

## PROPEL: The National Center for Precision Medicine Overarching Narrative

### 1. Executive Summary

**PROPEL**, The National Center for Precision Medicine, leverages the Greater Philadelphia Region’s Precision Medicine assets and breadth of stakeholders into a uniquely integrated alliance to create a living laboratory, breaking down the barriers of the discovery-to-deployment process to catalyze the next generation of health interventions and improve national health equity and economic opportunity. EDA project funding will energize regional collaborations, particularly post-discovery, aiming for economic resilience in the precision medicine sector. **This historic opportunity unites our institutions, civic organizations, and private enterprises to propel the region as a global innovation leader in end-to-end precision medicine.**

Formed in response to Greater Philadelphia’s designation as a Tech Hub, **PROPEL’s** lead member is Ben Franklin Technology Partners of Southeastern Pennsylvania (“Ben Franklin”), a Pennsylvania non-profit corporation, with seven core partners leading projects and over 100 regional organizations from across the Philadelphia–Wilmington–Camden MSA. The Key Technology Focus Areas covered by this initiative are: #7: Biotechnology, #1: Artificial intelligence; #4: Robotics; and #8: Data management and cybersecurity.

This January, Aissam Dam, an 11-year-old boy, was the first person to receive gene therapy in the U.S. for congenital deafness from the Children’s Hospital of Philadelphia, allowing him to hear. This groundbreaking story underscores Precision Medicine’s transformative potential, aligning with PROPEL’s mission to advance technologies that directly benefit communities and individuals while promoting regional health and equitable economic outcomes.

We estimate the economic impact of the Hub using job-relevant NAICS codes (541714, 334516, 621511) indicating that every 1,000 direct jobs created will result in 1,730 additional indirect or induced jobs, earnings of more than \$273 million and taxes of roughly \$23.5 million. With a projected 7,500 new, high-paying (average salaries of \$125,750; [[The Bioscience Economy 2022](#)]), sustainable jobs, that translates to 20,475 total jobs, earnings of \$2B and over \$175M in taxes, given current conditions.

**What do these advances have in common? They were all created, developed and deployed in the Greater Philadelphia Region.**

- Late 1990s: University of Pennsylvania technology lays groundwork for mRNA-based vaccine technologies
- 2012: University of Pennsylvania uses CAR-T therapy to cure childhood leukemia
- 2017: Spark Therapeutics receives first FDA approval for gene therapy
- 2022: ChristianaCare spin-out CorriXR advances lung squamous-cell carcinoma gene editing
- 2022: Temple University trials using CRISPR technology for HIV cure
- 2022: Christiana Care, Drexel University, and University of Pennsylvania demonstrate hypertension treatment benefits in diverse trial
- 2023: The National Institute for Innovation in Manufacturing Biopharmaceuticals (NIIMBL) at the University of Delaware launches a program for economically viable shared manufacturing and analytical platforms for AAV gene therapy vectors
- 2023: Wistar/UPenn scientists pioneer universal blood cancer immunotherapy
- 2024: Children’s Hospital of Philadelphia cures childhood deafness through gene therapy
- 2024: FDA approves lovance’s gene therapy treatment for melanoma manufactured at the Philadelphia Navy Yard
- 2024: PROPEL Tech Hub is established to advance technologies that reach communities and individuals in the Greater Philadelphia Region

## 2. Vision Statement

PROPEL envisions the Greater Philadelphia region as a global precision medicine leader, catalyzing innovation and integration through strategic partnerships and collaboration. Leveraging dynamic life-science assets, it accelerates Precision Medicine’s potential with five key pillars ensuring equitable economic prosperity and growth. Through its strategic projects in Governance, Workforce, Entrepreneurship, Biomanufacturing, and Access, PROPEL drives regional resilience, sustainability, and economic advancement.

