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HOUSE OF REPRESENTATIVES
COMMONWEALTH *of* PENNSYLVANIA

House Democratic Policy Committee Hearing

Impact of Life Sciences

Monday, April 14, 2025 | 1:00 p.m.
Representative Joe McAndrew

OPENING REMARKS
1:00 p.m. Rep. Joe McAndrew, D-Allegheny

PANEL ONE
1:05 p.m. Dr. Megan Nagel, Regional Chancellor
Penn State New Kensington

Dr. James Delattre, Vice President of Research
Penn State New Kensington

Q & A with Legislators

PANEL TWO
1:35 p.m. Megan Shaw, President & Chief Executive Officer
Pittsburgh Life Sciences Alliance

Stephen Thorne, Chief Scientific Officer
KalVir Immunotherapeutics

Q & A with Legislators

PANEL THREE
2:05 p.m. Dr. Matt Dado, Director of Technology and Innovation
Penn Hills School District

Anthony Collins, Senior
Penn Hills High School

Q & A with Legislators

From Rust Belt to Innovation Hub

In 2017, Penn State New Kensington, in partnership with local and state stakeholders, launched The Corner LaunchBox in the heart of downtown New Kensington. The goal was to foster entrepreneurship and contribute to the broader economic revitalization of a city that had experienced decades of industrial decline.

Unlike other LaunchBox sites, The Corner was strategically located off-campus to embed the university's efforts directly into the fabric of the community. It was also the first LaunchBox to incorporate a co-working model to generate sustainable revenue and to bring together a coalition of partners to raise nearly $1 million to develop the space. Central to the project's success was support from the Pennsylvania Department of Community and Economic Development (DCED), whose investment helped catalyze this innovative model of regional collaboration.

Two organizations—Westmoreland County Industrial Development Corporation (WCIDC) and the Economic Growth Connection of Westmoreland (EGC)—played pivotal roles in this effort. Their leadership and strategic investment in real estate and infrastructure were essential to securing and redeveloping the buildings that house The Corner LaunchBox and, later, the Digital Foundry. By helping to acquire and renovate key properties in downtown New Kensington, these organizations provided the physical foundation for both initiatives, enabling the transformation of vacant or underused spaces into hubs of innovation and economic activity.

The Corner LaunchBox offers programming based on lean startup principles, designed to help entrepreneurs move early-stage ideas toward commercial viability. Its impact has been substantial: since 2018, The Corner has supported 480 entrepreneurs, 973 Penn State students, and 4,522 attendees at programs and events. It has contributed to the launch of 50 new businesses, the creation of 93 jobs, and offered hands-on experience through 41 internships for Penn State students.

The Corner also played a central role in the creation of the Corridor of Innovation, a broader downtown redevelopment effort involving 21 partners, including city and county government, nonprofit organizations, and private donors. This effort has resulted in over 100 new businesses, $120 million in investment, and visible revitalization along New Kensington's 4th and 5th avenues. Projects like Wesley Family Services, a new brewery, and ReBuild Manufacturing were attracted to the city, in part, due to the entrepreneurial infrastructure developed through The Corner.

Building on this momentum, Penn State New Kensington helped establish the Digital Foundry at New Kensington. The Digital Foundry has quickly become recognized as a

unique asset for southwestern Pennsylvania, through its hands-on digital learning and demonstration lab. The facility, staffed by experts in technology, business development, and education, serves as a hub where students, workers, and businesses of all sizes can explore, test, and demonstrate digital technologies that are transforming manufacturing processes and market strategies.

Since opening its doors in June 2022, the Digital Foundry has been remarkably successful in its mission to provide unique educational experiences, empowering:

- University students with internships, access to advanced technologies for classes, labs, and projects, as well as direct job connections.
- Nearly 300 adult learners with workforce training, leading to job opportunities and higher wages.
- More than 400 K-12 students through STEM training, camps, and large-scale exposure events that inspire future career pathways.
- Over 50 K-12 educators through professional development workshops, equipping them to teach future-ready skills to the next generation.

Beyond education and training, the Digital Foundry is making a significant impact on the regional manufacturing sector. It has actively engaged with over 100 regional manufacturing companies, providing factory assessments, strategic planning, technical assistance, and validation projects that drive business growth. This deep technical expertise and support have already led to investments in new technologies by several manufacturing companies—including key players in the Life Sciences sector—enhancing their competitiveness and growth potential under the guidance of the Digital Foundry.

The Foundry's presence has played a pivotal role in attracting new investment to the region. Most notably, it was cited as a deciding factor in ReBuild Manufacturing's $64 million investment, which is bringing 300 jobs to downtown New Kensington. Through strong partnerships with 23 industry-leading technology providers bringing over $6 million in contributed Industry 4.0 technologies, the Digital Foundry is positioning the region—and Penn State—as a key player in the national smart manufacturing landscape.

Crucially, the innovation infrastructure developed through The Corner LaunchBox and Digital Foundry has created fertile ground for advancing life sciences and related technologies. The region is increasingly poised to support innovation at the intersection of advanced manufacturing, biotechnology, medical devices, and digital health solutions. The Digital Foundry's expertise in Industry 4.0 technologies, automation, integrated data systems, and the advancement of smart manufacturing directly aligns with the

infrastructure needs of life sciences companies, particularly those focused on the manufacturing of medical devices, pharmaceuticals and diagnostics equipment, personalized medicine, and health-tech product development. The facility's capacity to train workers in these emerging skills also strengthens the region's ability to support and retain high-growth industries in the life sciences sector.

This alignment is reinforced by Penn State New Kensington's academic offerings in biomedical engineering technology and radiological sciences. These programs equip students with critical, hands-on experience in the design, maintenance, and application of medical and imaging technologies that are foundational to the health and life sciences industries. Students benefit from direct access to the Digital Foundry's advanced lab spaces and are well-positioned for internships, cooperative education, and employment opportunities within the growing ecosystem of local health-tech companies. Together, these programs and facilities create a powerful pipeline of talent and innovation, anchoring Penn State New Kensington as a central player in the regional life sciences economy.

The Foundry has earned national recognition from leading organizations, including CESMII, the National Smart Manufacturing Institute, which designated it as one of just four Smart Manufacturing Innovation Centers, and the Advanced Robotics for Manufacturing (ARM) Institute, which identified it as a partner regional innovation hub. It has been showcased at major industry conferences, such as the 2023 International Automate Conference and the 2024 Smart Manufacturing Experience. Additionally, it is a key recipient of the regional Build Back Better Challenge grant—a notable distinction for a regional Penn State campus.

Together, The Corner LaunchBox and the Digital Foundry demonstrate how strategic public-private partnerships, community engagement, and state-level support can drive significant regional change. The role of Westmoreland County IDC and Economic Growth Connection in securing and supporting the facilities that house these initiatives cannot be overstated—they were foundational in turning vision into reality. These initiatives not only contribute to local economic development but also offer a scalable model for how higher education institutions can support innovation ecosystems, talent pipelines, and regional capacity-building in life sciences and other high-impact industries across the Commonwealth.

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House Majority Policy Committee
Hearing: Impact of Life Sciences
April 14, 2025
Written Testimony - Pittsburgh Life Sciences Alliance

Honorable Chairman and Members of the Committee,

Thank you for holding a hearing on the state-of-life sciences industry in the Commonwealth and measures that can be taken to increase investment and job growth in this critical sector. This is also an opportunity to discuss the importance of developing a skilled workforce that can fill current demand, help attract new investment to the state, and be a source of generational opportunity.

As the President and CEO of the Pittsburgh Life Sciences Alliance, I have the honor of leading our mission to make Pittsburgh a global life sciences leader and economic engine at the intersection of the region's unique clinical, research, manufacturing, and technology strengths.

Life Sciences is Already a Major Employment Sector in Pennsylvania

Life sciences play a critical role in the Pennsylvania economy, accounting for over 100,000 jobs directly and $61.9 billion in annual direct economic impact, while also improving the health of populations locally and across the globe.[1] Because of the physical infrastructure and materials required for life sciences commercial development, every one job created in this high innovation field creates and additional two jobs in support industries such as construction and logistics.[2]

[1] Life Sciences PA 2025
[2] Pennsylvania life Sciences Industry, KPMG 2022

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In Southwestern Pennsylvania, the sector is a major source of well-paying jobs, from the state-of-the-art research and development at R1 universities, to the production and manufacturing of medical devices and NextGen therapeutics - contributing over 15,500 jobs and $3.4 billion in economic activity annually. That could grow to over 41,000 regional jobs and $14.3 billion in annual economic activity with strong policies that help convert research and development to commercial businesses and make Pennsylvania a more attractive place to start, grow, and expand a life sciences business.[3] Investment in workforce development to ensure education and talent systems are aligned with evolving industry workforce needs will be critical to retaining regional companies, attracting new businesses, and guaranteeing widespread opportunity to participate in the innovation economy for current residents.

Public Sector Policies and Investments that Drive Innovation Economies

There are several examples from other states of policies and investments that enhance the likelihood of successful commercialization and job growth across the life sciences business lifecycle. We have submitted with this testimony a report published in January of 2024 titled *Bridge to the Future: Southwest Pennsylvania's Transformative Opportunity to Lead the Next Generation of Life Sciences Innovation* which includes a larger list of examples from other states with thriving life sciences sectors, but we have selected a subset to discuss here.

SBIR and STTR Matching Grants

The federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs (aka America's Seed Fund) are grants to small businesses from federal agencies. These highly competitive awards are one of the most essential programs for catalyzing new discoveries from research institutions into new startup companies that fuel economic growth and job creation.

One longitudinal economic analysis found that every $1 in SBIR funding from the National Institutes of Health Cancer Institute generated $33 in economic output.[4] In Pennsylvania, these

[3] Life Sciences Assessment and Strategic Growth Opportunities for the Pittsburgh Region, PLSA 2024
[4] National Cancer Institute SBIR-STTR Economic Impact Study 2018

grants are not only a critical foundation for new life sciences companies and products, but also in the discovery, prototyping, and commercialization for the defense and energy sectors.

Pennsylvania is one of only 18 states that does not offer SBIR and STTR state matching grants.[5] Establishing a SBIR/STTR matching program would bring Pennsylvania to competitive parity with neighboring states and increase the number of small businesses in innovation fields that make it to the commercialization and job creation stage.

Research and Development Tax Credit Program

The Pennsylvania research and development tax credit is regarded by life sciences companies as one of the most helpful state offerings and is regularly over subscribed. Expanding the annual allocation to this tax credit would help improve the Pennsylvania business climate for companies of all sizes, help Pennsylvania retain and grow companies in the fast-growing innovation fields, and compliments other actions this body is considering to improve the overall business climate in the Commonwealth.

Proposed Innovation Fund in FY 25-26 State Budget

Governor Shapiro's budget proposal for FY25-26 includes $50 million in new innovation funding with $30 million dedicated specifically to support the life sciences. In addition to funding the SBIR/STTR matching grants described above, it would fund regional competitive planning grants that would help regions of the Commonwealth develop long-term roadmaps that maximize their existing strengths.

Both North Carolina and Massachusetts are seen as undisputed global leaders in life sciences with unparalleled employment, business growth, and tax revenue generation. The large competitive advantages they hold today can be traced to decisive investments made by the public sector decades ago. This sector-specific investment could be a catalytic starting point in

[5] *What are SBIR/STTR grants and why does PA need a matching program?,* PLSA 2025

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developing differentiated capabilities that allow our region to spur more private sector investment and compete with other states for business attraction and retention. To expand its presence in the life sciences, Pennsylvania needs to strongly declare it is backing the sector; this innovation fund is a down-payment in that direction.

