the entrepreneurial support organizations listed are general service or industry agnostic when it comes to economic sectors served. More bioscience industry targeted programs and projects in the state will produce a more resource rich environment for startups, expansions, and recruited companies.

A glossary of organizations is included following the ecosystem map.

ECOSYSTEM MAP



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Name	Map Location	Web Site	Bioscience Focus/sub-focus	State
Los Alamos Commerce & Development Corporation (LACDC)	Entrepreneur Support	https://losalamosdevelopment.com/		NM
WESST	Entrepreneur Support	https://www.wesst.org/		NM
STC-UNM	Entrepreneur Support	https://stc.unm.edu/		NM
Biodidact	Entrepreneur Support	http://biodidact.net/	x	NM
Santa Fe Business Incubator	Entrepreneur Support	http://sfbi.net	x	NM
Innovate ABQ	Entrepreneur Support	https://innovateabq.com/		NM
C3 at Sandia	Entrepreneur Support	https://share-ng.sandia.gov/working_with_sandia/technology_partnerships/c3.html		NM
Feynman Center	Entrepreneur Support	https://www.lanl.gov/projects/feynman-center/		NM
New Mexico Small Business Assistance (NMSBA)	Entrepreneur Support	https://www.nmsbaprogram.org/	x	NM
New Mexico Small Business Development Center (NMSBDC)	Entrepreneur Support	http://www.nmsbdc.org/		NM
SCORE	Entrepreneur Support	https://albuquerque.score.org/contact-score-albuquerque		NM
Small Business Administration (SBA)	Entrepreneur Support	https://www.sba.gov/offices/district/nm/albuquerque		NM
Ascend Hub	Entrepreneur Support	http://ascendhub.org/	x	NM
Bioscience Center	Entrepreneur Support	https://www.thebiosciencecenter.com/	x	NM
Arrowhead Center	Entrepreneur Support	https://arrowheadcenter.nmsu.edu/	x	NM
ABQid	Entrepreneur Support	https://www.abqid.com/	x	NM
New Mexico Consortium	Entrepreneur Support	https://newmexicoconsortium.org/	x	NM
NM FAST	Entrepreneur Support	https://arrowheadcenter.nmsu.edu/program/nm-fast/		NM
Fab Lab Hub	Entrepreneur Support	http://fablabhub.org/		NM
Fuse Maker Space	Entrepreneur Support	https://fusemakerspace.org/		NM
New Mexico State University (NMSU)	Education & Workforce	https://www.nmsu.edu/	x	NM
Central New Mexico Community College (CNM)	Education & Workforce	https://www.cnm.edu/		NM
Deep Dive Coding	Education & Workforce	https://deepdivecoding.com/		NM
Stem Boomerang	Education & Workforce	https://stemboomerang.org/	x	NM
University of New Mexico (UNM)	Education & Workforce	https://www.unm.edu/	x	NM
UNM Health Sciences Center (UNM HSC)	Education & Workforce	https://hsc.unm.edu/	x	NM
New Mexico Tech	Education & Workforce	https://www.nmt.edu/	x	NM

