

# Fueling Entrepreneurship

## Advancing Innovation and the Life Sciences Ecosystem

A White Paper Presented by BioNJ





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# Letter from the President and CEO

February 4, 2016

To the New Jersey Life Sciences Community,

New Jersey and the surrounding region represents a hotbed of life sciences activity, boasting the full complement of large and small biopharmaceutical companies, universities and research institutions, service providers and talent working together to make meaningful advances in healthcare. Entrepreneurship is a critical component to ensuring the long-term growth and success of this region and specifically BioNovation, New Jersey's life sciences innovation cluster.

Entrepreneurs start companies, take calculated risks, innovate and build technologies and products, create jobs, and contribute to the regional economy, by providing a pipeline of opportunities for all stakeholders in BioNovation. Their efforts cannot be overestimated. As a community, we should do all we can to support entrepreneurship.

This white paper is based on the ongoing efforts of the BioNJ Entrepreneurship Advisory Committee charged with developing and promoting the ecosystem for life sciences with a particular emphasis on entrepreneurship. In concert with this white paper, we have released a survey of entrepreneurs in New Jersey, assessing the current landscape and what has worked. And what we need to do next. In the following pages, we report on several aspirational concepts and areas highlighted by the survey and advisory group, and provide a road map.

We have many people to thank for all of their efforts and hard work on moving this initiative forward and developing prescriptions for New Jersey's continued success.

We are very thankful to the BioNJ Entrepreneurship Advisory Committee, comprised of representatives of BDO USA, Cepter Biopartners, CohnReznick, COOonDemand, Domain Associates, Foundation Venture Capital Group, Mid-Atlantic Bio Angels, New Jersey Health Foundation, New Jersey Institute of Technology, New Jersey Small Business Development Center, Princeton University, Rowan University and Rutgers University for their guidance on this initiative.

We are especially grateful to New Jersey Health Foundation for partnering on this white paper and developing this valuable piece for the community, and to the BioNJ Board of Trustees and BioNJ Team for their tireless support for BioNovation and for Patients.

We hope you find this white paper informative and provocative, and heed it as a call-to-action to get involved in support of entrepreneurship in New Jersey.

Our intent with this white paper is to be aspirational yet practical and to study the opportunity and propose and advance programs and initiatives where feasible that will make a difference to our community and to the entrepreneurs who want to work and thrive here. We look forward to working with our Members and Partners and Friends to make a difference for our ecosystem.

*Because Patients Can't Wait<sup>SM</sup>,*



Debbie Hart  
President and CEO, BioNJ

## Executive Summary

Entrepreneurship is widely regarded as a critical component of any life sciences ecosystem. As a hallmark of any growing industry, entrepreneurship represents the early growth opportunities for the people, innovation and infrastructure of a region by creating new companies that promise to deliver products and technologies to the marketplace while achieving financial returns to investors and creating jobs. The ability to converge science and innovation with seed capital and the required talent is a very challenging proposition and many companies, and ecosystems, fail; however, those that do succeed bring enormous returns to all stakeholders. Accordingly, entrepreneurship is highly coveted and aggressively pursued all over the globe.

This white paper is intended to highlight key findings of a state-wide effort in New Jersey to identify areas to support the increasingly important role of life sciences entrepreneurship. Compiled in this report are significant recommendations from those in all areas of the life sciences ecosystem. The white paper provides findings and recommendations to improve the environment for entrepreneurs, the capital raising demands of the sector, the talent and networks required, the infrastructure and policy climate of the State, and marketing and communications for this vibrant and innovative cluster. The intended audiences are stakeholders from the public, private and academic sectors, with a specific focus for research universities, economic development authorities, innovative biopharmaceutical companies and their related industries, and the myriad institutions of higher education training the entrepreneurs of tomorrow.

The overarching recommendation is to coordinate activities among various stakeholders and support organizations such as BioNJ, research institutions, government and related entities, and industry, to incent and promote science, technology, and policy for life sciences entrepreneurship. The working group prioritized several major areas and made specific recommendations for each.