Investments in Workforce Development

The current construction of BioForge, a 185,000 square-foot state of the art biomanufacturing facility has attracted ElevateBio, a premier contract development and manufacturing company, who will start manufacturing precision biologics in the region. Capitalizing on this momentum to create widespread economic opportunities and additional business attraction will require a focused approach to workforce development.

Successful workforce development programs require a demand driven approach through close coordination with industry to develop programs that address specific knowledge, skills, and abilities (KSAs) needed for entry-level and more-advanced roles in biotech manufacturing. For example, NCBiotech, an independent life sciences development non-profit presciently launched by the state of North Carolina 30 years ago, coordinates and invests in highly specific workforce training by job type and sub-industry, as well as pipeline initiatives like funded internships.

Pennsylvania organizations like the Keystone LifeSci Collaborative are laying the groundwork for this kind of networked, industry guided education approach, seeking to create a standardized, industry-endorsed curriculum that can be adopted by educational institutions statewide.

This approach ensures training programs directly align with real job demand and are scalable across Pennsylvania. However, public investment and statewide support is critical to fund and implement this training.

The world-class life sciences assets and capabilities in the Southwest region and across the Commonwealth can be a catalyst for improving the physical, economic, and social health of our state, but the right policies and investments need to be put in place to maximize their potential.

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On behalf of the Pittsburgh Life Sciences Alliance and the growing and vibrant life sciences ecosystem in the region, I want to extend my sincere gratitude for the opportunity to testify and your commitment to the long-term strength and vibrancy of the Commonwealth of Pennsylvania. My team and I are at your disposal to provide additional information on any of the issues discussed during this testimony.

Most Sincerely,

Megan Shaw
President and CEO, Pittsburgh Life Sciences Alliance

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Members of the Senate Majority Policy Committee
Hearing on Rural Healthcare Access and Technological Innovation
April 10th 2025
Testimony of Steve Thorne, CSO and Founder of Kalivir Immunotherapeutics

Honorable Chairman and Members of the Committee,

I am very grateful for the opportunity to speak to you today on what I believe to be a very important topic.

As scientific founder and CSO of Kalivir Immunotherapeutics and founder of Duo Oncology, both Biotech companies based in Pittsburgh, I have become familiar with both the huge untapped potential and the challenges of establishing life sciences companies in this region.

Kalivir Immunotherapeutics was founded in 2019 and is a clinical stage cancer immunotherapy company, with several assets undergoing clinical testing for treatment of different solid tumors. The company has raised over 100M$ through its partnerships (with Astellas and Roche) and VC financing. Currently we have over 40 employees in Pittsburgh, many of whom are younger and locally educated employees who would otherwise likely have left the area, as well as some more skilled employees who have been relocated to the region.
In addition, Kalivir has invested over 5M$ in local infrastructure through construction of a manufacturing facility to produce biological therapies (such as gene and cell therapies) for clinical use.
Building this facility primarily utilized local contractors, but also required permitting, a process that was laborious and required hiring of external consultants. It is felt that additional support and framework to help guide in this process could have made this process much quicker.

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In addition, as we have grown as a company the PA R&D tax credits have historically been critical to maintaining the company during several difficult stages, and we would highly recommend their return.

As we look to continue to grow the company in the future we could potentially increase this local workforce by over 10-fold, especially through the building of larger scale manufacturing facilities for commercial production. This would require not just skilled and unskilled workers in the manufacturing facility itself, but also requires supporting employees including quality and analytical staff as well as development teams. However, despite our preference to continue to grow in Pittsburgh, there are other regions in the US that would also be attractive to locate such a facility due to local tax breaks and offers of matching financial support, as well as deeper pre-existing skilled workforce (many of whom are reluctant to relocate to Pittsburgh due to concerns over the limited pool of existing life sciences companies in the area).
One alternative to recruiting employees to relocate to Pittsburgh would be through improved technical training via dedicated community college programs and retaining and training local college graduates in the region with the goal to build a regional biotech/pharma hub. Retention of a trained (and trainable) employee 'ecosystem' would likely require fostering local government-supported medical and biotech incubators and not just those affiliated with local universities.

However, I do truly believe that Pittsburgh and southwestern PA is close to achieving a ‘critical mass’ in the life science space that if nurtured and supported could result in an explosion of growth in the region and the establishment of Pittsburgh as a Life Sciences Hub. The existing combination of a strong school system, leading hospital and health care systems and inexpensive property leasing make this region an attractive area to establish life sciences companies and biological manufacturing. I believe that additional local and State government support to nurture this growth would allow for major potential for growth.

Sincerely

Steve Thorne
CSO and Founder, Kalivir Immunotherapeutics

Life Sciences Assessment and Strategic Growth Opportunities

for the Pittsburgh Region

EXECUTIVE SUMMARY

Prepared for: Pittsburgh Life Sciences Alliance (PLSA)
Prepared by: TEConomy Partners, LLC

October 2024

TECONOMY PARTNERS LLC

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For more information on this report please contact its authors with TEConomy Partners:
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Prologue

Dear Readers and Regional Stakeholders,

Pittsburgh's life sciences ecosystem is poised at the intersection of the emerging data capabilities, technological applications, and clinical discoveries that will shape the next several decades of human health innovation. Many independent entities consistently rank our region among the world's top 20 emerging life sciences clusters. This presents a generational opportunity to expand our region's economy. But it is hardly a fait accompli.

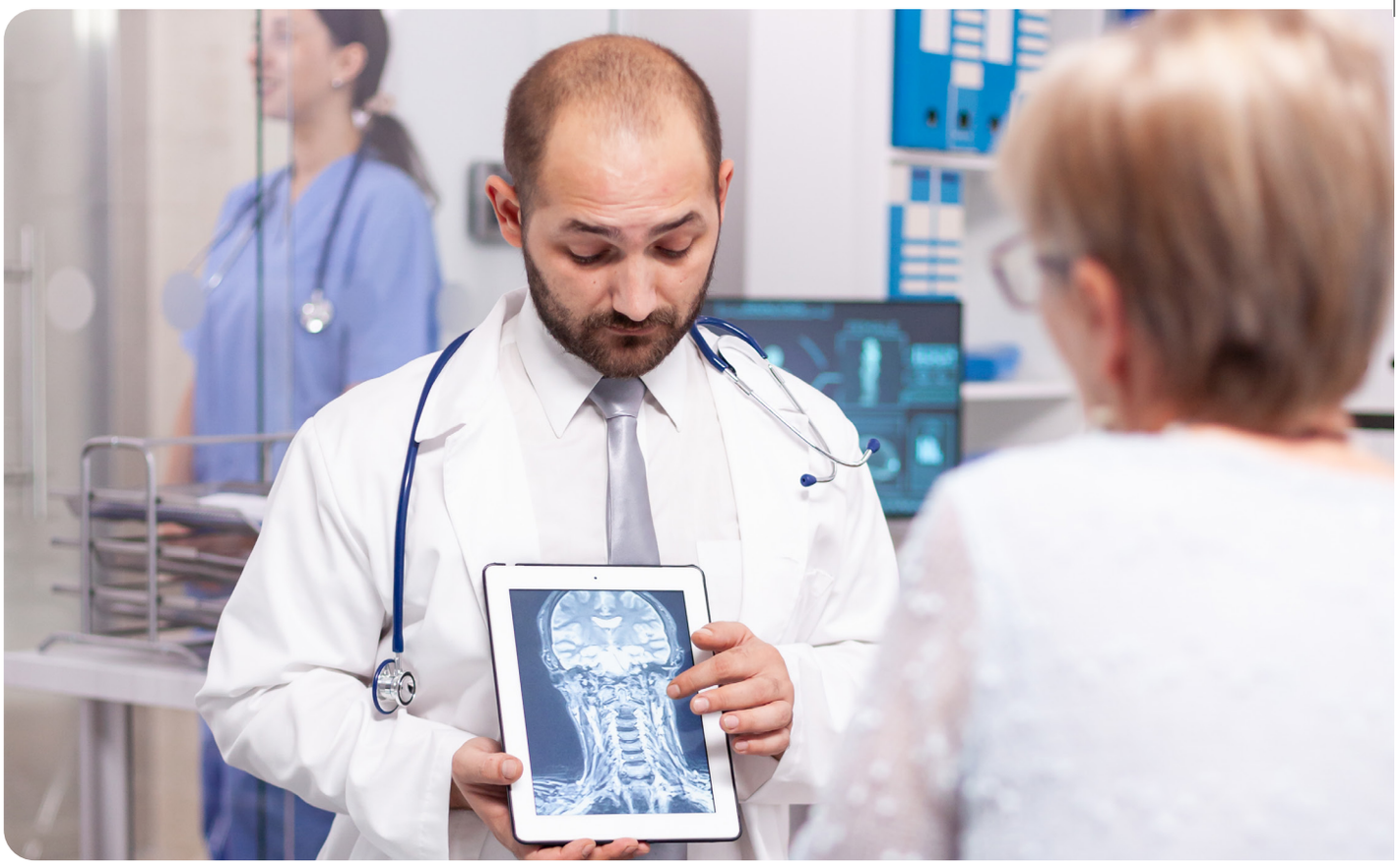
Pittsburgh Life Sciences Alliance (PLSA) launched earlier this year by our board, composed of regional pillars of the economy and civil society, to connect our unique clinical, research, manufacturing, and technology strengths to enable the region as a global life sciences leader and economic engine.

To advance that ambitious charter, we must start by understanding the "ground truth" — the strengths and opportunities of the ecosystem today. We engaged TEConomy Partners, LLC (TEConomy), an independent outside expert, to conduct a thorough quantitative and qualitative analysis of the life sciences ecosystem in the region.

Two core questions guided us:

1. Where do we truly excel as a region in a way that is differentiated from other clusters in the United States and globally?
2. What are the structural challenges that are hindering our ascent from an emerging life sciences cluster to a true global heavy weight?

Over the past several months, TEConomy reviewed thousands of data sources to both enumerate our regional strengths and benchmark the region against near and aspirational peers. The research phase also included focus groups, workshops, and individual interviews with over 100 regional life science stakeholders from industry, academia, health care, government, and non-profit organizations. I personally feel a debt of gratitude to our Strategic Advisory Committee, Industry Advisory Committee, board of directors, and community members who provided considerable time, deep thought, and commitment to this process.



The results add fuel to our burning sense of optimism and confirm the upward trajectory of the sector locally. Some highlights include:

- Local researchers published over 100,000 articles from 2018-2022 in fields such as oncology, bioinformatics, and multiple surgical specialties.
- The velocity of VC deals in the industry is increasing. Since 2018, the number of deals has grown by 70 percent and the amount invested has more than tripled – both far outpacing state and national growth rates.
- In 2023, the Pittsburgh region's life sciences industry accounted for $3.4 billion in economic output and more than 15,500 jobs.

The most strategically important finding of this work is that as a region, we have two distinct but complementary "growth platforms." That is, areas where across our regional assets and industry, we have capabilities that differentiate our region from other established and emerging clusters.

Data-Driven Healthcare and Connected Devices

If data is the new oil — with the real value derived from how it is processed and refined for meaningful use — then the Pittsburgh region is abundant in the raw materials and unique capabilities to apply that data to transformational human health innovation.

Beyond massive clinical and claims data from our integrated delivery and finance networks, we have rich data assets in biorepositories and unique databases tied to the University of Pittsburgh's robust history of NIH-funded research and collaboration. Add to that Carnegie Mellon University's top-ranked programs in AI, cyber security, and computer engineering and we have a world-class ecosystem that is making massive strides in health information and informatics, computational biology, and connected devices.