**Table 1: PROPEL Logic Model**

<b>Overarching Logic Model: Relevant Projects noted by number</b> Governance (1), Entrepreneurship (2), Biomanufacturing (3), Access (4) or Workforce (5)					
<b>Baseline Situation</b> <i>(Regional Gaps in Precision Medicine)</i>	<b>Inputs</b> <i>(Existing Resources &amp; Relationships)</i>	<b>Outputs .</b> <i>(Program Activities)</i>	<b>Capacity Outcomes</b> <i>(Shorter-term)</i>	<b>Realized Outcomes</b> <i>(Longer-term)</i>	<b>Beneficiaries/ Impact</b>
Need for: -Coordination across multi-sector partners <sup>1</sup> -Equitable workforce practices <sup>5</sup> -Capacity to train diverse workforce <sup>3,5</sup> -Qualified & available workforce <sup>5</sup> -Early Venture Support <sup>2</sup> -Speed to Market <sup>2,3</sup> -Institutional data sharing <sup>4</sup> -Representation in clinical trials <sup>4</sup>	Region's Unfair Advantage: -Premier postsecondary institutions -Corporate Presence -Robust entrepreneurial resources, including technology accelerators -NIIMBL -Healthcare collaboration -Existing federal funding With EDA funding: -Cross-sector collaboration <sup>1</sup> -Supporting diverse workforce from discovery to employment <sup>5</sup> -Solving company growth challenges <sup>2</sup> -New tech development <sup>3</sup> -Data-sharing capacity & health care access <sup>4</sup>	-Coordinated Hub strategy including Operating, Evaluation & Risk Plans & Communication Systems <sup>1</sup> -PROPEL Fund <sup>2</sup> New hubs & networks: -Acceleration & mentorship <sup>2</sup> -Investors <sup>2</sup> -Data sharing <sup>4</sup> -Precision Medicine clinical trials <sup>4</sup> -Precision Medicine workforce training <sup>5</sup> -Modular & mobile training units <sup>3</sup> -Calls for projects <sup>3</sup> -Precision Medicine Showcase <sup>2</sup>	-Strong & respected Hub infrastructure <sup>1</sup> -Improved access to & training for diverse individuals seeking to enter the sector <sup>3,5</sup> -Better funded & networked ventures <sup>2</sup> -Improved data monitoring & Precision Medicine access for diverse communities <sup>4</sup> -Scaling, derisking, & demonstrating new biomanufacturing ideas <sup>3</sup>	-Sustainable Precision Medicine Hub <sup>1</sup> - Regional inclusive job growth & training <sup>1,2,5</sup> -Better funded & more diverse business leaders & organizations <sup>2,3</sup> -Attracting large biomanufacturing facilities & new companies <sup>2,3</sup> -Improved health outcomes & more diverse clinical trials <sup>2,3,4</sup>	-Job seekers/employees, particularly from underrepresented populations -Founders -Employers -Government & communities (national & economic security) -Patients awaiting health care innovations -U.S. public health, with the ramp-up of domestic innovations & manufacturing capacity -Regional job growth -Policymakers -Investors

**2a. Consortium Members, Partners, & Commitments Summary.** The distinguishing feature of the Hub is the breadth of partners who have engaged and committed to a shared vision. Project leads, along with the current 50+ partners, have been purposefully engaged based on the assets they bring to the Hub and their alignment with its measurable and achievable goals (See **Table 2**). It is an extraordinary combination of members from across the regional MSA who represent critical elements of the region’s innovation ecosystem: technology generators, public entities, community organizations and health systems needed to deliver and validate innovations. The inaugural list of consortium

partners and those committed to the Advisory Committee starts strong and will get even better as projects evolve and can more directly engage beneficiaries and local communities, as discussed in the **Governance Project**. The Hub has designated Anthony P. Green, Ph.D., Chief Scientific Officer at Lead Member Ben Franklin as the RIO for PROPEL. (Resume uploaded under Key Personnel in EDGE).

In addition to financial and program commitments from all of its organizational partners, the Hub has received direct matching funds from state governments (PA and DE), the City of Philadelphia, Lead Member Ben Franklin and sub-awardees BioPhy, Drexel, Children’s Hospital of Philadelphia, and PIER Consortium. Many partner institutions have active grants from NIH, NSF, NIST, EDA, SBA, DOL, and state and local agencies focused on technology, small business assistance and workforce. While not used as match for EDA, direct investments into emerging technology companies by Ben Franklin and other state programs in NJ and DE will be critical to advancing new and emerging technology companies. The Hub also anticipates securing grants from other private foundations and industry partners—critical to the sustainability of the Hub beyond the five-year funding cycle (see **Section 7, Sustainability**).