### Risk Capital

- Create a portfolio of seed capital and venture funds in New Jersey
- Expand the offering and promote the use of existing financing programs (Angel Investor Tax Credit, NOLs)

### Networks

- Create and maintain a robust angel network
- Establish an H1B Visa program with universities
- Establish partnerships with local, regional, and national groups focused on entrepreneurship development and enhancement

### Training and Mentoring

- Create an “eLab”(Entrepreneurial Lab) type training program in higher education to promote technology commercialization
- Expand the use of Entrepreneurship Mentoring Networks
- Expand the use of partnering preparation programs

### Informational and Networking Programs

- BioNJ would coordinate a state-wide effort that would include:
  - Educational seminars (topic-specific)
  - Funding programs (government, corporate, philanthropic, etc. funding source)
  - Networking events (thematic: science, money, know-how)
  - Celebrations (honoring those who have made a difference)

### Real Estate and Innovation Space

- Develop a guide to incubators, accelerators and specialty real estate
- Develop a proposal to study how to expand on and network existing infrastructure

### Marketing and Communications

- Develop and implement an integrated effort at State level to promote New Jersey as a robust life sciences ecosystem
- Create and support a multi-year branding, advertising and marketing campaign, engaging the ecosystem and utilizing every significant media channel

## Introduction and Methodology

The BioNovation Life Science Ecosystem, as conceived by BioNJ, is the biocluster representing the innovative capacity for the biopharma and life sciences industry in New Jersey and reflects the industry's leadership in drug development. Starting with the traditional pharmaceutical industry and the beginnings of biotechnology in the last century, and in more recent years as technological advances blur the lines between these fields, "biopharma" represents an ideal environment for entrepreneurs. And historically, New Jersey has proved to be a national leader. The successes in New Jersey are remarkable and while there are too many to count, here there are a few points to consider.

First, the number of companies in the traditional biotechnology sector grew from 80 companies in 1998 to nearly 400 in 2016. Overall, the sector totaled 212,500 in direct and indirect employment. The industry's footprint makes its mark all over the State with over 3,100 establishments ranging from research and development scientists to headquarters with general, legal, and administrative personnel, to manufacturing and distribution. Collectively, the New Jersey base has ties to over 50% of the new molecular entities and biologics approved by the FDA from 2011 through 2015. In short, New Jersey is an undisputed leader in biopharma.

To develop recommendations for future growth of the sector, BioNJ, the life sciences trade group in New Jersey, established the Entrepreneurship Advisory Committee, comprised of entrepreneurs, representatives from higher education and research universities, economic development, foundation and venture capital firms, entrepreneurs and specialists in early stage company formation, and financial and accounting firms. These representatives had specific personal and/or professional experience in entrepreneurship or working with entrepreneurial enterprises. These included university technology transfer and new ventures groups, organizations focused on early stage investing, NJ Economic Development Authority and Small Business Development Centers, business service firms with specialties in life science

operations and financial management, and entrepreneurs. Further, the group conducted a first of its kind survey of life sciences entrepreneurs in the State to gauge experiences directly from those in the community.

The group met regularly from the end of 2014 through 2015 and was guided by several central questions: What is the current state of life sciences entrepreneurship in New Jersey? What can be done to enhance, promote and improve the climate for life sciences entrepreneurs? What are the limiting factors to more fully unlock the entrepreneurial spirit and efforts of those in the State? What are key areas where stakeholders can contribute to improve the early pipeline of new life sciences companies, support growing and emerging life sciences companies, and foster a meaningful culture of entrepreneurship in New Jersey?

BioNJ conducted a survey of life sciences entrepreneurs in New Jersey to assess sentiment and identify what this community has found that has worked in support of entrepreneurship. The survey was developed by the Entrepreneurship Advisory Committee of BioNJ, launched in September, 2015, and sent to various networks active in life sciences entrepreneurship in New Jersey. Responses were collected over several weeks and data were tabulated, analyzed and interpreted. Respondents represented the start-up experiences of over 90 life sciences companies. While these data are the subject of a separate report, some of the findings are referenced in this white paper where applicable.

The themes identified by the Committee are described below with recommendations for action by domain experts. The major areas relate to risk capital, network development and forums, training and mentoring, innovation space and communications.