Building on our robust existing cluster of medical device manufacturers, the region is well-positioned as the industry moves from stand-alone hardware to connected medical devices that leverage advanced analytics and two-way data capabilities.

These capabilities boost expansion and innovation at large, established companies, and fuel early-stage companies that are already lighting the industry on fire. This space is expected to grow to over $500 billion per year by 2026.

Developing and Manufacturing Next-Generation Therapeutics

The world is moving from a one-size-fits-all approach toward precision medicine. The computational biology capabilities mentioned above paired with a visionary $250 million investment by the RK Mellon Foundation and the University of Pittsburgh to establish BioForge, a 185,000-square-foot state-of-the-art biomanufacturing center, means the region can thrive in both identification, development, and manufacturing of these next-generation and life-changing therapeutic advancements.

Key partnerships with private sector leaders such as ElevateBio, combined with the region's long history of excellence in automation science, chemical engineering, and advanced manufacturing competitively position us as a first-class destination for developing specialized manufacturing techniques and producing precision biological therapeutics. Regional leaders should do everything they can to promote this opportunity for broad-based employment and economic growth in the future of medicine.

TEConomy's report also addresses ecosystem gaps that have limited growth in the sector to date. Unsurprising to many, the report notes the need to address regional limits in capital and managerial expertise and identifies opportunities for enhanced collaboration across the ecosystem. Targeted support of our differentiated "growth platforms" and strong articulation of our regional strengths will help attract investment and business activity from around the globe to our region.

Addressing these gaps will require constant collaboration. Based on this report, PLSA will convene working groups to prioritize, design, and pursue initiatives that will have the greatest impact on this dynamic ecosystem, while continuing our work to convene the ecosystem, communicate our strengths, and advocate for this shared vision. This is a once in a generation opportunity to seed decades of job growth and wealth creation in the region. Success hinges on a shared commitment by all stakeholders and decisive action by key entities and leaders.

Thank you to those who contributed to this work and all of those who will contribute to achieving the promised vibrancy of the life sciences sector in our region.

Most Sincerely,
Megan Shaw
President & CEO, Pittsburgh Life Sciences Alliance

Executive Summary

The future of healthcare and the life sciences is increasingly dependent on data and advanced analytics with far-reaching implications for patient care, research, and treatment outcomes.

Vast real-time data on vital signs and chronic conditions are now available through connected medical devices and remote patient monitoring systems, enabling healthcare providers to use predictive analytics that help optimize resources, intervene promptly, and enhance patient satisfaction. This wealth of newly available healthcare data, when combined with ever more robust biological data assets and advanced analytics techniques such as machine learning, is driving forward the field of precision medicine. The integration of data analytics in drug discovery and development is accelerating the identification of potential drug candidates and simulating therapeutics within the human body thereby reducing the time and cost required for drug development and clinical trials. By analyzing patient data at a granular level (e.g., genetic information, lifestyle factors, medical history, etc.), healthcare professionals are beginning to tailor treatment plans to an individual's unique characteristics, potentially improving outcomes and reducing adverse effects.

In addition to serving as a hub for clinical healthcare and health and life sciences education, Southwest Pennsylvania (the ten-county region[1] centered on Pittsburgh) has a long history of medical innovation. Supported by the University of Pittsburgh (Pitt), which consistently ranks among the top recipients of federal National Institutes of Health (NIH) research funding, and Carnegie Mellon University (CMU), an academic institution known for its advances in computer science (including machine learning, robotics, and computational biology), the Pittsburgh region is uniquely situated to lead the nation in the convergence of biological and data sciences. In addition, the region is home to two large healthcare providers, University of Pittsburgh Medical Center (UPMC) and Allegheny Health Network (AHN), and other smaller providers such as Indiana Regional Medical Center, Independence Health System, and Heritage Valley Health System. Combined, these institutions employ thousands of individuals, offer top-ranked services and specialties, and are advancing cutting-edge solutions related to digital platforms and artificial intelligence (AI) applications.

The Pittsburgh region has unquestionable strengths in life sciences research and development (R&D), which serves as a critical driver of the regional economy. Life sciences R&D funding grew by 26 percent in the Pittsburgh region between 2018-2022, reaching $1.17 billion and outpacing the national average growth rate. Representing approximately 0.7 percent of the region's overall gross domestic product, academic life sciences R&D is more concentrated in the Pittsburgh region than in peer regions such as Boston and Nashville.

1 Includes Allegheny, Armstrong, Beaver, Butler, Fayette, Greene, Indiana, Lawrence, Washington and Westmoreland counties.

While life sciences academic research is a clear strength for the region, the commercial life sciences industry base is, by comparison, undersized.[2] Medical devices is the only life sciences subsector for which the region has a concentration of industrial activity that is above the national normative level. To foster greater levels of economic activity, there is an opportunity to convert R&D strengths into a robust pipeline of innovative companies across a breadth of commercial life sciences applications. This report is intended to identify the areas where the Pittsburgh region has differentiated strengths that can translate into robust economic growth, as well as potential actions that can help the region seize these opportunities.

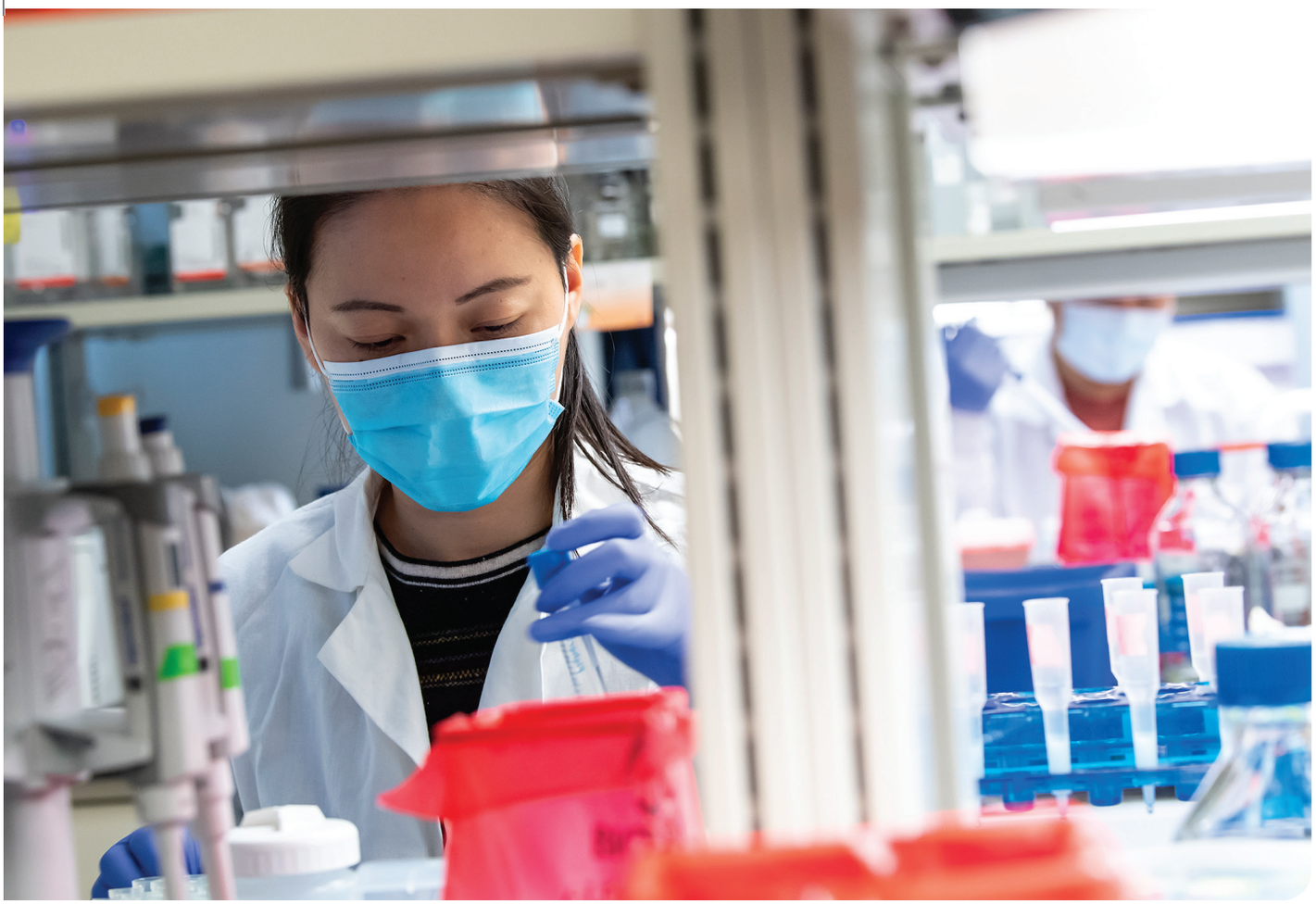
The Pittsburgh region is home to two distinct, but interconnected, opportunities that are poised for growth—data-driven healthcare and connected devices and precision medicine and next-generation therapeutics. Building on the region's unique core competencies, these technology platforms provide powerful opportunities for focused initiatives that will catalyze economic growth within two large-scale and fast-growing markets. Figure ES-1 illustrates the two platforms and associated regional core competencies and assets that link to these dynamic opportunities. Connecting the two platforms is the region's leadership in data sciences and advanced analytics, fields that are increasingly central to advancing modern life sciences discovery and innovation.

Figure ES-1: Two Connected Platforms with Large-Scale Market Opportunities

	Data-Driven Healthcare and Connected Devices			Precision Medicine and Next-Generation Therapeutics	
Enabling Functionalities	Healthcare Data	Digital Health and Devices Industry	Discovery and Innovation	Contract Development and Manufacturing	Advanced Manufacturing Processes
Leading Institutions	UPMC, AHN, IRMC, others	Startups and Industry	Pitt/UPMC, CMU, AHN	BioForge/ Elevate Bio	Cloud Lab, ARM, NREC
Technology Areas of Excellence	• Health Informatics • AI/ML/Automation • Advanced Analytics • IoT and Sensors • Robotics • Cybersecurity		• Clinical Excellence in Multiple Discovery Areas • Computational Biology/ Informatics	• Regenerative Medicine • Cell and Gene Therapy • Chemical Engineering • Automation Sciences	
Rationale	**No place dominates in this yet, and the Pittsburgh region is well-positioned to advance the field based on key ecosystem assets and the already growing companies in the space.**			**Despite a limited presence of traditional small/large molecule drug companies in region, this is an opportunity to build new presence in a fast emerging and disruptive space.**	

Source: TEConomy Partners, LLC

2 For the purposes of this report, the life sciences refer to activities related to human health and includes pharmaceuticals, medical devices, and other health technologies. This definition does not include animal health, agricultural life sciences, or general healthcare delivery.



It is important to note that simply creating signature research strengths is not sufficient to foster the development of a life sciences industrial cluster in the region. In fact, despite the Pittsburgh region's existing strengths in academic R&D, it has been only moderately successful in translating its research into commercial opportunities. Ecosystem challenges include cultivating industry partnerships, attracting venture capital, and developing high-growth, innovative companies at scale. As a result of not having a shared vision for the region, resources have often been spread across a range of disconnected activities. While the Pittsburgh region has been successful at winning NIH awards and conducting basic research, there is a disconnect between the region's academic strengths and translational research aligned with industry demand. As long as this disconnect persists, the Pittsburgh region will continue to punch below its weight and fail to realize the opportunity for life sciences to be a transformational growth industry for the region.