**Table 2: Inaugural Consortium Members & Partners (leads in bold)**

<p><b>Lead Member and Project Leads</b> Ben Franklin Technology Partners of Southeastern PA   Drexel University   Delaware Innovation Space   Healthshare Exchange   Philadelphia Works   HealthShare Exchange   Tech Council of Delaware   University of Delaware/NIIMBL   Virtua Health</p> <p><b>Partners with Committed Matching Funds</b> Lead Member &amp; Project Leads   BioPhy   Children's Hospital of Philadelphia   City of Philadelphia   Commonwealth of Pennsylvania   Jefferson Health System   Philadelphia Coalition for a Cure   PIER Clinical Trial Consortium   State of Delaware</p> <p><b>Institutions of Higher Education</b> Cheyney University (HBCU)   Community College of Philadelphia   Delaware County Community College   Delaware State University (HBCU)   <b>Drexel University</b>   Lincoln University (HBCU)   Rowan University   Rutgers-Camden University   Temple University   Thomas Jefferson University   University of Pennsylvania</p> <p><b>State &amp; Local Government</b> City of Philadelphia   City of Philadelphia Department of Commerce   Commonwealth of Pennsylvania   Delaware Division of Small Business   Economic Development Departments of Bucks, Chester, Delaware &amp; Montgomery Counties   New Jersey Economic Development Agency   State of Delaware</p> <p><b>Industry or Firms in Relevant Technology, Innovation, or Manufacturing Sectors</b> 3.0 University Place   Amazon Web Services   B.Labs   BioLabs   BioNJ   BioPhy   Brandywine Realty Trust   Cambridge Innovation Center   Center for Breakthrough Medicine   Children's Hospital of Philadelphia   ChristianaCare Health   Delaware BioScience Association   EMSCO   Helaplex   Lifesciences PA   Independence Blue Cross   Jefferson Health System   Johnson&amp;Johnson Innovation   Main Line Health   Mobilion   Nemours Children's Health   NextFab   PA Biotech Center   Partners for a Cure   Penn Medicine   Pennovation Center   Philadelphia Coalition for a Cure   PIER Clinical Trial Consortium   Spark/Roche   Temple Medicine   ThermoFisher   <b>Virtua Health</b>   Wexford Science &amp; Technology</p> <p><b>Organizations Focused on Improving Science, Technology, Innovation, Entrepreneurship, or Access to Capital</b> Baruch S. Blumberg Institute   Christiana Gene Editing Institute   <b>Delaware Innovation Space</b>   <b>HealthShare Exchange</b>   Mentor Connect   NSF I-Corps (Northeast Hub)   PACT- Philadelphia Alliance for Capital and Technologies   Wistar Institute</p> <p><b>Workforce Training Organizations</b> Jefferson Institute for Bioprocessing   <b>Philadelphia Works</b>   <b>Tech Council of Delaware</b>   Wistar Institute Biotechnology Training Program</p> <p><b>Economic Development Entities</b> Greater Philadelphia Chamber of Commerce   Delaware Prosperity Partnership   Federal Reserve Bank of Philadelphia   Philadelphia Industrial Development Corporation (PIDC)   University City Science Center</p> <p><b>Organizations Contributing to Increased Participation of Underrepresented Groups in STEM</b> Coded by Kids/IPhiladelphia   Knight Foundation   Philadelphia Equity Alliance   STEM Equity Alliance   West Philadelphia STEM Academy   Zipcode Wilmington</p> <p><b>Venture Development Organization</b> <b>Ben Franklin Technology Partners of Southeastern PA</b></p> <p><b>Manufacturing Extension Centers</b> DVIRC-Delaware Valley Industrial Resource Center   New Jersey Manufacturing Extension Program</p> <p><b>Manufacturing USA Institute</b> <b>University of Delaware/NIIMBL</b></p>
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**2b. PROPEL’s Component Project Summary**

- Governance (Ben Franklin lead):** Leads, engages, and integrates members; executes hub’s mission and vision; fosters community culture; influences policy; executes governance, oversight, operations, communication; evaluates policies; creates organizational MOU; establishes go/no-go policies; supervises risk management [[PROPEL](#)].
- Workforce (Philadelphia Works & Tech Council of Delaware leads):** Expands or creates programs for a diverse, technically trained workforce; connects with K–12 schools,

community colleges, regional HBCUs, and underemployed citizens for careers in the life sciences and precision medicine; partners with other workforce programs and labor unions.