## Fueling Entrepreneurship: Advancing Innovation and the Life Sciences Ecosystem

New Jersey has a long history of successful life science research and development, as well as a number of highly recognized scientists, researchers and innovators. From 1985 to 2010, the Commission on Science and Technology was responsible for the development and oversight of programs promoting science and technology research and entrepreneurship in New Jersey.

In recent years, organizations such as BioNJ, the life sciences trade association for New Jersey and official affiliate of the national Biotechnology Innovation Organization (BIO; formerly Biotechnology Industry Organization) and others, have worked to promote meaningful advances in support of science and industry policy.

Several states have developed and implemented long-term policies marked by significant investment of state funding (See Appendix). Massachusetts, as one example, in 2008 implemented the Massachusetts Life Science Act, a \$1 billion, 10-year effort to create jobs and support research. In addition to making financial investments in public and private institutions for research and development and commercialization, the mission of the Massachusetts program is to promote connections among sectors of the life sciences community. Specific initiatives include programs for funding, tax and talent development.

Meanwhile, New Jersey maintains distinct advantages nationally and globally with respect to talent, especially in drug and commercial development, and industry presence and infrastructure, and there is remarkable opportunity to build on and solidify this position for the next generation.

### Recommendation:

The major recommendation is to focus and coordinate various public and private support initiatives in the life sciences sectors, including activities of organizations such as BioNJ, research institutions, government and related entities, and industry, to promote science, technology, and policy for life sciences entrepreneurship.

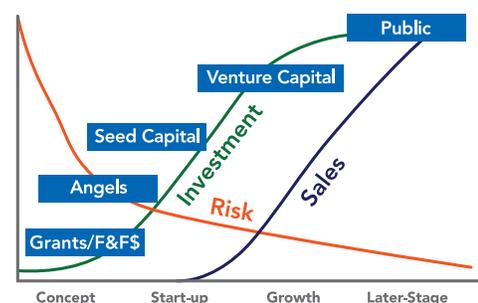
Each of the specific areas listed below will require input and support from the private, public and academic sectors. Advancement of meaningful policies and programs for entrepreneurship can be best achieved through coordinated effort and specific areas to support. Recommendations are enumerated below.

### Risk Capital

Venture and seed capital are critical components to an entrepreneurial ecosystem. The community in New Jersey dedicated to and dependent on venture capital enjoyed a strong recent history of venture funding though overall levels have not recovered from the decline of the financial markets in the past several years. Life sciences venture funding in New Jersey has averaged \$138mm annually from 2010-2014, much lower than in previous years. A review of available data from sources such as the PricewaterhouseCoopers MoneyTree™ Report, analysis by BioNJ and responses from the Entrepreneurship Survey indicates that the availability of seed capital is especially limited for early stage, biopharma-focused New Jersey companies. Other life sciences regions and clusters benefit from a variety of funding mechanisms with demonstrated success beyond financial returns, including further development of the cluster in the form of job creation and economic growth.

BioNJ's Entrepreneurship Survey revealed that most life sciences companies in New Jersey have been established via self-funding and with "family and friends" and with less than \$200,000. Further, only a minority of entrepreneurs indicated that they had used State funding and tax credit programs. Given the technical and regulatory complexities of product and therapeutic development and the associated costs, estimated by Tufts to be \$2.6b for a new drug, life sciences companies require significant investment to achieve milestones. Clearly there is opportunity and need to support early stage funding and the establishment of additional life sciences companies in New Jersey.

The following chart highlights where various funding types are utilized during the lifecycle of a company. Early stage companies face significant challenges during the shift from concept to start-up, as illustrated, and these particular stages are areas where companies need additional support.



Source: The Company Financing Lifecycle—Primaxis Technology Ventures

## Create a portfolio of venture funds and seed capital in New Jersey

### *Life sciences-focused venture fund*

In 2004 and in 2008, the cluster that includes New Jersey was ranked #3 nationally in venture capital funding, according to the MoneyTree™ Report by PricewaterhouseCoopers and the National Venture Capital Association. Since that time however, while other regions have seen an increase in the amount of venture capital invested in the life sciences and the number of venture capital firms, New Jersey has had a dearth of venture capital to start life sciences companies and to grow emerging companies, thereby limiting the growth potential of the ecosystem. The underlying causes are unclear. This capital is critical so that biopharmas can be established as early stage companies with pre-clinical technology and as emerging companies with development stage assets. Further, there are existing companies that require venture funding for later stage clinical development. Accordingly, there is considerable opportunity and need to develop a biopharma-focused venture fund to support the life sciences sector.