To overcome these challenges, take advantage of the Pittsburgh region's unique life sciences opportunities, and build a world-class life sciences industry cluster in the Pittsburgh region, a SHARED strategy and action plan is required. Built upon the findings from in-depth quantitative and qualitative assessment techniques, together with input and review from the Strategic Advisory Committee and multiple regional stakeholders, four primary strategies listed below and illustrated in Figure ES-2 and fourteen associated actions (Table ES-1) are recommended:

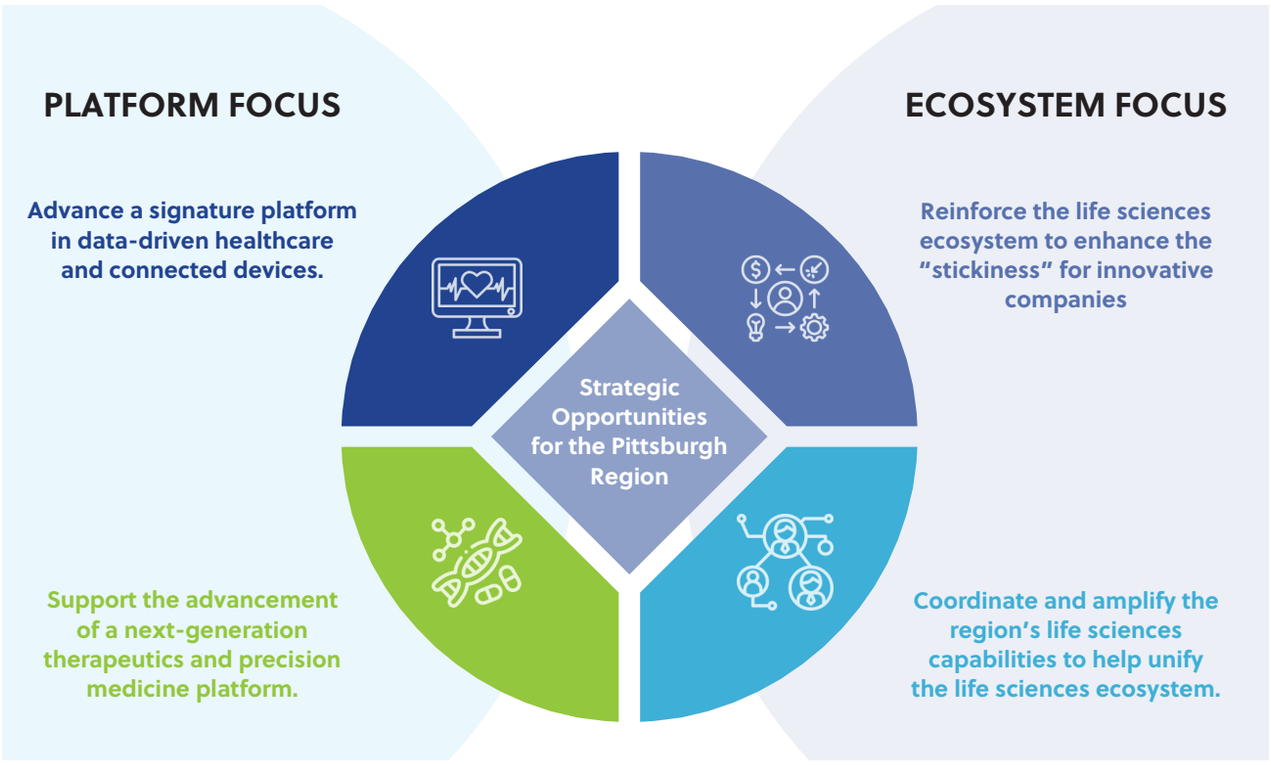
1. **Advance a signature platform in data-driven healthcare and connected devices:** Leverage world-class assets in data science, advanced analytics, healthcare operations, clinical trials, healthcare system data platforms, and medical devices to advance innovations in health tech, connected devices, smart healthcare, and data-empowered drug discovery.

2. **Advance a next-generation therapeutics and precision medicine platform:** Leverage BioForge to foster innovations and breakthroughs in the manufacturing of precision biologic medicines, enhance the speed and quality of advanced therapeutics production, and develop a precision medicine ecosystem and supply chain through business attraction and development efforts.

3. **Reinforce the life sciences ecosystem to enhance the "stickiness" for innovative companies:** Support the next generation of life sciences companies by attracting and cultivating management talent, incentivizing faculty to engage in entrepreneurship, attracting growth capital, and aligning educational programs with industry needs.

4. **Coordinate and amplify the region's life sciences capabilities to help unify the life sciences ecosystem:** Enhance the region's competitive position in the life sciences sector through the implementation of a collaborative regional life sciences strategy, including targeted branding, ecosystem alignment through multi-party collaboration, and funding for execution.

Figure ES-2: Visualization of Core Strategies



Source: TEConomy Partners, LLC

Table ES-1: Summary of Strategic Actions

Strategy 1: Advance a signature platform in data-driven healthcare and connected devices.	
Action 1.1	Build a dominant position in data-driven healthcare innovation.
Action 1.2	Advance programs for health systems to provide a "voice of customer" to industry and academia.
Action 1.3	Connect, grow, and retain region's connected device industry.

Strategy 2: Support the advancement of a next-generation therapeutics and precision medicine platform.	
Action 2.1	Leverage BioForge to establish a regional strength in enhancing the speed and quality of advanced therapeutics production.
Action 2.2	Encourage growth in clinical trials to accelerate new therapeutic development.
Action 2.3	Further develop the precision medicine ecosystem and supply chain with targeted business attraction and development efforts.

Strategy 3: Reinforce the life sciences ecosystem to enhance the "stickiness" for innovative companies.	
Action 3.1	Support the next generation of life sciences companies by attracting and cultivating management talent with an emphasis on targeted platforms.
Action 3.2	Encourage a commercialization and entrepreneurial mindset at research-intensive universities.
Action 3.3	Attract new forms of risk capital to the region.
Action 3.4	Translate and connect industry needs to educational providers and workforce partners across the educational continuum.

Strategy 4: Coordinate and amplify the region's life sciences capabilities to help unify the life sciences ecosystem.	
Action 4.1	Develop a targeted branding/storytelling campaign around the region's life sciences assets and opportunities.
Action 4.2	Align regional life sciences ecosystem components to ensure collaborative strategy implementation ("Collaborate to Compete").
Action 4.3	Advocate for the life sciences strategy as a means to accomplish regional goals.
Action 4.4	Empower industry-driven points of view to solve ecosystem gaps.

Source: TEConomy Partners, LLC

The recommendations focus on building a flexible and holistic ecosystem to support life sciences companies and identify pathways to build signature platform opportunities. These recommendations address barriers to business development and commercialization. They also provide connections and support for life sciences companies, resulting in a robust ecosystem that stimulates growth and advances human health innovations.

Estimating the Pittsburgh Region's Life Sciences Industry Economic Growth Potential

The Pittsburgh region has the opportunity to grow its life sciences ecosystem and related industry cluster. Investment in life sciences translational research and development, and associated economic development supports, will help diversify the regional economy with a resilient industry that offers good paying jobs with high-growth potential.

Already, the life sciences are an important sector for the regional economy. In 2023, the Pittsburgh region's life sciences industry accounted for $3.4 billion in regional economic output and more than 15,500 jobs.[3] **However, the region's life sciences industry is undersized when compared to levels of overall academic life sciences R&D:**

- ***If the Pittsburgh region's ratio of life sciences industry output to academic R&D matched the national average, the estimated size of the region's industry today would be more than 4X greater—$14.3 billion, or an additional $10.9 billion in estimated economic output.***

- ***If the Pittsburgh region's ratio of life sciences industry employment to academic R&D matched the national average, the estimated size of the industry today would be nearly 3X greater—more than 41,000 total employees, or an additional 25,800 industrial life sciences jobs.***

Furthermore, in terms of both employment and output, regional growth rates lagged the nation. A fundamental goal for the Pittsburgh region should be to match the national averages in life sciences industry output and employment growth. Doing so would have significant positive effects on the regional economy:

- ***If the Pittsburgh region's life sciences industry output had grown at the same rates as the national average from 2018-2023 (28 percent vs. 38 percent), the estimated size of the regional industry today would be nearly $3.7 billion—an additional $268.5 million in estimated economic output.***

- ***If the Pittsburgh region's life sciences industry output had grown at the same rates as the national average from 2018-2023 (9 percent vs. 21 percent), the estimated size of the regional industry today would be nearly 17,300—adding 1,700 jobs to the economy.***

To realize these economic gains, the region needs to work to outpace national average growth. The region has an opportunity to invest in distinctive life sciences opportunities that will position the region to move beyond a conservative "national average" growth goal. By working to reinforce the regional life sciences economic development ecosystem and **focusing on core competency-based opportunities with a clear line-of-sight to large-scale market opportunities,** the Pittsburgh region can realign its growth trajectory and better leverage its world-class research to enable commercial life sciences industry growth.

3 TEConomy's analysis of QCEW data via Lightcast (datarun 2024.2)

Conclusion

The Pittsburgh region stands at a pivotal moment in its evolution as a leader in human health innovation. With a rich history of medical advancements and strong institutional support from key organizations, including Pitt, UPMC, AHN, CMU, and a growing base of life sciences companies, the region is well-positioned to capitalize on its strengths. There are two robust opportunities for focused R&D and cluster development that are poised for rapid market growth—data-driven healthcare and connected devices and next-generation therapeutics and precision medicine. However, to fully realize its potential, the region must implement a unified and cohesive strategy that enhances its life sciences ecosystem. This involves establishing dominance in data-driven healthcare, leveraging the BioForge initiative for advanced therapeutics, and fostering a supportive environment for life sciences companies through talent cultivation and capital attraction. By coordinating regional capabilities and aligning efforts through collaborative strategies, the Pittsburgh region can transform its academic and research prowess into a world-class life sciences industry cluster, driving significant economic growth and innovation in the healthcare sector.

TECONOMY
PARTNERS LLC

Bridge to the Future

Southwest Pennsylvania's Transformative Opportunity to Lead the Next Generation of Life Sciences Innovation

PITTSBURGH
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ALLIANCE

Pittsburgh Life Sciences Alliance (PLSA): Dedicated to making greater Pittsburgh a global life sciences leader and economic engine at the intersection of the region's unique clinical, research, manufacturing, and technology strengths.

Supported by: • University of Pittsburgh • Carnegie Mellon University • Henry L. Hillman Foundation • Richard King Mellon Foundation • UPMC • Highmark Health • Allegheny Conference on Community Development • LifeX • Innovation Works

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Introduction

In recent decades, Southwest Pennsylvania (SWPA) transformed itself from a traditional manufacturing center into a cutting-edge research powerhouse—particularly in all things health innovation. As a result, life sciences employment in the region jumped 20% since 2019.[1]

Poised at the intersection of artificial intelligence (AI), health science, digital health, medical manufacturing, and healthcare delivery, the Pittsburgh region is perfectly positioned for a leading role in the future of life sciences. Recognizing this opportunity, local institutions are investing heavily in new infrastructure and capabilities, building momentum and spurring exponential growth.

Despite tremendous intellectual assets and emerging economic potential, the region's life sciences industry outcomes have lagged behind national averages and peer regions, with lower employment, entrepreneurship and startups, productivity, venture capital growth, and number of companies in non-clinical care life sciences. Over the last decade, other states developed competitive incentives and investments that resulted in clear job creation and direct economic gains.

To truly emerge as a global leader in this space, the Commonwealth must:

1. **Prioritize life sciences** as an area of focus.
2. **Scale targeted funding and investments** for companies, particularly for early- and mid-stage entities, and support transformational infrastructure investments.
3. **Invest in workforce development** to ensure education and talent development systems are aligned with evolving workforce needs and responsive to shifts in demand.