3. **Entrepreneurship (Ben Franklin & Delaware Innovation Space leads):** Increases efficiency for commercialization of new technologies through access to specialized resources—e.g., help with technical/manufacturing challenges, clinical trial/regulatory assistance, mentoring company management teams for growth; diversifying and growing founders and company management teams and corporate and venture network.
4. **Biomanufacturing (University of Delaware/NIIMBL lead):** Improves capacity to train diverse biomanufacturing workforce (aligning with Workforce project); advances technologies and processes to improve speed-to-market in the sector.
5. **Access (Healthshare Exchange, Drexel University, & Virtua Health leads):** Accelerate development, testing and commercialization of precision medicines by creating a research and data-sharing network that amplifies the strengths of our region’s institutions; addresses inefficiencies and inequities in research design and execution; prepares our region for future public health emergencies; and creates a competitive environment that grows and retains jobs in data science, health research and artificial intelligence.

The Hub’s success depends on the effective integration of these five projects. Each project is represented on the Steering Committee and informed by the Advisory Committee. This ensures all consortium members have a clear understanding of each project, effectively communicate project changes and their impacts, and engage in collective decision-making to achieve our shared goals.

**2c. Global Competitiveness Summary.** Lengthy timelines and siloed approaches make building global competitiveness in any tech sector challenging, especially in emerging technologies such as Precision Medicine. Our region is not immune to these forces. Despite its history of groundbreaking innovations by companies like Centocor (now Janssen), Spark Therapeutics and, most recently, Iovance, it is often overlooked or considered “second tier”. PROPEL tackles these challenges by leveraging the region’s dynamic life science and health assets and integrating all component projects. This structured cooperation directly contributes to global competitiveness by reducing both the timelines and financial burden of taking initial technology development to full deployment within the Hub’s 10-year horizon.

**The Numbers:** The Philadelphia region’s life-sciences sector is the fifth-largest and third fastest-growing in the U.S. and 35th worldwide ([Global Innovation Index 2023](#)). We can locate and keep companies here with an abundance of life science real estate ([CBRE 2023](#)). These regional assets were incorporated into our Designation Proposal [[Greater Philadelphia Tech Hub Designation Proposal](#)]. The region includes three states ([including EPSCoR-designated Delaware](#)), and the fifth-most colleges and universities in any MSA, including three HBCUs. By tapping into these resources, PROPEL becomes a valuable force multiplier, creating impact and bridging gaps. EDA investment serves as a catalyst to sustainability beyond the funding period. Ultimately, cohesive project integration and community engagement will lead to PROPEL’s success.

The Hub also addresses two key constraints to long-term success: the continuous commitment of partners, including funders, and the inherent risk of the technology itself. To ensure the commitment of partners and funding, we have created a solid governance framework based on extensive stakeholder engagement, bridging worlds among too-often-unlikely partners. This integration of the region’s assets will drive global competitiveness and ensure equitable delivery of end-to-end precision

medicine solutions.

**2d. Climate and Environmental Considerations.** The life sciences industry remains a laggard to NetZero 2050 goals. In a recent Accenture study, only 20% of the industry was on track to meet these goals. Another 33% was off-track but reducing carbon emissions, while 47% was considered off-track and still contributing to carbon emissions ([Accenture](#)). The biomanufacturing industry aims to achieve net-zero emissions by 2050. The Hub will prioritize environmentally sustainable practices by promoting new products and processes with smaller carbon and water-usage footprints, recycling of single-use products, and reducing the transport needed to get products to end users ([Genetic Engineering & Biotechnology News](#)).

The **Workforce and Access Projects'** contribution to NetZero goals will be accomplished by collaborating with the region's transportation systems to reduce traffic and fuel consumption and deliver Hub-developed interventions more efficiently. Fully defined goals for the Hub will be under the purview of Governance and the Hub's contracted assessment consulting group.

**2e. Equity–DEIA Summary.** The Hub prioritizes equity in every component project, focusing on equitable workforce opportunities across projects and healthcare access, particularly in majority-minority cities like Philadelphia, Camden, and Wilmington. This aspect of Hub activity is critical, as the region remains one of the poorest in the country where a majority of the population is non-white and 23% live below the poverty line [[Philadelphia: State of the City \(Pew 2023\)](#)].