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Santa Fe Community College	Education & Workforce	https://www.sfcc.edu/	x	NM
WIOA	Education & Workforce	https://gonm.biz/business-development/brc-directory/workforce-innovation-opportunity-act-wioa-services		NM
JTIP	Education & Workforce	https://gonm.biz/business-development/edd-programs-for-business/job-training-incentive-program		NM
Cultivating Coders	Education & Workforce	https://cultivatecoders.com/		NM
USDA	Government	https://www.usda.gov/		NM
FDA	Government	https://www.fda.gov/home		NM
DOD	Government	https://www.defense.gov/		NM
NIH	Government	https://www.nih.gov/		NM
NMEDD	Government	https://gonm.biz/		NM
NM Partnership	Government	https://nmpartnership.com/		NM
DOE	Government	https://www.energy.gov/		NM
LANL	Government	https://www.lanl.gov/		NM
AFRL	Government	https://www.afrlnewmexico.com/		NM
SNL	Government	https://www.sandia.gov/		NM
Peacock Law	Professional Services	https://peacocklaw.com/		NM
Santa Fe IP	Professional Services	http://www.santafeip.com/		NM
NM CFO	Professional Services	https://nmco.com/		NM
Modrall Spering	Professional Services	https://www.modrall.com/		NM
Rodey Law	Professional Services	https://www.rodey.com/		NM
Sun Mountain Capital	Funding Local	https://sunmountaincapital.com/		NM
Startup Factory	Funding Local	https://nmangels.com/nmsuf/	x	NM
NMA Ventures	Funding Local	https://www.nmaventures.com/	x	NM
New Mexico Angels	Funding Local	https://nmangels.com/		NM
Aspen Vista Ventures	Funding Local	https://www.aspenvistacapital.com/		NM
Tramway Ventures	Funding Local	https://www.tramwayventures.com/	x	NM
Verge Fund	Funding Local	https://www.vergefund.com/		NM
BlueStone Venture Partners	Funding Local	http://www.bluestonevp.com/	x	NM & AZ
Cottonwood Technology Fund	Funding Local	https://www.cottonwood.vc/		NM
Epic Ventures	Funding Local	http://www.epicvc.com/		NM
Flywheel Ventures	Funding Local	https://www.flywheelventures.com/		NM
Crawley Ventures	Funding Regional	http://www.crawleyventures.com/		CO
Delta-V Partners	Funding Regional	https://www.deltavcapital.com/		CO & TX
Boulder Ventures	Funding Regional	https://www.boulderventures.com/	X	CO
Bow River Capital	Funding Regional	http://bowrivercapital.com/		CO

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Kickstart Seed Fund	Funding Regional	https://www.kickstartseedfund.com/		UT
Canal Partners	Funding Regional	http://canalpartners.com/		AZ
Break Trail Ventures	Funding Regional	https://www.breaktrailventures.com/		CO & OH
Liberty Global Ventures	Funding Regional	https://www.libertyglobal.com/operations/ventures/		CO
Iron Gate Capital	Funding Regional	https://irongatecapital.com/		CO
Upslope Ventures	Funding Regional	https://www.upslope.vc/		CO
Grayhawk Capital	Funding Regional	http://www.grayhawkcapital.us/		AZ
Foundry Group	Funding Regional	https://www.foundrygroup.com/		CO
Bigfoot Capital	Funding Regional	https://www.bigfootcap.com/		CO
Access Venture Partners	Funding Regional	https://www.accessvp.com/		CO
TenEighty	Funding Regional	http://teneighty.us/		UT
Stout Street Capital	Funding Regional	https://stoutstreetcapital.com/		CO
Signal Peak Ventures	Funding Regional	https://www.spv.com/		UT
Peak Ventures	Funding Regional	https://www.album.vc/		UT
OCA Ventures	Funding Regional	https://www.ocaventures.com/		IL & CA
Mercato Partners	Funding Regional	http://mercatopartners.com/		UT
Cobre Capital	Funding Regional	https://www.cobre.vc/		AZ
Rockies Venture Fund	Funding Regional	http://rockiesventurefund.com/		CO
Point B Capital	Funding Regional	https://www.pointbcap.com/		CO & WA
CRG	Funding NM Specific Outside	https://crglp.com/	x	CO, TX & NY
March Capital Partners	Funding NM Specific Outside	https://marchcp.com/		CA
Cultivan Sandbox Ventures	Funding NM Specific Outside	https://cultiviansbx.com/	X	IL
Ironbridge Equity Partners	Funding NM Specific Outside	http://ironbridgeequity.com/		Toronto
Thayer Ventures	Funding NM Specific Outside	http://thayerventures.com/		CA
Crosslink Capital	Funding NM Specific Outside	https://www.crosslinkcapital.com/		CA
DFJ	Funding NM Specific Outside	https://threshold.vc/		CA
Cascade Investment	Funding NM Specific Outside			WA

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Kholsa Ventures	Funding NM Specific Outside	https://www.khoslaventures.com/		CA
Sierra Ventures	Funding NM Specific Outside	https://www.sierraventures.com/		CA
Hambrecht Healthcare Growth Venture Fund	Funding NM Specific Outside		X	NY
Tullis Health Investors	Funding NM Specific Outside	http://www.tullisfunds.com/	X	FL
Innovatus Capital Partners	Funding NM Specific Outside	http://www.innovatuscp.com/		NY
Mesa Verde Venture Partners	Funding NM Specific Outside	http://mesaverdevp.com/	X	CA
Nomad Capital Partners	Funding NM Specific Outside	https://www.nomadcp.com/		NY
Bold Capital Partners	Funding NM Specific Outside	https://www.boldcapitalpartners.com/		CA
G-Bar Ventures	Funding NM Specific Outside			IL