This brief provides a high-level overview of the region's unique ecosystem and recommendations for policymakers to accelerate the growth of the life sciences industry for generations to come.

#1

in computer science and AI

Carnegie Mellon University

2

health delivery and finance systems with a combined 54 hospitals and 11 million insured lives

Highmark Health, UPMC

#3

in NIH funding, total R&D expenditures $1.1B+ per year

University of Pittsburgh

90+

medical device manufacturers, with 5600+ employees

170%

increase in regional patents since 2013

185,000 sq ft

$250M biomanufacturing facility — BioForge — construction underway January 2024

[1] CBRE. *2023 U.S. Life Sciences Outlook*. April, 2023. https://www.cbre.com/insights/books/2023-us-life-sciences-outlook

World-Class Institutions and New Local Investments Position the Region for Remarkable Acceleration

As healthcare more directly intersects with the digital revolution and advanced manufacturing solutions, SWPA has a unique set of assets that position it to lead where healthcare, AI, and personalized medicine intersect.

Universities Leading Innovation

Carnegie Mellon is the world leader in artificial intelligence education and innovation, ranking #1 in computer science and AI. This prowess fueled rapid growth of technology and robotics start-ups in the region, attracting Google, Amazon, Apple, and the Department of Defense to launch development and AI outposts in Pittsburgh.

The University of Pittsburgh is #3 in the country in National Institutes of Health (NIH) funding, with over $1.1B in total research expenditures annually. Startups spinning out of the University of Pittsburgh increased 54% over the last five years, and patents in the region have increased 170% over the last 10 years.

Integrated Health Care Delivery and Insurance Giants

Integrated delivery and finance networks (IDNFs) are well-positioned to innovate because they can test and receive the benefits from new technologies and approaches that require engagement from both the payer and provider side. SWPA is home to two major IDFNs: UPMC and Highmark Health. Together, they own 54 hospitals and insure over 11 million lives, with a presence across the entire Commonwealth and beyond.

Medical Manufacturing and R&D Cluster

The medical device manufacturing industry has a robust presence in Pittsburgh and builds off our rich history of manufacturing excellence while actively deploying new innovations such as robotics and AI. SWPA is home to over 90 medical device manufacturers that employ close to 5,600 people. Many of these organizations also host their R&D groups in the region because of the highly technical talent pool.

Thermo Fisher Scientific, Philips Respironics, Bayer, Omnicell, McKesson, Smith and Nephew, and Zoll Medical are a few examples of the international companies choosing to house significant research and operations in the region. This cluster is a critical producer of well-paying local jobs with wages 20% above the regional average.

Building off this manufacturing expertise, the region is also a burgeoning hub for biomanufacturing. Cook Myosite and Krystal Biotech both have large commercial-stage biomanufacturing facilities for cell and gene therapies. Additionally, the University of Pittsburgh breaks ground on BioForge in early 2024. The facility will be one of the most modern cell and and gene therapy manufacturing sites in the world.

Rural Health Revolution

Reaching far beyond telehealth to include wearable devices, remote monitoring, and virtual services, technology is helping to bridge the gap between urban and rural areas. Innovations developed in the Commonwealth can improve rural health access and outcomes here and across the country.

This real time data paired with new AI tools helps doctors prevent complications and identify potential problems early for everything from pregnancy to post-surgery care, without requiring patients to drive hundreds of miles for a follow-up. 3D printers can use the region's existing advanced manufacturing know-how to print medical devices and implants in rural areas, while providing new career paths for local residents. Advances in biomanufacturing have the potential to democratize medicine by allowing for delivery of novel cell and gene therapies outside of major population centers. By supporting intentional connections between innovation centers in SWPA and rural health providers, the Keystone State can bring life-changing discoveries to rural Americans.

World-Class Institutions and New Local Investments Position the Region for Remarkable Acceleration (cont.)

Robotics and Manufacturing Hub

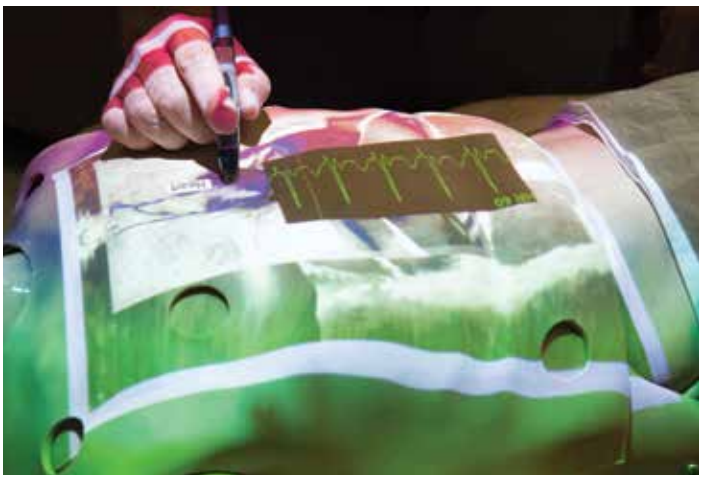
A hub of robotics and advanced manufacturing, Pittsburgh was recently awarded $62.7M from the federal Build Back Better Challenge, supporting rapid expansion and commercialization of AI and robotics innovation. The grant also supports initiatives to accelerate the adoption of these technologies among regional companies to create jobs and economic growth, all supported by robust, nimble, and accessible career pathways and training solutions.

CMU's automated Cloud Lab, enabling remote control of 130 scientific instruments, is one such example of the novel fusing of automation and healthcare. As healthcare delivery becomes more automated and innovations in biomanufacturing pull from the knowledge of other sectors, SWPA is perfectly positioned to lead the industry.

Health Data and Analytics Powerhouse

Combining the health data from two IDFNs—analytical power from CMU and extensive medical research from Pitt—the region is positioned at the forefront of health data analysis and digital tool development. In 2015, predicting the potential of this cluster, CMU, Pitt and UPMC formed the Pittsburgh Health Data Alliance (PHDA). This novel consortium unlocks the power of big data and actively transforms knowledge into new solutions that drive innovation and regional growth. The collaborative research environment has sprouted multiple start-ups and commercialization efforts in precision medicine and diagnostics.

Highmark Health's Living Health strategy is focused on leaning into digital tools; and AlphaLab Health, the accelerator established by a partnership between AHN and Innovation Works, is resulting in an uptick in participation by digital health startups.



Looking Forward: Building New Physical and Financial Infrastructure for the Industry

Local players recognize our region's potential and are investing heavily.

BioForge Biomanufactuing Facility

The University of Pittsburgh breaks ground in January 2024 on the construction of BioForge, a 185,000 square feet site for the manufacturing of cell and gene-based therapies. Located at a former steel mill site, this project was brought to life by a $100M grant from the RK Mellon Foundation, combined with a $150M investment from the University.

Boston-based ElevateBio, one of the world's preeminent advanced biomanufacturing companies, will operate 75% of the site as a contract manufacturer for other global pharmaceutical and biotechnology companies.

The construction of BioForge is expected to generate 900 construction jobs and 360 off-site support jobs. Once fully operational, the facility will support 170 well-paying, full-time jobs, half of which will be available to people without four-year degrees.

With a supportive statewide environment, this center will spur the introduction of new companies and create even more local employment opportunities in communities still recovering from the collapse of steel.

900

BioForge is expected to generate 900 construction jobs.

170

Once operational, BioForge will support 170 well-paying, full-time jobs.

$250M

BioForge was brought to life by a $100M grant from the RK Mellon Foundation, combined with a $150M investment from the University of Pittsburgh.

Looking Forward: Building New Physical and Financial Infrastructure for the Industry (cont.)

Early-Stage Funding & Support

Multiple organizations collaborate to provide a pathway and initial funding for early-stage companies to locate and grow in this region.

LifeX offers an early-stage accelerator program, SMEs in life sciences, risk reduction milestone-based funding, and seed investment funding. LifeX alumni thus far, have created 102 jobs and launched 13 new products.

Innovation Works, one of the most active seed stage investors in the country, has invested $24M in 88 seed-stage healthcare companies since 1999 and helped those companies go on to raise $1.3B in follow-up funding. Several foundations in the region also provide funding through social impact investing challenges and support for critical organizations like the ones mentioned above.

Expanding Mid-Stage Funding

In 2020, UPMC announced plans to invest approximately $1B to help local life sciences companies drive the commercialization of promising technologies emerging from its powerful discovery partnership with the University of Pittsburgh. UPMC's investment model provides early-stage companies with access to industry grade infrastructure, expertise, and talent.

Highmark Ventures (HV) also invests in innovative mid- and late-stage companies seeking to transform healthcare delivery and financing, with a portfolio of over 20 companies. FreeMarket Health is a local HV investment that highlights the region's potential at the intersection of healthcare technology, and clinical engagement.

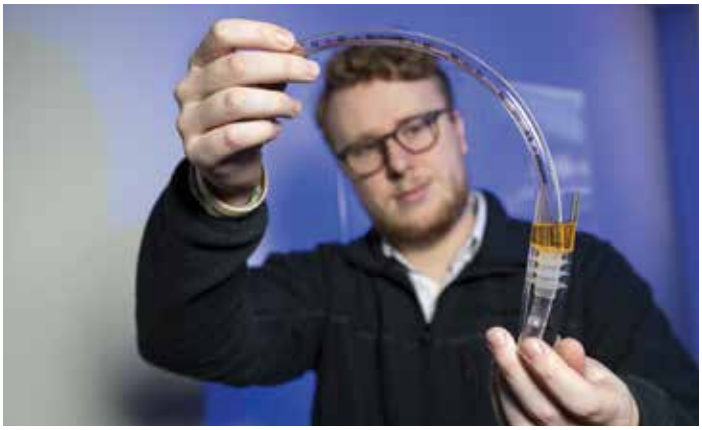
Regional funds, such as 412 Ventures, Reinforced Ventures, and Mountain State Capital, are investing locally in life sciences.

[2] Reported as of Q1 2023.

Time to Seize a Generational Opportunity to Catalyze Economic Prosperity and Life-Impacting Discoveries

Despite tremendous intellectual assets and emerging economic potential, SWPA's life sciences industry has produced lower employment, less productivity, fewer startups and venture capital growth, and fewer companies in non-clinical care life sciences than peer regions.

For example, while Pittsburgh conducts 200% more research in medical sciences than the national average, the region employs 90% fewer workers in pharmaceutical preparation.[3]



Other forward-thinking states have invested in a comprehensive set of approaches to advance their life sciences sectors, from large capital funds that support new startups, to funding for robust entrepreneurship support resources and coordinated workforce development, to supporting physical infrastructure for place-based innovation districts. The direct results of these state-sponsored actions have been clear economic gains in terms of stronger employment growth, increased start-up activity, and investments from large corporations.

Whether Pennsylvania and the SWPA region capture this moment in time and lead the next wave of growth in this sector depends largely on the actions of Commonwealth leaders today.

Strategic Investments and Smart Policy Can Translate Global Research Leadership to Profound Economic Growth and Job Creation

According to a study by the Allegheny Conference, a $1B investment in Southwest PA to support infrastructure, commercialization of innovations, and workforce development would create over 16,000 jobs and result in more than $3.23B in economic output for the Commonwealth's economy.