#### **Project solutions:**

1. **Governance:** Establishes a robust framework and policies to ensure an integrated approach and accountability to foster equitable economic growth opportunities throughout the Tech Hub and advocate for community engagement and policy opportunities.
2. **Workforce:** Focuses on districts with higher poverty concentrations, creating pathways to precision medicine careers for underrepresented groups.
3. **Entrepreneurship:** Distributes benefits across communities and targets underrepresented groups to promote diversity in precision medicine entrepreneurship and job creation.
4. **Biomanufacturing:** Provides training opportunities to address workforce shortages, ensuring equitable access to relevant careers with training sites in underserved areas.
5. **Access:** Establishes a clinical research hub focusing on recruiting historically marginalized participants and enhances community engagement to improve health outcomes equitably.

**2f. Desired Outcomes Summary.** Deliverables, goals, and metrics used to demonstrate PROPEL's impact will be evaluated through independent analysis and specifics built into each Project Narrative (see **Section 10**). Examples of key outcomes include development and training initiatives to cultivate a skilled, diverse workforce; implementation of innovative manufacturing technologies for Precision Medicines, along with a workforce trained in current good manufacturing practices (cGMP); establishment of a research and data-sharing network to reinforce institutional strengths, address research inefficiencies, and prepare for future public health challenges; and facilitation of company expansion and access to additional funding opportunities through strategic connections with federal grants, venture capital, and corporate partners.

**Table 3: Goals & Outcome Metrics** High-level list (illustrative, not exhaustive):

Component Projects	SMART Goals	Associated Metrics
<b>Governance</b>	By 2030, all projects will be aligned & trained on one common cybersecurity plan & system & one data management & evaluation framework.	<ul style="list-style-type: none"> <li>Contract Signed by 100% of projects</li> <li>All project fully compliant with risk management systems &amp; policies</li> <li>20 meetings/trainings among evaluation vendor &amp; project leads</li> </ul>
<b>Workforce</b>	By 2030, at least 720 residents have been trained in relevant career pathways, 75% transition to permanent employment, & 80% recruited from underserved populations.	<ul style="list-style-type: none"> <li># of residents trained annually</li> <li># of program graduates connected to permanent employment annually</li> <li>% of trainees from underserved populations</li> </ul>
<b>Entrepreneurship</b>	By 2030, deploy 40 PROPEL Fund grants awards (\$14M), conduct 30 programs & engage 50 accelerator & mentorship participants, with a targeted effort to include >30% of companies with diverse leadership.	<ul style="list-style-type: none"> <li># of companies supported each year in each pillar with % of companies with a diverse leadership team</li> <li>% of employees from supported companies from underserved populations</li> </ul>
<b>Biomanufacturing</b>	By 2030, increase the availability of biomanufacturing job training opportunities by 50% among project partners; grow biomanufacturing jobs to at least 1,750; fund 30 projects.	<ul style="list-style-type: none"> <li># of individuals trained for biomanufacturing careers</li> <li>% of trainees from underserved populations</li> <li># of project ideas submitted &amp; # funded</li> </ul>
<b>Access</b>	By 2030, enroll 50 healthcare facilities into the network; create 1,500 new jobs in research, data science, biotech & AI; and support over 100,000 BIPOC participants having access to clinical trials & improved access to precision medicine therapies.	<ul style="list-style-type: none"> <li># of commitments from relevant healthcare partners</li> <li># of jobs created/retained in relevant NAICS codes annually</li> <li>% of target healthcare partners directly supporting underserved populations</li> </ul>