#### **Recommendation:**

Create a life sciences venture fund with a focus on developing the next generation of life sciences companies in the State. A targeted fund could be developed to achieve financial returns from funding start-ups and smaller, emerging companies.

Establish a working group to understand the dynamics of recent venture investments in New Jersey to determine the underlying cause and provide possibilities to address any gaps.

### *Angel Investor Matching fund*

Angels, the class of private investors providing personal capital and expertise into start-ups, represent an important avenue for entrepreneurs to start companies. Angels often have expertise in the medical, technical and/or business area that the entrepreneur intends to enter and thus the angel can offer unique insights and advice, as well as access to personal networks to accelerate the development of a new venture. By putting their personal money into the start-up, angels provide an ecosystem with a large number of 'seeds' to grow new companies.

Incentivizing angels through a matching fund mechanism would help stimulate investment from this community. The capital requirements for establishing life sciences start-ups often precludes the initial stage of seeding and a matching

fund would help provide public leverage to private investment. Note: tax credits are addressed below in this report.

Angel investors often work together to pool resources and investments to provide seed capital to companies. There are just a few angel organizations active in New Jersey, such as Mid-Atlantic Bio Angels Group, Jumpstart New Jersey Angel Group. Survey respondents indicated that there is a lack of sufficient angel networks in the State to provide information exchange among angels and entrepreneurs in the life sciences space. New Jersey has some existing networks and there is an opportunity to coalesce these groups with a life sciences focus. Other states, such as North Carolina and Pennsylvania, have begun to address similar problems by providing seed funding to create and maintain angel networks, including identifying angels and providing networking forums and pitch forums to connect the investors with entrepreneurs.

#### **Recommendation and Next Steps:**

Establish a working group focused on developing a proposal to create a State-supported Angel Investor Matching Program that encompasses the following attributes: a) a State-funded early and pre-seed stage life sciences fund modeled after nation-wide best practices and containing appropriate match parameters determined by the group; b) support to administer the program and its investments using an angel network to be created through the existing life sciences focused angels in the New Jersey region; and, c) support to maintain a program series for periodic meetings and forums for stakeholders to support deal flow, including additional support for and expansion of the highly successful and much needed New Jersey Economic Development Authority's Founders and Funders program.

### *Technology development fund*

Many companies operate within the broader scope of biopharma and while not developers of therapeutics, they are critically important to the health and vibrancy of the ecosystem. These companies include makers of tools, animal models, bioassays, reagents and specialty analytics, as well as advanced instrumentation. Typically, the technology and know-how of these companies enjoy shorter development times and quicker-to-market products, and thus lower costs associated with founding these firms. Further, life sciences companies operating in this space are often not appropriate firms for venture investment. A separate fund to support technology development could help advance the development of these opportunities and

create a host of new companies in this sector. A similar program is the QED Program, from the University Science Center in Philadelphia, aimed at supporting proof-of-concept, largely for university-based researchers. Several New Jersey universities including Rutgers, Princeton and NJIT participate in the NSF I-Corps program that enables university researchers to explore commercialization potential of their inventions. Successful completion can result in a higher chance of obtaining SBIR/STTR funding.

**Recommendation and Next Steps:**

Establish a research university-led entrepreneurship consortium in New Jersey aimed at creating a State-funded, New Jersey-specific technology advancement fund for entrepreneurs from universities and the life sciences industry.