To maximize the long-term economic and social impact of any investment, the Commonwealth should prioritize three broad categories of action:

- **Prioritize life sciences as an area of focus**
- **Scale support for investments and infrastructure, with a focus on early and mid-stage companies**
- **Invest in workforce development to ensure education and talent development systems are aligned with evolving workforce needs and able to respond to shifts in demand**

The following pages provide several recommendations under each category and useful examples of how other states have broadly benefited from similar, targeted objectives.

[3] Brookings Institute, *Capturing the next economy: Pittsburgh's rise as a global innovation city*. September, 2017. https://www.brookings.edu/articles/capturing-the-next-economy-pittsburghs-rise-as-a-global-innovation-city

Prioritize Life Sciences

Strong communications from the Governor's Office and General Assembly that life sciences is an area of growth, with commensurate financial support, will help put Pennsylvania's life sciences ecosystem on the map nationally and globally. Many of the states currently leading this sector made bold statements of intent through establishing entities with the mandate and resources to support long-term growth.

With strong leadership in Harrisburg, the region will be positioned to win major federal and private sector opportunities.

FOCUS AREA IN ACTION

Place-Based Funding Challenge for Life Sciences

To support our competitiveness against other states and critical infrastructure development for the sector, the state should issue a grant challenge with funds that can be used broadly based on regional needs. This challenge could be run in two parallel formats based on the maturity of each region's current life science capabilities:

- A development challenge would fund local strategies for participation in the life science ecosystem. This challenge would offer multiple awards per region, with a maximum of $10M per award.
- A scaling challenge would fund three large-scale ecosystem efforts spread across the state, ranging from $200M to $500M.

Craft Incentives to Attract Additional Large Private Sector "Anchors"

Large corporations play vital roles across the life science innovation ecosystem, from investing in new startups, to spinning out scientific and management talent, to promoting knowledge sharing and mentorship. Boston-based ElevateBio recently decided to open large-scale biomanufacturing operations at BioForge in Pittsburgh. State support will be required to put together competitive packages and attract additional anchors.

Champion Applications for Federal Programs and Funding

The federal government plays a critical role in early research and development funding, and SWPA has benefited from large partnerships in AI, robotics, and software development. Various players in the region will develop competitive proposals for programs such as the Advanced Research Projects Agency for Health (ARPA-H), but continued support and advocacy from the Governor's Office is critical to compete for and win these major funding awards.

- **North Carolina** launched NCBiotechnology Center (NCBiotech) in 1984 as an independent non-profit – the first state-sponsored biotechnology development initiative in the country. Today, life sciences generates more than $83.3B in annual economic impact across the state.

- **Massachusetts Life Sciences Center** (MLSC) is a quasi-public agency launched by the state in 2008 as part of an initial 10-year, $1B program.[4] The MLSC strategically deployed funds into the ecosystem via a combination of grants, loans, capital infrastructure investments, tax incentives, and workforce development programs.

[4] Biotechnology Innovation Organization, June 2023.

Scale Support for Investments and Infrastructure, with a Focus on Early- and Mid-Stage Companies

The lack of available capital across the development life cycle remains the largest obstacle for companies in the life sciences sector. In the greater Pittsburgh region, only two percent of tech financing is local, compared to metros like Philadelphia, Nashville, and Raleigh-Durham where the rate is 20-30%.[5]

Funds that help develop and de-risk promising science are foundational to new company growth and help move private sector capital off the sidelines. The recommendations below support both the development of core infrastructure for the sector and investment in early- and mid-stage companies.

In the greater Pittsburgh region, only two percent of tech financing is local, compared to metros like Philadelphia, Nashville, and Raleigh-Durham where the rate is 20-30%

FOCUS AREA IN ACTION

Provide Financial Support for Physical Infrastructure and Equipment

Early-stage companies need affordable and easily accessible research facilities to accelerate research commercialization and production. Private developers will not take the financial risk of building these types of start-up-oriented facilities. Shared lab and office space for startups is a critical missing link that would catalyze new company starts and broader engagement with the life science innovation sector. Examples of these types of life science-oriented incubators are LabCentral in Cambridge, MA, BioLabs with several national locations, and JLABS in several global locations.

- The state-run **Connecticut Bioscience Facilities Fund** supports early-stage companies for the construction of wet labs and related space, with awards typically between $500,000 and $5M.

- The **MLSC** runs a long-standing Research Infrastructure Program that provides grants for capital projects that support the life sciences ecosystem. To date, MLSC has awarded more than $504M in capital project support across the state, spanning both research centers and private companies. MLSC also helped launch LabCentral, a life sciences nonprofit incubator and facility, with $10M in grants.

- In 2020, **Ohio** committed $100M to the development of a $1B Innovation District in Columbus; the following year Amgen selected Columbus as the site for its newest biomanufacturing plant.[6] JobsOhio provides grants and loans to support speculative site development and other building development costs for targeted projects.). As a result, in 2022 alone Abbott announced a $536M commitment to build a speciality nutrition manufacturing facility in Bowling Green and Medpace announced a $150M expansion of its facilities in Cincinnati that will bring 1,500 jobs to the region.[7]

- In December 2023, the **University of Virginia** broke ground on a biomanufacturing facility with $50M in support from the Commonwealth. The Governor announced he is asking the Assembly for an additional $50M in support for the new biomanufacturing institute.[8]

[5] Innovation Works' analysis of Pitchbook data.

[6] The Columbus Region, *It's in our DNA: Why the Columbus Region is a Hub for Gene Therapy Companies.* https://columbusregion.com/content-hub-article/gene-therapy-research

[7] Jobs Ohio, 2022 Annual Report | 2023 Strategic Plan https://www.jobsohio.com/annual-report-2022/2022-results/project-wins

[8] UVA Breaks Ground on Paul and Diane Manning Institute of Biotechnology. https://news.virginia.edu/content/uva-breaks-ground-paul-and-diane-manning-institute-biotechnology

Scale Support for Investments and Infrastructure, with a Focus on Early- and Mid-Stage Companies (cont.)

Increase Capital for Early- and Mid-Stage Companies

Due to the heavily regulated environment, scientific complexity, and special infrastructure required, life sciences companies are much more capital intensive than other industries. Pennsylvania was an early leader in creating vehicles for early-stage funding, which was critical to establishing today's pipeline of new companies, but has been complacent and overtaken by other states. To increase the required capital investment, the Commonwealth should:

Create SBIR/STTR Matching Funds Program

Pennsylvania is one of only 18 states that does not offer SBIR/STTR state matching grants. Adding this incentive directly supports early-stage companies already validated through the federal government's award process.[9]

Expand Existing Initiatives to Directly Assist Companies

Ultimately, helping life sciences companies thrive is the most direct means of developing the ecosystem. Continuing to directly support the industry via current initiatives such as RACP and WEDnetPA, and expanding these initiatives, is critical.

Expand Existing Capital Funding Mechanisms

Existing programs such as the Ben Franklin Technology Centers and Life Science Greenhouses are vital components of the early-stage ecosystem. Additional funding will enable more "shots on goal" and increase the likelihood of university innovations translating into successful, job-creating companies.

Create Tax Incentives to Encourage Investment

Tax incentives for individual investors and companies will mobilize more early-stage capital.

- An angel tax credit would help catalyze new investors while bringing investors who may have written off life sciences back to the table.
- The R&D tax credit is regarded by life sciences companies as one of the most helpful state offerings. Expanding the amount committed to this program will directly assist companies across the spectrum.

Expand University Commercialization Funds

Funding affiliated with universities' commercialization efforts should increase. These funds should be governed independently, based on clear industry metrics.

Develop Alternative Approaches to Mid-Stage Funding

Post-seed stage funding continues to be a gap in the Commonwealth's life sciences ecosystem. Creative approaches, such as non-dilutive funds and new state-backed funds should be explored to fill this vital gap that substantially limits the commercialization success rate.

- In recent years, Connecticut leveraged its venture capital arm, **Connecticut Innovations**, to accelerate the life sciences ecosystem. Funding pathways include: the Connecticut Bioscience Innovation Fund, totaling $200M that provides awards up to $500,000 for start-up and early-stage companies, an R&D tax credit, angel investment tax credit, SBIR commercialization and acceleration program, and funding to academic projects that accelerate commercialization.

- The **MLSC** awards tax incentives for expanding life sciences companies and for angel investors and makes direct investments related to strategic goals, such as diverse entrepreneur leadership and focusing on specific geographic areas outside the Greater Boston area. It also runs a long-standing Research Infrastructure Program that provides grants for capital projects that support the life sciences ecosystem with awards surpassing $500M to date.

- **New York's economic development corporation** launched a Life Sciences Initiative in 2017 that funds a tax credit program for new life sciences businesses, grants for university-industry collaboration, and early-stage start-up development programs. It includes a $40M Biodefense Commercialization Fund, which offers grants of $1-$4M to startups and academic centers focused on serious infection disease threats.[10]

- In 2002, the state Department of Development formed **Ohio Third Frontier**, an economic development initiative launched with a $2.3B bond issue. While Third Frontier is active in multiple sectors, it maintains a significant focus on life sciences. The initiative offers funds specific to pre-seed companies, startups from higher education and research institutions, early-stage companies, and growth-stage companies.

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[9] Biotechnology Innovation Organization, *The U.S. Biosciences Industry in the States: Best Practices in Innovation, Partnerships, and Job Creation*, June 2023. https://www.bio.org/sites/default/files/2023-06/BIO_CSBA_Best_Practices_Report_2023.pdf

[10] Biotechnology Innovation Organization, June 2023

Invest in Workforce Development

The Commonwealth must ensure the education and workforce development system is well-aligned with the evolving talent needs of life sciences companies of various sizes and specialties, and able to quickly respond to shifts in talent demands as innovation progresses. Locally, close partnerships between industry and education in robotics and energy have improved the quality of curricula and grown career pathways across secondary and post-secondary programs. This same playbook should be adapted and applied to life sciences to support a sustainable talent supply for the sector and equitable opportunity for residents to benefit from this growth.

FOCUS AREA IN ACTION

Fund Regional Workforce Development Initiatives

Regional companies already struggle to fill their workforce needs. Continued growth in the life sciences sector will require building the training and development infrastructure to support both employers and employees. To achieve this, the Commonwealth should:

Support Collaborative Initiatives

The SWPA region is identifying talent gaps and coordinating with secondary and postsecondary institutions, workforce development boards, and industry to address them. This initiative is critical to support learners and workers through career exploration and training navigation services, with a focus on addressing disparities in access to opportunity. Commonwealth support, both fiscal and political, is necessary for success.

Fund Curriculum Development and Supportive Infrastructure

Investment in tools and resources enables local players to translate current and future life science sector skills into a robust array of training options, from short-term certificates to advanced degrees. For instance, local companies note the need for additional training in quality system and regulatory training. New capital investment in infrastructure, such as mock labs and scientific equipment, will enable training programs to provide real-world skills.

Support Industry Partnerships Programs

The existing industry partnership model can be very productive but requires ongoing state support and expansion to meet evolving labor demands.

Support Initiatives to Develop, Recruit, and Retain World Class Talent

The region is rich in technical expertise but lacks the depth of management-level talent needed to scale innovations and navigate complex processes like FDA approvals. As a region, we are working to develop dedicated training programs and graduate-level academic initiatives to attract and grow that talent, including among underrepresented groups, and build a network of management professionals specialized in the life sciences. State support of these initiatives will speed development of this talent pool.

Academic Matches

Attracting and retaining top researchers is a vital part of ecosystem development. State matching funds can make packages for top faculty more competitive, such as through an eminent scholar program. Texas' Research Incentive Program provides matching funds to private sources for academic chairs, professorships, and research expenses.[11]

Graduate Retention

State matching funds for graduate intern programs would help Pennsylvania keep the most talented graduates in the state.