**2g. Table 4: Timeline**

	Key Activities/Milestones
<b>Year 1</b>	<b>Governance:</b> Build organizational systems & technology platforms; Build TIE Advisory Committee & engagement plans; begin evaluation activities; consistently engage broader consortium   <b>Workforce:</b> Engage employers & partners to develop training plan & operations   <b>Entrepreneurship:</b> Ramp up entrepreneurship programs; confirm partner roles & release RFP   <b>Biomanufacturing:</b> Issue subawards for design & implementation of hard sites; issue bid for cGMP mobile site; issue Year 1 project calls; develop microcredential curricula   <b>Access:</b> Develop research-sharing platform & network
<b>Years 2-3</b>	<b>Governance:</b> Continue evaluation activities; consistently engage broader consortium   <b>Workforce:</b> 360 students receive STEM education; 270 participants complete workforce training & 219 graduates are placed in employment (80% from priority populations)   <b>Entrepreneurship:</b> Launch PROPEL Fund; deploy 16 grant awards & 12 programs; engage 20 accelerator & mentorship participants   <b>Biomanufacturing:</b> Train 250 individuals (25% from priority populations) & fund 10 sub-projects   <b>Access:</b> Launch research sharing platform. Enroll 50 healthcare facilities into the network, create 1500 new jobs in research, data science, biotech & AI, and support over 100,000 BIPOC participants in clinical trials, improving access to precision medicine therapies.
<b>Years 4-5</b>	<b>Governance:</b> Continue evaluation activities; consistently engage broader consortium   <b>Workforce:</b> 360 students receive STEM education; 270 participants complete workforce training & 219 graduates are placed in employment (80% from priority populations)   <b>Entrepreneurship:</b> Deploy 16 grant awards & 12 programs; engage 20 accelerator and mentorship participants   <b>Biomanufacturing:</b> Train 250 individuals (25% from priority populations) & fund 15 sub-projects   <b>Access:</b> Enroll 50 healthcare facilities into the network; create 1,500 new jobs in research, data science, biotech & AI, and support over 100,000 BIPOC participants in clinical trials, improving access to precision medicine therapies.
<b>Years 6-10</b>	Continue to collect and report on key metrics and update sustainability plan.

### 3. Technical Problem Statement

The challenges specific to gene-based technologies are well known and bound by a common thread: there is no “one-size-fits-all” modality for the way we create, manufacture, and test these new technologies. The lack of platform technologies leads to longer development times; expensive and highly stringent manufacturing processes; inconsistent supply chains; long clinical trial and follow-up periods; complicated regulatory guidelines; costs across the entire development cycle; evolving reimbursement policies among payers; and inequitable access to interventions and requires a long-term vision and collaboration among all the projects from inception to deployment and access. [[Synecos Health](#)]. PROPEL addresses these challenges head-on at both the Project and Hub level.

**Technology.** Precision Medicine technologies have led to effective treatments, but the time and financial costs are significant barriers. New technologies such as artificial intelligence and CRISPR-based platform approaches to create new therapeutics address many of these bottlenecks, reduce time and cost, and are clear targets for funding under the **Entrepreneurship Project** [[Wellhausen, et al.](#)].

**Manufacturing.** The **Biomanufacturing Project** outlines the challenges associated with manufacturing Precision Medicines with its no “one-size-fits-all” standard ([C&GT Manufacturing 2024](#)). Instead, each product requires a unique manufacturing process, hindering scalability and compromising quality control and adherence to cGMP requirements. By establishing a network of regional sites and a mobile facility, the Biomanufacturing Project will accommodate technology demonstrations and workforce training necessary for relevant manufacturing operations.

**Clinical Trials.** Precision Medicine focuses primarily on rare diseases. Trial design, the length of trials, multiple sites and patient recruitment remain stubborn challenges even for more common indications (Sickle Cell, Hemophilia B), and signs of success may take years to appear. Again, there is no “one-size-fits-all” strategy. FDA and NIH mandates to increase the diversity of clinical trial participants only exacerbate the issue. We need new methods to design, execute and decode clinical trial data. The **Access Project** proposes to create a common, regional Institutional Review Board, which will approve all clinical trials at the region’s research, medical and contract institutions. Providing this single regional resource represents a significant achievement, and will result in increased predictability of clinical trials, improved speed to recruitment and results, and lower costs.

### 4. Global Competitive Advantage

The region's leadership in Precision Medicine plays a pivotal role in advancing both national security and economic competitiveness. Precision medicine, particularly in the life sciences sector, significantly contributes to the region's economic vitality, with nearly 495.7K individuals employed, generating \$33.8B in income and \$51.4B in gross value added ([Philadelphia Fed](#)). Moreover, precision medicine enhances national security by improving public health and readiness. Tailored medical treatments based on individual genetic makeup enable more effective disease prevention, diagnosis, and treatment, thereby bolstering the nation's resilience against public health emergencies and bioterrorism threats. Collectively, these are in alignment with the overall [Biden-Harris National Security Strategy](#) for Investing in our Strength and our Global Priorities. Recent advancements like Spark Therapeutics' Gene Therapy Innovation Center ([Spark Innovation](#)) confirm Philadelphia's status as a top global hub for advanced manufacturing ([Technical.ly](#)). Collaborative efforts, with strong workforce development and strategic investments, continue to strengthen the region's leadership in precision medicine.