**SBIR Matching Program**

Small Business Innovative Research (SBIR) grants are awarded to small businesses by the federal government to advance commercially attractive research and development projects. The program is intended for all types of technologies, such as IT, engineering etc., including biopharma. The SBIR and its sister STTR program are important for early stage funding after friends and family. The peer review nature of the program provides an independent validation for the entrepreneur’s concepts. The program is very competitive with on average 16% of proposals being funded in 2012, according to SBIR program. Given the unique challenges of biopharma product development, the level of funding from the SBIR program, while critically important, is insufficient. One model to bridge that gap is from Massachusetts, where they created the START program to support activities related to commercialization of SBIR-backed technologies. The additive funding enables recipients to develop important business and intelligence activities in parallel to the SBIR-funding R&D activities linked to commercialization, such as market assessments, intellectual property securement, and business plan drafting, among others.

Opportunity exists for New Jersey to provide matching funds for SBIR programs and to provide expanded assistance on grant application preparation to help promote New Jersey recipients of SBIR funds. Such a program will provide the aforementioned benefits enabling companies to develop stronger business and operational models while utilizing the federal SBIR program as a vetting source of promising technologies. Currently, the NJSBDC (Small Business Development Centers) operated by Rutgers University with both federal and State funding support are

able to provide some technical assistance to technology companies for SBIR submissions. This type of support can be strengthened to provide additional group seminars and 1:1 support with no infrastructure required of the State. Additionally, the opportunity exists for the creation of an SBIR Bridge Loan program to support companies between the two phases of SBIR funding, similar to a program New Jersey offered in the past.

Proposed by BioNJ, the New Jersey Commission on Science and Technology offered this bridge program and the survey respondents urged that its reinstatement be explored. Data from a comparable program in Massachusetts demonstrates specific benefits of their leveraged funding program in which companies were able to raise millions in additional funding, create jobs, and importantly engage hundreds of start-ups, advisors, reviewers, and service providers to create the next generation companies.

***“We need to try to be the State that gets the most SBIR dollars. We should heavily invest in facilitating young companies through the process.”***

***– BioNJ Entrepreneurship Survey Respondent***

**Recommendation and Next Steps:**

Establish an SBIR program working group, led by the Entrepreneurship Advisory Committee at BioNJ, to consider and recommend an appropriate match program.

**Expand the offering and expand the use of Angel Investor Tax Credits**

New Jersey offers an array of tax benefits including the R&D Tax Credit and Angel Investor Tax Credit, among others. While these are valuable tools to support entrepreneurship, challenges remain. First, the Angel Investor Tax Credit currently rests at 10%. Direct comparisons to other states’ programs can be complicated by various features of the other programs, such as overall caps, total credit percentages, individual limits on investors and investments, and specific qualified industrial sectors that add caveats to meaningful comparisons. Maryland as one example provides significantly higher credits than New Jersey, up to 50%, limited to the biotechnology sector. That program has lower investor limits resulting in smaller awards and minimum investment amounts. To address limits on angel tax credits and incent investment activity in New Jersey, legislation has been advanced to increase the credit but was not passed into law in the most recent session.

The tax credit is also underutilized in its current form, either due to its lower rate than other states (e.g., 10%) or to insufficient awareness of the credit by the investor and entrepreneur communities. There is an opportunity to increase the proportion of participants in New Jersey utilizing the program by continuing to raise awareness of the program within the resident entrepreneur base in the State. Further, success rates for tax credit applications greatly increase when companies and entrepreneurs work directly with the NJEDA to address specific requirements before applying. To increase awareness, BioNJ has hosted webinars with the NJEDA on topics including the Angel Tax Credit program that can serve as a reference for additional outreach and augment the EDA's communications for the program.

#### **Recommendation and Next Steps:**

First, expand the Angel Investor Tax credit from 10% to a minimum of 25% to increase investment activity in the State. This could be accomplished without expanding the current pool of \$25MM but would require legislative support. Second, BioNJ should support the EDA's outreach and communications efforts via entrepreneurs, tax professionals, and related stakeholders about the credits to increase investment activity.

### **Capital Gains Exclusion Tax**

The Federal Small Business Stock Capital Gain Exclusion (Internal Revenue Code Section 1202) is an incentive program that rewards investments in companies with significant growth potential and synchronizes the timing of a capital investment and the angel investor's gain from the investment. New Jersey should consider instituting a similar incentive program focused on New Jersey business development. The exclusion of income for New Jersey income tax purposes could save investors tax dollars and could result in continued and increased investment into New Jersey. However, as the federal provision was made permanent only in December, there is currently limited data available to understand the impacts on state budgets and how a New Jersey-based version of this program could be tied to directly to business formation and investments in New Jersey. The potential for such a program in New Jersey should be explored.