- **NCBiotech** coordinates and invests in highly-specific workforce training by job type and sub-industry, as well as workforce pipeline initiatives like funded student internships. NCBiotech also runs a Bio Jobs Hub website to centralize information about life sciences careers, including detailed descriptions of positions at all education levels and training opportunities and programs available at community colleges across the state.

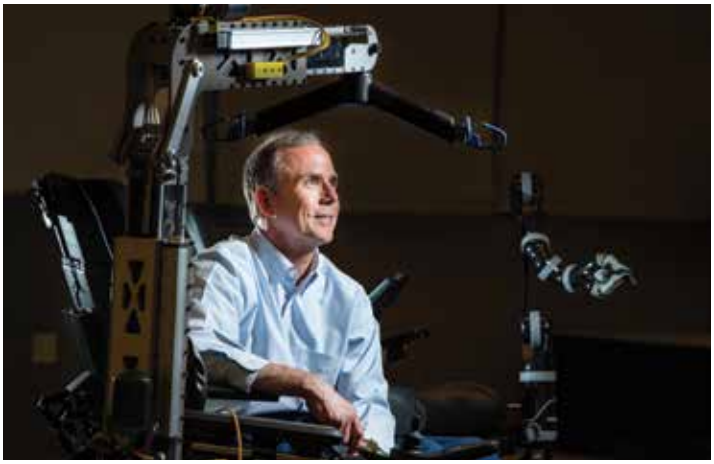
- **Ohio Third Frontier** offers a diversity and inclusion technology internship program that reimburses companies two-thirds of interns' wages for paid college internships.

- The **MLSC** provides grants for educational organizations to purchase life sciences equipment, targeted at preparing middle and high school—and recently post-secondary—students for life sciences careers.

[11] University of Houston, *Division of Research, Texas Research Incentive Program.* https://docs.google.com/document/d/1flkyDyZvY65br6b5WaSeSCUCBWeZDbf-35KeD1BWKKg/edit

Conclusion

As we look to the future where healthcare intersects with AI, robotics, and automation, Pennsylvania—and SWPA in particular—have within our grasp the opportunity to lead the nation with novel models of life sciences innovation, development, and manufacturing. Investments by the Commonwealth are critical to translate the research and development potential that exists into thriving, innovative companies that support broad economic growth and opportunity for generations to come.



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January 2024

PITTSBURGH LIFE SCIENCES ALLIANCE

PittsburghLifeSci.org

What are SBIR/STTR grants and why does PA need a matching program?

{Hint: small business creation and job growth}

Federal SBIR/STTR programs help turn research into economic activity

The federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) programs (aka America's Seed Fund) are grants to small businesses from federal agencies. Administered by the US Small Business Administration, these grants are non-dilutive funding opportunities from eleven federal agencies, such as the National Institutes of Health, US Department of Defense, US Department of Agriculture, and the US Department of Commerce. These highly competitive awards are one of the most essential programs for catalyzing new discoveries from research institutions into new startup companies that fuel economic growth and job creation.

SBIR and STTRs support many of the fastest-growing sectors in the country, including fields such as life sciences, robotics, and artificial intelligence—fields where Pennsylvania has the talent and capabilities to be an influential global leader.

How It Works

Participating in America's Seed Fund happens in three phases:

Phase I

Proof of Concept
6-12 months
$50,000 - $275,000

Phase II

Technology Development
24 months
$750,000 - $1.8 million

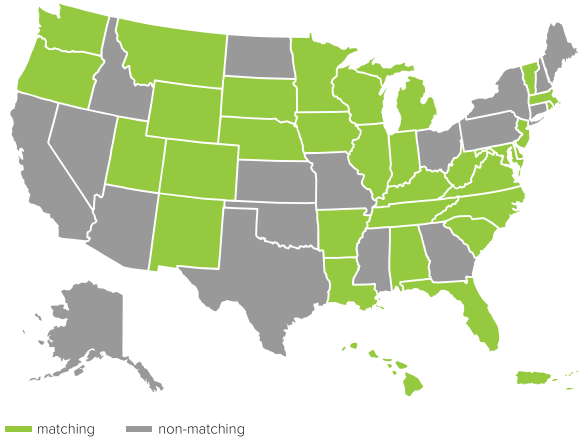
Phase III

Commercialization
Take your product to the commercial market or sell in the multi-billion dollar federal contracting marketplace

How Pennsylvania Compares

Pennsylvania was once a leader in creating vehicles for early-stage funding, which was critical to establishing today's pipeline of new companies. But lately, Pennsylvania has been complacent and overtaken by other states, with SBIR/STTR matching being one clearly addressable example.

Pennsylvania is one of only 18 states that does not offer SBIR/STTR state matching grants. The states that offer matching funds are seeing the investment result in new company transplants, job creation, and patent awards.



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Matching Funds Spur Growth by Investing in Winners

Adding this incentive directly supports early-stage companies already validated through the federal government's highly selective award process, targeting investment to commercialization projects that have the opportunity to create job growth.

- Only 17% of applicants for Phase I receive funding, allowing PA to piggy-back on the robust infrastructure and subject matter expertise of federal agencies, de-risking the state matching investments.
- SBIR/STTR—funded efforts have a track record of creating new jobs. One study found that US Department of Defense SBIR/STTR awards alone create over 65,000 jobs per year.[1]
- SBIR/STTR awards and state matching awards often help secure additional private sector investment. The applications are evaluated by experts in the respective fields, so private investors view winning one of these rigorously critiqued grants as a strong indicator of potential. This is particularly critical in the life sciences sector where available capital is the most common limiting factor in the Commonwealth.

1 https://www.sbir.gov/sites/default/files/2022-06/DOD_SBIR%20Economic%20Impacts_1995-2018.pdf

How Matching Programs Work

Many states either administer the program directly through an existing economic development, commerce, or small business department with governance that includes input from industry experts. Other states have established quasi-governmental entities dedicated to cultivating specific high growth industries and start-ups.

Most states match a percentage of federal awards, with an upward limit.

Select examples from other states:

State	Phase I Match	Phase II Match
North Carolina Department of Commerce	• Up to 50%, not to exceed $75,000 • Reimbursement for partial cost of application	
Tennessee Launch Tennessee	Up to $100,000	Up to $300,000
Virginia Virginia Innovation Partnership Corporation	Up to $75,000	Up to $300,000
West Virginia Small Business Development Center	Up to $100,000	Up to $300,000

About PLSA

Pittsburgh Life Sciences Alliance is dedicated to making greater Pittsburgh a global life sciences leader and economic engine at the intersection of the region's unique clinical, research, manufacturing, and advanced technology strengths.

PLSA was founded by the University of Pittsburgh, Carnegie Mellon University, UPMC, Highmark Health, the Richard King Mellon Foundation, and the Henry L. Hillman Foundation. PLSA's Industry Advisory Council is composed of leading companies representing all stages of growth.

Testimony of Dr. Matt Dado
Director of Technology and Innovation, Penn Hills School District
Before the Pennsylvania House of Representatives
April 14, 2025

Eighteen years ago, I was a high school senior—young, hopeful, and completely unsure about what lay ahead.

When it was time to choose a path, I sat in an office and took a career interest test. A few bubbles filled in. A quick conversation with my guidance counselor. And that was it. My future boiled down to a printout and a 10-minute chat at the district-level.

No hands-on experience.
No insight into real industries.
No one showed me how my talents could shape the world.

I've carried that moment with me my entire career—not as a point of frustration, but as a call to action. Because I believe that every student in Pennsylvania deserves more than a guess at their future. All students deserve a vision. They deserve a plan. And they deserve a pathway that leads somewhere real. That's what we're building right now at Penn Hills School District.

Our Vision for Change

In my decade as a high school technology teacher, I worked with students from every background. I saw their creativity, their grit, and their brilliance firsthand. I also saw how many of them were never given the opportunity to explore meaningful careers early enough to make informed decisions.

That's why, my entire career in education has been committed to changing that—systemically, sustainably, and boldly.

At Penn Hills High School. We launched something new. Something different. We call it **PHorge Academy**. PHorge Academy is our promise that every student has the opportunity to graduate with:

- **Exposure** to real-world industries—robotics, healthcare, business, and more.
- **Experience** through hands-on, project-based learning in state-of-the-art labs.
- **Empowerment** with industry certifications, college credits, and mentorships.

We're creating a system where students leave high school not just with a diploma, but with **decisions**—decisions backed by skills, credentials, and clarity. Some of our students are entering the workforce immediately—possibly into advanced manufacturing or life sciences labs if those opportunities present themselves. Others are stepping into college programs across the state. But all of them are walking across the graduation stage with purpose in their stride and options in their pocket.

Building the Bridge Between Education and Industry

At Penn Hills, we've partnered with institutions like the **Carnegie Mellon Robotics Academy**, **Catalyst Connection**, and but really need the partnership with local businesses to bring real-world learning into the classroom. We want to get to a point where we're not teaching students about careers—we're letting them *live them* while they're still in school.

The PHorge Academy at Penn Hills High School is not a pilot. This is the future.

What Pennsylvania Needs Now

If we want Pennsylvania to lead in life sciences, in biotechnology, in the next generation of advanced manufacturing—we must begin in high school.

We must build a system that ensures:

- **Every student has early exposure** to emerging industries.
- **Every district has the tools** to offer certifications and hands-on learning.
- **Every teacher has the support** to guide students toward real careers.

The talent is already here. The students are already ready. They just need the opportunity—and a system that believes in their potential.

Final Thought

If I could go back in time to that high school office eighteen years ago, I wouldn't rewrite my story. I'd use it as fuel—as I have every day since.

Because today, at Penn Hills, I get to help students write *their* stories. Not with guesswork. Not with outdated printouts. But with **vision**, **confidence**, and **certified skills** that lead them into industries that matter—to our economy, our healthcare, and our future.

Thank you for your time, your leadership, and your belief in what is possible when we invest in students not just as learners, but as the builders of Pennsylvania's tomorrow.

House Democratic Policy Committee Hearing
DCED Testimony
April 14, 2025

Over the past two years, Governor Josh Shapiro and his Administration, together with the General Assembly, have developed and enacted parts of Pennsylvania's comprehensive 10-year Economic Development Strategy. Through the implementation of PA SITES, Main Street Matters, and significant operational improvements to the state's permitting, licensing, and certification processes, Pennsylvania has made meaningful progress toward becoming a premier state to start a business and call home.

In FY 2025-26, Governor Shapiro's Administration is excited to launch the next phase of DCED's Economic Development Strategy, which will build upon these previous investments to further the Commonwealth's status as a national leader in innovation and economic development. The Governor's $50 million Innovation Proposal represents a transformative investment to empower Pennsylvania entrepreneurs and innovators to pursue unique solutions to the challenges of tomorrow.

States with robust innovation economies have strong GDP growth, high wage growth, low unemployment, and less out-migration of talent. However, Pennsylvania currently lags behind many of our peer states in innovation. A report from the Brookings Institute noted that the Commonwealth trailed states in its per capita spending on tech transfer activity, ranking fourth out of six peer states with its expenditure level on tech transfer just one-fifth that of neighboring Ohio. This lack of investment is reflected in the state's economic dynamism ranking, 42nd in the nation, behind Delaware, Maryland, Virginia, and Ohio.

In a rapidly changing world, innovation is more essential than ever. A robust and nimble economic landscape enhances Pennsylvania's resiliency and resistance to external factors, such as unprecedented technological advancement and emerging public health threats, like the avian flu outbreak affecting the agricultural sector.