The proposed component projects will leverage key assets, including emerging technologies from local research institutions and small companies transitioning to commercialization as well as 14 existing and

three planned incubators/accelerators to accommodate new companies and facilitate their growth. In summary, the region's leadership in precision medicine drives innovation, enhancing both national security and economic competitiveness. By advancing breakthrough technologies, strengthening economic resilience, and addressing critical health challenges, the region benefits local communities and the nation as a whole.

## 5. Private Sector

The private sector will be central to the Hub's success, from the young ventures and specialized service providers central to the **Entrepreneurship Project** to the pharmaceutical and biotech companies critical to the **Biomanufacturing Project**, the broader array of employers central to the **Workforce Project** (some of whom have already made specific commitments), and the varied voices that will advise the Hub.

The Hub will receive support from regional industry groups, including three state life-science industry groups from PA, DE and NJ and the NIIMBL industry group, which **collectively represent over 500 life science companies, including over 10 multinational pharmaceutical companies**. These organizations have committed to participate in Hub activities, serve on the Advisory Committee, and provide access to events and workshops to all Hub stakeholders.

The Hub will also receive support from the investment community. Collectively, Hub stakeholders have invested or co-invested with 90+ regional and national venture capital organizations, many of whom will be targets for the companies emerging from the Entrepreneurship Project and participate in Hub Investor Showcases and the region's life science industry organizations.

## 6. Public, Philanthropic, and Nonprofit Participation

As of the time of submission, PROPEL has received commitments from Project Lead organizations, the Commonwealth of Pennsylvania, the City of Philadelphia, the States of Delaware and New Jersey, and the Knight Foundation. We have built partnerships with many community-based nonprofits, such as Philadelphia Equity Alliance and Coded by Kids, and will continue to pursue and secure commitments from these and other partners. In addition, Ben Franklin, as a non-profit, will use its current investment resources from the Commonwealth and U.S. Department of Treasury (through our allocation from PA's SSBCI program). **NOTE:** No EDA Funds will be used for direct investment into companies and Ben Franklin investments will not be used as matching funds.

## 7. Sustainability Plan

The Hub's architecture, governance and aligned stakeholder commitments are designed to ensure it continues to operate beyond the five-year funding period and deliver on its ongoing mission during and beyond the 10-year horizon. The Hub's goal is to create a fully integrated technology discovery-to-deployment pathway, driving economic stability and continuous job growth, promoting health equity, and attracting new businesses and opportunities to the region. To achieve long-term sustainability, we will proactively address the opportunities outlined below, which collectively can assure sustainability of the Hub beyond Year 5:

1. **Establish a separate 501(c)3 non-profit** to centralize fund flow, enhancing governance and operational integration. This structure will mitigate challenges posed by project independence and facilitate support from foundations and corporate sources.
2. The Tech Hub designation creates a magnet that allows us to attract funds from varied sources. Already, the Knight Foundation has challenged others to support the workforce component.



3. The supported Hub technologies, including those in Phase 2 clinical trials, require more than five years for commercialization. Sustained **corporate, governmental, and philanthropic** funds will be a key complement to federal funding, which will become much more likely as we show success in years 1-3.
4. The Hub will adopt successful strategies from other federally funded Hubs that have continued post-funding, such as implementing a **membership model**. One example is [EWI](#) in Columbus, Ohio and Buffalo, NY, which transitioned from an NSF I/UCRC to state-funded and sustained for 20 years through membership. Another example is [Milwaukee's Water Council](#), founded in 2009 with support from corporate partners and federal grants, which remains viable primarily due to membership. These organizations also continue to compete for federal funding..
5. We are exploring a novel model for **revenue return**, recognizing that young ventures will be supported, in time, by private capital. This model will derive returns from both venture investments and licensing fees and allocate them back equitably to each Hub project.

## 8. Labor Participation

The argument for engagement with labor unions is clear. Labor unions look to high-tech, highly compensated biotech jobs as a source of new members and to upskill current members where significant skills gaps exist. Labor is also the voice for on-shoring technology and manufacturing and a strong advocate for public health ([Scientific American](#)). While labor unions do not have a significant presence in biotech and small companies, their importance to stakeholders in the **Access Project**, in particular hospital and medical systems, is well-documented. To that end, the **Workforce Project** will engage with regional labor unions, including the AFL-CIO, for collaboration opportunities that benefit priority populations and workers new to the industry. Further, Hub partner Philadelphia Equity Alliance is co-led by the Philadelphia Building & Construction Trades Council, whose mission aligns regional assets toward an equitable economic future.