#### **Recommendation:**

Establish a working group among tax professionals to consider a program for New Jersey.

## **Networks**

### **Create and maintain a vibrant angel network**

Angel investors as described above are a critical source of seed capital and expertise to the life sciences ecosystem. They are however, by their nature, a disparate group, and differ in many ways, such as geography, investment making capability, technical and business expertise, among others. The survey indicates that there is insufficient networking and information sharing within the life sciences angel investor community to promote more optimal deal flow to these would-be investors from entrepreneurs requiring funding and partnerships.

#### **Recommendation and Next Steps:**

As proposed above for establishing an Angel Investor Matching Fund, network more comprehensively the angel community in the New Jersey region and provide a forum for self-identified angels to find opportunities and entrepreneurs. Develop and support regular programming to enable continued meaningful interactions of angels with entrepreneurs to promote funding and company formation and to promote New Jersey as an innovation and entrepreneurship ecosystem.

### **Establish an H1B Visa program with Universities**

Immigrants comprise a substantial portion of entrepreneurs in ecosystems, representing over half of companies started in Silicon Valley from 1995 to 2005, and New Jersey boasts among the most vibrant and diverse pools of entrepreneurs in the nation. The caps placed on H1B visa recipients make it challenging for this population to start businesses or join existing start-ups. One recent approach that is being implemented in Massachusetts to overcome this is a novel effort called The Global Entrepreneur in Residence Pilot Program (GEIR) at UMass. Participants in the program receive part-time work opportunities to support a cap-exemption application to the H1B process. A partner university serves as a sponsor for the petition while the entrepreneur establishes his company, which ultimately will become the sponsor. To qualify, candidates in the program must be a start-up entrepreneur in a leadership position (e.g., CEO, Co-Founder) within an early-stage venture, have sufficient degrees or backgrounds in STEM or related business fields, and establish the company in MA.

**Recommendation and Next Steps:**

Establish a research university-led working group to evaluate how the GEIR program might be adapted to New Jersey and develop a pilot program with appropriate New Jersey Higher Education institutions. Possible participants include founders as well as support for international students to stay and work in existing start-ups.

**Establish partnerships with local, regional, and national groups**

There are numerous organizations with direct and indirect efforts related to entrepreneurship. These include higher education offices dedicated to technology transfer, intellectual property management and new venture creation; funding organizations from venture capital, foundations, federal agencies, and private industry; existing meet-ups, social networking groups, student biotech 'clubs'; existing angel and entrepreneurship networks; support industries providing advice and resources on business formation, operations and technical and non-technical assistance.

**Recommendation and Next Steps:**

Develop a web-based resource guide with links to key organizations which would enable entrepreneurs to tap into existing infrastructure and expertise to facilitate networking and collaboration.

**Training and Mentoring**

**Training**

Training and mentoring are critical components of an entrepreneurial ecosystem, providing hands-on and experience-based learning and guidance to entrepreneurs as their companies form and launch. Several innovative programs have emerged in recent years on both training and mentoring, such as those at Princeton University and New York University. One particularly promising effort is on entrepreneurship labs, known as eLabs which are focused on companies emerging from academic and industry research labs. Further, the strengthening and increased utilization of mentoring networks represents a relatively untapped opportunity to promote entrepreneurship, through eLabs and through existing activities in the State.

eLab programs, typically co-located at universities, connects business executives with researchers and innovators through a detailed educational experience using the would-be companies themselves as test cases. Programs have emerged in various ecosystems such as New York and Philadelphia and they have been initiated and operationalized from universities. These programs vary and the distinctions blur between an "eLab" and an incubator or accelerator that offers educational programs. In general, eLab programs consist of two components: educational curriculum and a specific project to advance and apply what is learned. The educational component varies widely between different eLabs. Some have a very structured course-like experience, where others host ad hoc workshops and speakers. Central to most of these programs is a specific project or start-up initiatives brought into the program by the participants. At the successful completion of the program, graduates culminate their programs in any number of ways, such as a participation in a demo day where products and services are put on display, completion of a business plan, or the incorporation of a new company. NJIT has been funded by JPMorgan Chase's Small Business Forward Initiative to work specifically with scale up entrepreneurs in the HealthIT space providing coaching and assistance to help them get their business to the next level. The program consists of a 6-session group executive roundtable cohort program along with larger events in the broader ecosystem. This type of activity can be tailored to earlier stage companies and potential companies in the life sciences space.

