Our Vision

Robotics and artificial intelligence, much like computers or the steam engine, will fundamentally reshape the economy as they are incorporated by nearly every industry in the coming decade. These sectors are the foundation upon which Southwestern Pennsylvania (SWPA) can renew our economic prosperity, address longstanding economic disparities, and strengthen American global competitiveness. Anchored by Pittsburgh, the SWPA region is a global leader in robotics and artificial intelligence (AI): today, there are more than 900 technology firms in SWPA, including a group of 70 companies in the rapidly growing autonomous systems sector that alone employ 6,300 people. To build upon this cluster we are proposing five projects that will enable small, medium, and family-owned enterprises (SMEs) to adopt these technologies and improve competitiveness, train workers with the skills to succeed in the decades to come, and support entrepreneurs to bring new applications to market. Our proposed projects form a strategy that will create new family-sustaining jobs, retain existing ones, and reduce disparities in race and gender and between urban and rural communities. We will realize the promise of these technologies to help us address global challenges and establish an economic regeneration model for Rust Belt communities. This is an investment to stimulate American SMEs – those that employ fewer than 500 people – and the workers who sustain our communities. In 20 years, our strategy's spillovers will include the establishment of a regional supply chain in this cluster, companies that anchor a generation of residents through family-sustaining jobs, and the economy-wide benefits of boosting American leadership in the 21st century's key technologies.

The SWPA region is uniquely positioned through the existing strength of our technology cluster and the cluster's vast potential. We will use this existing advantage to grow family-sustaining jobs and economic opportunity across all 11 counties that are in our Southwestern Pennsylvania New Economy Coalition (the Coalition). Representing 2.7 million people (20 percent of Pennsylvania's population), our Coalition will support workers and businesses of all backgrounds. By continuing to push the boundaries of innovation while building connections among our workers, businesses, and these emerging technologies, we will ensure that family-sustaining jobs are available and accessible to all who call SWPA home. Robotics and AI present a unique opportunity to continue the region's long history of developing and implementing technologies that can address the environmental challenges our industries face today, and make transformational investments that improve our environment and enhance air and water quality in ways that seemed impossible just a few years ago. Robotics and AI can make transportation and logistics more efficient, enable development of advanced materials for use in traditional and clean energy generation, and more.

Our Economic Opportunity

Southwestern Pennsylvania, a Coal Community, faces two challenges that highlight the transformational potential of this opportunity. Historically a leader in U.S. manufacturing and coal and steel production, in recent decades SWPA has suffered from deindustrialization and changes in the energy market, resulting in a severe decline in family-sustaining jobs and population and perpetuating disparities by race and gender and across the urban-rural divide. Manufacturing jobs in the area declined from 382,000 in the 1950s to 83,000 in 2019. As of 2018, only 31% of Pittsburgh's Black residents were employed in high-paying sectors, compared with 54% of White residents, and the unemployment rate among Black residents was nearly 3.5 times higher. These patterns are consistent throughout the region. Like manufacturing employment, coal employment in the counties represented by our Coalition has also been shrinking, decreasing by 35% to 2,000 jobs between 2005 and 2020. The Biden Administration identified three counties within our Coalition – Greene, Indiana, and Lawrence – as energy communities that are "hard-hit by coal mine and coal power plant closures, which should be prioritized for focused federal investment." The jobs

and salaries lost in manufacturing and coal industries severely impacted our local communities by reducing the demand for goods and services and drastically impacting our regional economy.

With the EDA's support for our strategy, we expect to address these challenges and create or retain 12,000 jobs and generate $335 million in direct regional GDP. We will achieve this by creating 1,500 net new jobs and retaining 10,500 jobs at small and medium companies – benefiting 1% of all regional workers and reversing the projected loss of 5,500 jobs in the region by 2030 and generating net growth in employment. Our goal is for at least 55% of our strategy's benefits – nearly 6,500 jobs, 180 companies, and $180 million in GDP – to happen in the 10 counties outside Allegheny County. Over the course of the program's five years from 2023 to 2027, we will invest to increase representation in jobs in AI and robotics by gender and race, increasing the share of women from 20% to closer to 50% and of Black and Latinx workers from less than 7% to closer to 12%. More significantly, SWPA will be a testbed for deployment of technologies of the future to transform our nation's critical industries – a model that can be replicated beyond this region.

Our Coalition

The Southwestern Pennsylvania New Economy Coalition – a public-private partnership of leaders from regional governments, workforce agencies, labor unions, educational and research institutions, economic development and community-serving organizations, and businesses – will realize our vision. Jointly led by the Allegheny Conference on Community Development and the Southwestern Pennsylvania Commission (SPC), our Coalition will advance this vision collaboratively throughout the two phases of this grant to build the economy of the future for this region and be a model for other Rust Belt communities. We will support a bottom-up approach to ensure that each community can define its specific priorities for advancing outcomes for workers, SMEs, and entrepreneurs in SWPA, especially those who have been excluded from opportunities for employment, wealth creation, and innovation. The Coalition, whose members have extensive experience in managing and distributing federal grants, has already held more than 10 workshops with over 200 key stakeholders across these sectors to inform our strategy; that is only the beginning in our plan to engage regional leaders and residents.