Importantly, Pennsylvania already possesses substantial innovative talent and research capacity. The Commonwealth ranks in the top five for research and development (R&D) in the country from the seven Research 1 (R1) institutions that call Pennsylvania home. Yet we don't see these ideas translating to commercialization – nor do we see a high rate of graduates from our R1 institutions remaining in the Commonwealth after graduation. Strategic investments in our innovation economy will help keep both local and out-of-state talent attending our universities right here in Pennsylvania. Through retaining our students, the Commonwealth will become more attractive to cutting-edge companies looking to relocate to areas with a skilled workforce, and a promising location for our graduates to start their own ventures.

Of the Governor's $50 million Innovation Proposal, $30 million would support a one-time initiative to spur life sciences growth and innovation through improving collaboration among our world class research universities and assisting businesses in translating R&D to commercial success. This initiative will focus on bringing advanced technologies to market, prioritizing speed and certainty in product development, and fulfilling critical testing needs. Funding will be used to bring partners together from across the life science industry and academic community to provide grants with the following eligible uses:

- Planning funds for a statewide clinical trial network;
- Challenge Grants to regional coalitions of R1 institutions, Research Centers, and economic development organizations to de-risk innovation in the life sciences through building operational infrastructure and manufacturing capacity; and

- Talent Development Grants to identify and develop top-tier leadership for life science startups in Pennsylvania.

This strategic investment into Pennsylvania's life sciences network will make it commercially attractive for startups to start and grow here in the Commonwealth – giving Pennsylvania the opportunity to have a national leadership role in the industry. This investment will be tailored to ensure that the impact of the funding is felt throughout the Commonwealth rather than in one specific region, bringing new businesses and good jobs to every corner of the state.

The downstream benefit to incentivizing the success of Pennsylvania's life sciences sector can be felt across multiple industries. Through the collaborative efforts spearheaded by DCED as part of the Innovation Proposal, the department will work to build cross-sector partnerships across Pennsylvania's key industries to secure a resilient supply chain for our life science industry supported by statewide interconnectivity. The success of life science companies like Sanofi Pasteur's Monroe County facility reciprocally supports the success of manufacturing companies like Delaware County-based laboratory equipment maker Avantor – while a thriving advanced manufacturing community may rely on semiconductor chips from Pennsylvania-based chip producers like Westmoreland County's Powerex Inc. The web of companies and industries indirectly supported and boosted by the success of Pennsylvania's life science sector will pay dividends for the Commonwealth's economic prosperity.

In addition to this one-time investment, Governor Shapiro is proposing a $20 million annual allocation to support large-scale innovation, match federal awards to mitigate risks for start-ups, and leverage Pennsylvania's best-in-class R&D assets. As part of this, DCED would grant these funds to support:

- The commercialization of R&D from Pennsylvania Universities into companies and jobs.
- Federal Grant Matching to support Pennsylvania innovators by providing percentage-based matches for select federal awards — such as SBIR — helping early-stage companies reach key milestones, increase competitiveness for future funding, and attract private investment during critical phases of growth.
- Venture Studio Grants to support a proven incubator model widely adopted by many states and universities to cluster technologies and incubate startups – these grants would help build strong multi-regional pipelines ready for Ben Franklin Technology Partners investments.

Pennsylvania is primed to be a leader in innovation, with high-performing universities that produce more than 33,000 new STEM graduates per year, an already established life sciences industry with manufacturing infrastructure in place across the state, and a storied history grounded in pursuing new and inventive ideas — but lack of state investment in incubating a system that fosters innovation holds the Commonwealth back from capitalizing on the strategic assets already established in the state.

By creating a more attractive environment for entrepreneurs and developing strong pipelines to bring products to market, Pennsylvania can strengthen its economic competitiveness and solidify the Commonwealth as a premier hub for innovation and business creation, and by extension, business attraction.

DCED looks forward to working with the General Assembly to support the continued growth of the Commonwealth's innovation ecosystem – ensuring long-term prosperity and economic resilience for all Pennsylvanians.

Christopher P. Molineaux, Life Sciences Pennsylvania
Written Testimony Submitted in Advance of the
House Democratic Policy Committee Hearing on the Impact of Life Sciences
April 14, 2025

Chair Bizzarro, Representative McAndrew, and Members of the House Democratic Policy Committee:

Thank you for the opportunity to provide testimony in advance of the Committee's hearing on the Impact of Life Sciences Monday, April 14.

Life Sciences Pennsylvania is the statewide trade association representing nearly 960 member organizations in the Commonwealth's life sciences ecosystem. Those members are comprised of small biotech companies, large pharmaceutical manufacturers, academic research institutions, medical device and diagnostics makers, patient advocacy organizations, and myriad service providers related to the development of groundbreaking therapies and cures.

This sector, which is made up of more than 3,000[1] life sciences establishments in total, is researching, developing, and manufacturing novel medicines and technologies for millions of patients around the world facing thousands of unmet medical needs.

In addition to their efforts to help individuals live longer, healthier lives, those 3,000 organizations – academia, manufacturers, and R&D intensive companies – makeup a robust ecosystem that directly employs more than 102,000[1] individuals and accounts for more than $61 billion[1] in direct annual economic impact in the Commonwealth. Additionally, there is a significant multiplier effect of approximately three to four times those numbers.

However, of the 3,000 life sciences establishments in the state, approximately 67 percent[1] of them are organizations with fewer than 10 employees. While the statistics I just referenced relay a positive picture of the state's life sciences economy – indeed, Pennsylvania has organically built a strong foundation for its life sciences community – it is critical that policymakers know this is largely a start-up ecosystem fraught with failure.

The likelihood of success in the life sciences (particularly the biopharmaceutical sector) industry is low – almost 90[2] percent of the new drug applications filed with the FDA fail to receive approval.

Science is incremental, and many companies will work tirelessly for the better part of a decade only to find they must start all over again, and all the resources – costs that can be in excess of $2 billion[2] – poured into their work are sunk costs.

[1] Pennsylvania Life Sciences Industry, KPMG, September 2022

[2] Research and Development in the Pharmaceutical Industry, Congressional Budget Office (CBO), April 2021

Those statistics are one of the reasons why these hearings are so important – policies put forth by government at the state (and federal) level have a significant effect on life sciences company growth, which is largely based on their ability to attract investment. Because of the long timelines and capital intense nature of life sciences development, investors often look for alternative options with quicker rates of return when a policy climate does not exist to incentivize investment.

For instance, biotech companies and specifically those involved in new modalities to treat disease – like cell and gene therapies – have significant increases in cost as they move a therapy from the discovery phase to the clinical trial process. Obtaining scientific data from preclinical research (laboratory and animal testing that answers basic questions about safety) into the clinical trial process (where you're generating human clinical data) is expensive. The data generated ultimately determines whether the product will fail or succeed. The more time it takes to obtain that data, the more resources are being expended.

Reducing the time, it takes for companies to file that initial application with the Food and Drug Administration (FDA) and generate clinical data is key to keeping costs down for companies. When you fail in this industry, the faster you can do it the better.

State government intervention can help accelerate this process, and can be a real catalyst for success – especially in light of uncertainty emanating from proposals in Washington, D.C.

Life Sciences PA is supportive of the Governor's budget proposal that includes life sciences and innovation funding. Specific to life sciences, anything the state can do to help accelerate those timelines is critical. Ideas we know the Secretary has mentioned, such as derisking the manufacturing of novel medicines help companies reach needed milestones faster.

The Secretary has also suggested using this funding to create a clinical trial network across the state. This policy will drive patient enrollment and recruitment in clinical trials – a process that can take considerable time and resources.

In addition to the funding put forth by the Governor, Life Sciences PA is supportive of several existing initiatives such as the Life Sciences Greenhouses, expanding the Research & Development Tax Credit program, and continuing to lower the Corporate Net Income Tax. These are all necessary for innovative sectors like this one to thrive.

They become especially important when you realize other states are not sitting idly by in their efforts to attract these companies – and the talent they employ – to their borders. Life sciences, and other growth industries, face steep competition from our peer states (e.g. Massachusetts, New York, Ohio, and North Carolina) if we simply remain content with the industry as outlined above.

Specific to the life sciences our programs pale in comparison to what other states – such as the $1 billion fund (now up to approximately $2.5 billion[3]) Massachusetts created in 2008 – have put forth to attract investment. The Massachusetts Life Sciences Center is widely thought of as the gold standard in life sciences state government support.

But other states are jumping on board: Governor Hochul in New York recently announced an investment of $150 million in Nation-Leading Cell and Gene Therapy Innovation Hub[4]; Ohio recently initiated a $120 million Innovation Hub program[5]; and Novo Nordisk announced $4.1 billion expansion in North Carolina[6] with strong investments in BioWork "a statewide certification program that teaches the fundamentals of working as a process technician in biotechnology, pharmaceutical, or chemical manufacturing facilities."

This kind of support for innovative companies is helpful and noticed by investors. By comparison, the only direct support the state offers early-stage life sciences companies is the $3 million – one million each – that goes to the state's three life sciences greenhouses. A program that was created more than 20 years ago under the tobacco settlement agreement.

Even relatively "small" efforts, such as creating an SBIR Matching program (currently offered by 27 other states), an Angel Investor Tax Credit (offered by at least 21 states), and allowing associations such as Life Sciences PA to operate association health plans (offered by at least 30 other states) will help small companies allocate more resources to support their R&D efforts and build upon the strong foundations I previously outlined.

That is why conversations like this one are so helpful to generate new ideas and policies that can forge a path forward for Pennsylvania's growth.

The benefits of investing in this ecosystem are not solely confined to individuals with an MD, or Ph.D. behind their name. Life sciences investment benefits many Pennsylvanians. Supporting industries like manufacturing, logistics and agriculture, and individuals in the building trades and construction industries benefit significantly from the expansion of life sciences.

Further these developments are not confined to Philadelphia and Pittsburgh. Though life sciences activity tends to be most heavily concentrated around urban areas, there are many projects throughout Pennsylvania that benefit from investment in the ecosystem, such as:

[3] Governor Healey sings Mass Leads Act, Massachusetts Life Sciences Center, November 2024

[4] Governor Hochul announces $150 million for Cell and Gene Therapy Hub, Office of NY Governor, October 2024

[5] Ohio Initiates Innovation Hub Program, Ohio Dept of Development, November 2023

[6] Novo Nordisk announces $4.1 billion expansion in NC, NC Biotech Center, June 2024

- A medical device manufacturer that just completed a $200 million expansion at its facility in Allentown[7]. (B. Braun)
- A designer and manufacturer of packaging and delivery systems for injectable medicines that is investing $60 million and creating 225 new jobs at a facility in Lycoming County[8]. (West Pharmaceutical Services)
- A worldwide leader in lab supplies that is expanding its Millersburg facility with a $40 million investment in its manufacturing of critical materials used in developing new and existing biologics and vaccines[9]. (Thermo Fisher Scientific)

These projects are indicative of the robust ecosystem Pennsylvania and Pennsylvanians enjoy. They're also the type of significant, long-term capital investments born out of supporting early-stage companies in this sector and the ecosystem more broadly.

Life Sciences PA and its member organizations – some of whom are participating in the hearing – are happy to be a resource to this Committee and looks forward to working with it, the General Assembly and Governor's administration on policies that support Pennsylvania's life sciences economy.

Christopher P. Molineaux
President & CEO
Life Sciences Pennsylvania

[7] B. Braun invests $200 million in Lehigh Valley, LVEDC, September 2022

[8] West Pharmaceuticals expands in Lycoming County, The Express, June 2022

[9] Thermo Fisher expands Millersburg, PA facility, Thermo Fisher Scientific Press Release, February 2022