**Recommendation and Next Steps:**

Establish a research institution-led working group to explore the creation of an "eLab" type training program for entrepreneurs and would-be entrepreneurs leveraging the resources of academia and the I-Corps program, the New Jersey business incubators and Meetups. As an example, in one embodiment, a New Jersey university collaborates with a life science incubator to run an eLab program for incubator tenants, entrepreneurs, faculty, post-docs and graduate students in the life sciences. Curriculum responsibilities can be divided amongst the representatives from the business school, technology transfer office, New Jersey Economic Development Authority (NJEDA) staff, incubator personnel and Entrepreneurs-in-Residence, and subject matter experts.

## Mentoring Networks

New Jersey has a rich pool of experienced talent in the life sciences industry that can serve as a source of advice and coaching support to start-up entrepreneurs. Frequently the start-up entrepreneur is very focused on the development aspect of his/her business and is unaware of the business elements that are required to successfully take a product into the marketplace. Given the shifts and transitions in the New Jersey life sciences industry as a result of mergers and acquisition activity, there may be hidden opportunities to capitalize on this available talent in new ways. In the life sciences industry, much of the talent pool that is impacted by layoffs includes seasoned industry experts, with strong and highly valued knowledge. With an abundance of such talent in any local market, such circumstances present an opportunity to engage this population of experts in advisory activities with emerging CEOs and founders of early-stage, start-up companies. Additionally, these experts can be a resource for mentoring early career entrants as they step into the realities and uncertainties of their new career. A benefit to creating such advisory and mentorship opportunities is that it provides the individual in transition with a means to remain engaged in meaningful, relevant work while conducting his/her own job search.

***“Advice and business consulting services should be part of New Jersey’s business model.” And, “We need a lot of help with the business aspects of biotech. Ideally, we would like to find a retired scientist/business person to work with us for a significant time period.”***

– BioNJ Entrepreneurship Survey Respondent

### Recommendation and Next Steps:

Expand the use of existing mentoring programs such as the Executive Alliance for Life Science at BioNJ, the Entrepreneur-in-Residence program at the Center for Commercialization of Innovative Technologies in partnership with BioNJ, and NJIT’s P2B program and investigate the creation of programs designed to encourage the development of future ecosystem leaders.

## Informational and Networking Programs

Entrepreneurs require a variety of inputs to form and launch their companies successfully. Accordingly, there are numerous ways to promote meaningful interactions through networking and programming to benefit start-up and emerging companies. In the BioNJ Entrepreneurship Survey, respondents were clear that this is one area

where New Jersey is strong; however, there are areas for improvement. First is educational and theme-based programming to support information-dense knowledge transfer for entrepreneurs. Second are networking forums for those who would start companies and the critical domain experts (e.g., intellectual property lawyers, financial experts) that are needed at various points in the early life of a company. Third are business development, partnering, and funding programs designed to promote the development of assets from the smaller companies to those who would fund, invest or partner, such as venture capitalists and larger biopharma companies. Lastly, there are celebration events meant to provide critical public relations about the successes of New Jersey firms and the impacts on the biopharma and healthcare industry. These events are among the most broadly attended in the cluster and promote industry awareness, trends and provide good will for the achievements coming out of the sector.

### Recommendation and Next Steps:

Develop and support long-term and sustained programming to support the needs of the community throughout the year. There is opportunity for a variety of hosts and partners and stakeholders to support events and connect entrepreneurs and resources through various programming.