## 9. Equity

The Hub has developed a detailed plan to ensure equitable distribution of the Hub's benefits across regional communities, especially focused on underrepresented populations. Informed by a report on diversity, equity, and inclusion (DEI) in the biotechnology industry, which highlights that “Black and Hispanic workers each represented less than 10 percent of the workforce” ([Measuring Diversity in the Biotech Industry](#)), the plan includes targeted programs that prioritize equitable distribution of resources, stakeholder collaboration, and community engagement to address these disparities.

1. **Tailored and Comprehensive Workforce Development Initiatives:** The Hub will implement targeted skills-development programs designed for underrepresented populations. These will address the unique needs and challenges these communities face, offering tailored outreach, training and educational opportunities that align with the demands of the life sciences and precision medicine sectors.
2. **Equitable Resource Allocation and Benefit Distribution:** Hub projects will be designed to prioritize equitable distribution of resources, opportunities, and outcomes. This will involve assessing the needs and assets of diverse communities and allocating resources accordingly. Strategies will be implemented to remove barriers to access and ensure that benefits reach all segments of the population, irrespective of race, ethnicity, gender, or socioeconomic status. The Hub is also committed to addressing equity gaps related to access to venture capital and other follow-on funding.
3. **Collaborative Stakeholder Engagement and Community Engagement:** The Hub has engaged a diverse array of stakeholders, including the Urban Affairs Coalition, 1Philadelphia,

and the Philadelphia Equity Alliance, to ensure that the voices and perspectives of underrepresented communities are central to decision-making. This collaborative approach will involve partnerships with community leaders and organizations, advocacy groups, non-profits, corporations, educational institutions, and government agencies.

## 10. Evaluation Plan

Since Designation, we have engaged and received proposals from three evaluation vendors, from which we will choose if awarded implementation grant funding. Best practices from all three are incorporated into the Goals & Outcome Metrics (**Table 3**, page 6). Goals assessment will be managed by the Hub-contracted assessment consulting agency with oversight from Ben Franklin as the Lead Member (see **Table 1**, page 2). The **Governance Project** will ensure that data is collected and reported in compliance with EDA requirements.

## 11. Housing Considerations

Career-seekers in the region encounter obstacles such as housing, childcare, reliable transportation, prior criminal record, income level, language and more. The Hub will collaborate with partners to address those obstacles by prioritizing wraparound services and integrating delivery models within the Hub. For example, partnerships with affordable housing organizations and expungement clinics will address housing and criminal record issues. The Hub will also leverage its stakeholder network to work with transportation authorities, private companies and others to explore creative solutions to improve transportation access, including the mobile manufacturing concept detailed in the **Bio manufacturing Project**. The City of Philadelphia, county economic development corporations like PIDC, and the Urban Affairs Coalition are partners committed to this integration.

## 12. Changes from Phase 1

Since receiving Tech Hub Designation, we have made substantial progress to refine our overall vision and codify projects and goals. While there is no change in the overall technology focus, the Workforce and Access prongs of our Hub now have an increased emphasis on training the next generation of a diverse workforce and employing those trained. We've also increased the emphasis on resolving bottlenecks to delivery of these new technologies through the Access Project (e.g. clinical trials), which addresses health equity and economic and national security.

- Completed Governance Document; developing Operating/MOU document ([PROPEL](#)).
- Identified and secured core Steering Committee members and planning to recruit other members, including project leads and John Swartely, CIO of the University of Pennsylvania.
- Secured diverse inaugural Technology, Innovation and Equity Advisory Committee.
- Developing appropriate sub-governance documents and policies.
- Completed identification of five projects, identified project leads and Regional Innovation Officer (RIO), and completed project elements to assure integration among all projects.
- Identified gaps and added new programmatically and regionally important stakeholders.
- Held regular, successful stakeholder meetings among all designation supporters to assure continued engagement, regardless of funding to those supporters.
- Continue to secure financial, match and programmatic commitments.
- Engaged corporate and venture partners from across the region and beyond.