5. Best Practices Research

As a component of the strategic planning process, ESI conducted a review of successful practices at high-performing bioscience organizations around the country. Through this external research, ESI gathered information on structural models, success metrics and organizational structures employed by successful organizations in the field. This best practice research seeks to anchor recommendations made in this report with actual examples and identify specific, relevant initiatives and programmatic models for consideration by the Authority.

Create Commercialization Pathways for Existing Bioscience Research

In order to facilitate growth in the bioscience industry, organizations have developed creative initiatives to ease and accelerate the commercialization process for bioscience research and technology. Given New Mexico's existing assets of research universities and federal labs, of particular relevance to the Authority are strategies that will facilitate pathways to commercialization for existing bioscience research.

Smooth Technology Transfer out of Universities and Federal Labs

Smoothing technology transfer – the process by which innovations at research institutions are turned into products and commercialized – is critical to bringing existing research to market efficiently. Other organizations have implemented several successful strategies to streamline and smooth technology transfer out of universities and federal labs. University technology transfer offices (TTOs) and research institutions are increasingly focusing on building alliances with the private sector, startup companies, and funding channels.¹ Tufts University created the Tufts University Office of Technology Licensing and Industry Collaboration to support the promotion of commercialization and seek strategic private sector alliances.² Based on models at a number of other universities; including the University of Wisconsin, Madison; Stanford University; and MIT. UCLA created the not-for-profit Westwood Technology Transfer to commercialize UCLA's discoveries and inventions and encourage investment into its outputs.^{3 4} Other examples of strategic initiatives coming out of university TTOs include the Pennovation Center at the University of Pennsylvania and the New York University Office of Therapeutics Alliances.^{5 6}

Nonprofit and economic development organizations can support the smoothing of technology transfer by supporting the creation of these types of alliances as well as driving funding directly to technology transfer expenses. The Kentucky Commonwealth Commercialization Center (C3), for example, offers a Small Business Technology Transfer matching grant program as part of its programming to facilitate the commercialization of research at its universities.⁷ C3's Legal Program connects entrepreneurs at

¹ Huggett, Brady, "Reinventing tech transfer," *Nature Biotechnology* (2014)

² *Tufts Tech Transfer*, <http://techtransfer.tufts.edu/what-we-do/ourstartups/>

³ Huggett, Brady, "Reinventing tech transfer," *Nature Biotechnology* (2014)

⁴ Gu, Kelly, "Westwood Technology Transfer to guide UCLA in investment decisions," *Daily Bruin*, <https://dailybruin.com/2014/10/02/westwood-technology-transfer-to-guide-ucla-in-investment-decisions/>

⁵ *Penn Center for Innovation*, <https://www.pci.upenn.edu/>

⁶ *NYU Langone Health Technology Ventures and Partnerships*,

⁷ *Commonwealth Commercialization Center*, <http://c3.kyinnovation.com/#faq>

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Kentucky's universities to affordable legal services related to commercialization. The organization compiled best practices from industry stakeholders to create a "regional commercialization corridor" and establish template legal documents to reduce transaction costs and streamline the commercialization process.

Develop Incubator Programs to Support Process from Point-of-Discovery to Commercialization

To promote the commercialization of existing research, several organizations have emerged that provide incubator programs which create a pipeline of support for projects from their point-of-discovery to transitioning technology out of an institution and into the marketplace. The QED program at the Philadelphia University City Science Center serves as an incubator for early-stage life sciences and healthcare IT technologies with commercial potential.⁸ QED offers funding opportunities, mentoring from industry and business advisors and exposure to a network of licensing professionals, investors and entrepreneurs. Through these services, the QED program promotes early-stage commercialization and attracts investment from established companies and investors to technology coming out of 21 academic and research institutions.⁹