## Real Estate and Innovation Space

Appropriate real estate and facilities are required by even the smallest of life sciences companies. These range from a few hundred square feet of R&D labs in a shared facility or incubator to thousands of square feet capable of supporting myriad functions of a growing biopharma company. In this regard, New Jersey has multiple facilities throughout the region, concentrated in the central to northern parts of the state. However, the BioNJ Entrepreneurship Survey cited finding suitable real estate (after start-up funding) as the major challenge to establishing new companies. Further, costs were the most problematic factor, followed by sufficient access to university resources and to other companies. As market conditions ebb and flow, vacancy rates and resultant costs fluctuate, making conditions unpredictable at any one time. With over 3,100 life sciences establishments in the cluster (the largest in the country), New Jersey has a strong infrastructure for entrepreneurs to tap into to find suitable space for any type or stage of biopharma start-up.

***“State initiative when giving tax deals to Pharma companies should include space and mentors.”***

– BioNJ Entrepreneurship Survey Respondent

**Recommendation and Next Steps:**

Develop a comprehensive resource containing an inventory of incubators, accelerators and specialty real estate. Develop a proposal to study how to expand on, leverage and network existing infrastructure that is affordable and accessible.

## Marketing and Communications

New Jersey is a major global biopharma cluster known for its unique confluence of big biopharma multinationals, emerging and start-up companies, university and academic research centers and the world's largest physical infrastructure of establishments for R&D, clinical research and development, manufacturing and distribution, and corporate headquarters and management. Situated in a geographic region boasting among the highest basic and development research investments from the federal government and industrial sectors, access to global financial centers, the firms are responsible for over half of all new drug approvals in any given year. Further, the numbers and concentrations of technical personnel are second to none globally, making New Jersey a bona fide global powerhouse in healthcare. Nowhere is the potential for advancing healthcare stronger and more promising than in New Jersey for entrepreneurs who are developing tomorrow's cures.

However, the perception of the State does not reflect that strength. There is a unique opportunity to brand the region and thereby change the perceptions, and ultimately create the appropriate environment to recruit entrepreneurs to our State, convert would-be entrepreneurs, support existing entrepreneurs and provide the entire panoply of tools, resources and connections.

**Recommendation and Next Steps:**

Develop and implement an integrated effort at the State level to promote New Jersey's robust life sciences ecosystem, and create and support a multi-year branding, advertising and marketing campaign including engagement of the community in publicity and sharing news, utilizing every significant media channel.

Tell New Jersey's life sciences story through a robust, multi-channel communications plan working in partnership with various state organizations, such as Choose New Jersey, the Business Action Center, the Office of the Secretary for Higher Education and the NJEDA. The multi-tiered plan will include e-newsletters, op-eds and advertising within state and national publications, and the building of online communities and electronic marketing campaigns.

## Appendix

### References

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- BioNJ Entrepreneurship Survey (BioNJ, 2016)
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- BioNJ internal research (for information requests: [bionj@bionj.org](mailto:bionj@bionj.org))
- ChooseNJ (<http://www.choosenj.com/Top-Industries/Life-Sciences.aspx>)
- Georgia Research Alliance ([http://gra.org/page/1025/about\\_gra.html](http://gra.org/page/1025/about_gra.html))
- Massachusetts Life Science Center (<http://www.masslifesciences.com/>)
- MoneyTree Report (<https://www.pwcmoneytree.com/>)
- New Jersey Commission on Science and Technology (<http://www.state.nj.us/scitech/>)
- New Jersey Department of Labor and Workforce Development ([http://lwd.state.nj.us/labor/lpa/pub/empecon/empeconomy\\_index.html](http://lwd.state.nj.us/labor/lpa/pub/empecon/empeconomy_index.html))
- NYSTAR and NY Ventures (<http://esd.ny.gov/nystar/>) and (<http://esd.ny.gov/NYVentures.html>)
- SBIR and STTR Competitiveness (<https://www.sbir.gov/competitiveness>)
- Tufts Center for the Study of Drug Development ([http://csdd.tufts.edu/news/complete\\_story/pr\\_tufts\\_csdd\\_2014\\_cost\\_study](http://csdd.tufts.edu/news/complete_story/pr_tufts_csdd_2014_cost_study))

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