Cultivate Entrepreneurship in the Biosciences

Beyond a focus on commercializing existing research at institutions, steps can be taken to cultivate entrepreneurship more broadly in the biosciences. Strategic funding is critical to reducing early-stage commercialization risks facing entrepreneurs. One mechanism to mitigate these risks and incentivize entrepreneurship in the field is to channel investment to early-stage companies. The Pennsylvania Life Sciences Greenhouse Initiative utilizes \$100 million in funding it received from the Tobacco Settlement to actively invest in early-stage life science companies, including through relocation and expansion incentives.¹⁰ Additionally, organizations have supported grant funding for entrepreneurs by facilitating the application process and providing matching funds for SBIR and STTR grants.¹¹

In addition to funding support, organizations can promote entrepreneurship in the biosciences through supporting entrepreneurs to access key networks and business services. A number of organizations seek to fill a critical need for entrepreneurs by building or strengthening networks between entrepreneurs and angel investors, industry advisors, legal professionals and business consultants.¹² As a component of this networking and connecting role, some organizations like the Kentucky C3 Program strategically connect bioscience entrepreneurs to affordable marketing, business development and licensing services.¹³

Develop a Strategic Financing Model

Each of the best practices outlined in this section to promote the bioscience industry will require a strategic approach to funding. Other high-performing states have created long-term, patient investment

⁸ QED Program, <https://sciencecenter.org/discover/qed>

⁹ "Closing the Gap: The University City Science Center's QED Proof-of-Concept Program," the Economy League of Greater Philadelphia

¹⁰ Pennsylvania Life Sciences Greenhouse Initiative, <http://palifesciencesgreenhouseinitiative.com/>

¹¹ Commonwealth Commercialization Center, <http://c3.kyinnovation.com/#faq>

¹² QED Program, <https://sciencecenter.org/discover/qed>

¹³ Commonwealth Commercialization Center Legal Program, <http://c3.kyinnovation.com/#faq>

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capital to provide a directed but flexible stream of funding to bioscience development. Building on the model of the private Wellcome and Scripps Foundations, the New York-based Healthcare Impact Foundation (HCIF) has developed a new approach to funding the biosciences which is in place currently at the Arizona Healthcare Impact Foundation through AZBio.¹⁴ This endowment model creates two separate funds which allows for joint investment capabilities, through direct investment in emerging companies and ecosystem support for the bioscience industry.¹⁵

Direct Bioscience Investment Fund

One stream of investment from this financing model provides direct infusions of capital into the bioscience startup community. Decisions regarding the distribution of these direct investments, under the HCIF model, are made at the local level. The direct investment under the HCIF endowment model is structured as an evergreen fund – taking the returns from investment in companies and putting them back into the fund to allow dollars to be recycled through the fund and reducing the size of the annual injection of funding needed to finance the fund.

Bioscience Endowment Fund

The other stream of investment from this model is through the distribution of grants and direct investments in the bioscience ecosystem. This funding is channeled to support bioscience infrastructure in the state or region by supporting organizations that support the industry. Recipients of this funding may include accelerator or incubator programs, workforce training initiatives, or research facilities.

Strengthen New Mexico as a Bioscience Destination

To strengthen New Mexico as a destination for the biosciences, strategic communication and partnerships can get NM on the radar of national and international industry stakeholders. One practice that has seen success elsewhere in achieving this end is to develop strategic partnerships with local tourism and business organizations. The PHL Life Sciences initiative out of the Philadelphia Convention and Visitors Bureau seeks to raise the visibility of the Philadelphia area as a leader in Life Sciences and a destination for industry meetings, conventions and business opportunities.¹⁶ The initiative connects tristate (Pennsylvania, New Jersey and Delaware) life sciences industry leaders, higher education and research institutions and venture capital firms to collaborate and brand the Philadelphia region as “America’s Life Sciences Meeting Destination.” A similar local initiative in New Mexico could highlight NM’s bioscience assets including research organizations and higher education institutions and put NM on the map as a destination for the biosciences.

¹⁴ AZ HCIF, AZBIO, <https://www.azbio.org/az-hcif>

¹⁵ Healthcare Impact Foundation, <https://www.healthcareimpactfdn.org/>

¹⁶ PHL Life Sciences, <https://www.discoverphl.com/phllife/>

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