To ensure inclusion and community-driven results, we will use the Phase 1 Technical Assistance grant to engage communities throughout the region to co-design the projects that we submit to the Economic Development Administration (EDA) in our Phase 2 application. Coalition members that lead each project will work with stakeholders in each county to co-design and deliver the projects collaboratively with local educators, economic development and community-based organizations, labor unions, and businesses – a model our workforce boards have successfully employed before.

Our Projects

In response to the challenges and the opportunity that our region faces, we will pursue projects that span three categories: Adoption, Upskilling, and Commercialization.

Project 1 (Adoption): Support SMEs in designing and deploying robotics and AI solutions in their operations through technical assistance programs. This project will create a network of technical assistance providers and technologists representing industry, federal research labs, and universities to assist SMEs in adopting robotics and AI technologies. Target industries for adoption include agriculture, construction, education, energy, finance, healthcare, manufacturing, technical services, transportation and warehousing, and utilities. The technical assistance network will include:

- Technology needs assessments: Assess the opportunities that individual SMEs have to integrate robotics and AI technologies into their product design, development, and commercialization, as well as their production, worker-technology interfaces, and customer services systems.

- Adoption and implementation planning: Support SMEs to integrate robotics and AI in developing detailed plans on how to change their business processes, workforce, and other systems.
- Vendor navigation: Provide SMEs with resources to identify vendors that are suited to meet their needs, focusing on those that can design, prototype, commercialize, and deploy solutions.

Partners: Catalyst Connection, Digital Foundry at New Kensington, Pittsburgh Robotics Network, Pittsburgh Tech Council and Carnegie Mellon University will lead this project. We will build on their expertise, establishing technical assistance providers through our academic and federal R&D organizations, as well as through robotics and AI technology vendors in our network of industry-serving organizations.

Beneficiaries: This project will accelerate the rate at which SMEs integrate robotics and AI technologies, allowing them to remain competitive and create family-sustaining jobs.

Project 2 (Adoption): Provide capital to nonprofit centers of excellence to make facilities and supports available for SMEs to develop, test, and adopt robotics and AI technologies. This project will support SMEs in the time- and resource-intensive process of adopting technologies into their operations. This will provide value to SMEs that have identified opportunities to adopt robotics and AI technologies and require assistance to shift their operations at scale. Nonprofit centers of excellence will provide capital to SMEs to offset the barriers in accessing and deploying cutting-edge hardware and software. Supports will be available through spark grants (vouchers for SMEs to work with nonprofit centers of excellence to pilot robotics and AI technologies in a specific aspect of their operations); technical assistance vouchers (which SMEs can redeem to secure technical assistance from experts and technologists at nonprofit centers of excellence); and modernization grants (competitive grants that support SMEs' technology capital projects). All vouchers and grants will be structured to comply with EDA restrictions on grant and matching funding.

Partners: The Advanced Robotics for Manufacturing (ARM), Catalyst Connection, Digital Foundry at New Kensington, and Innovation Works will lead this project. We will build on their expertise in executing programs that provide financial support for manufacturing SMEs and apply their best practices to SMEs in other target industries. We will identify and engage SMEs through our network of 20+ Chambers of Commerce, labor organizations, industry partnerships and trade associations, community development financing institutions, and economic development agencies.

Beneficiaries: This project will increase the number of SMEs that have integrated robotics and AI technologies into their operations at scale and foster a stronger and more resilient supply chain between local firms and rob

otics and AI companies across the region.

Project 3 (Upskilling): Establish inclusive career pathways from high school and beyond, preparing new workers to thrive in robotics and AI and providing them with upskilling opportunities. This project will expand and diversify the talent pool in robotics and AI jobs and adjacent occupations in our target industries. By ensuring that programming leverages local providers and meets workers where they are, this project will build clear career pathways for traditionally underrepresented communities, emphasizing holistic support to participating students and workers while removing barriers such as lack of childcare, transportation, or educational prerequisites through wraparound services. Together, we will collaborate across sectors to develop and deploy industry-focused training and placement to ensure that historically underrepresented communities have the skills and access to mentors and professional connections. The Coalition will execute this project through a variety of initiatives:

- High school and young adult education: The Consortium for Public Education, Per Scholas, and four regional workforce boards will develop and expand programs for exposure and skills in topics including robotics and programming to empower the next generation of digital innovators and facilitate early access to careers and ongoing education through dual-enrollment programming, working with educational, labor, industry, and community-based organizations.
- Community and regional college programs: The region's four community colleges – in Allegheny, Westmoreland, Butler, and Beaver counties – and more than 25 colleges and universities, including Carnegie Mellon University, Indiana University of Pennsylvania, Pennsylvania State University (PSU), and the University of Pittsburgh, are already providing training in automation systems, engineering, and advanced manufacturing, incorporating registered apprenticeships, and on-the-job training to offer robust and accessible on-ramps to training. We will expand this work to support clear pathways to robotics and AI jobs.
- Registered pre-apprenticeships and apprenticeships: Led by the Keystone Development Partnership (which was founded by the AFL-CIO), ApprentiPGH and BotsIQ, the region has an extensive portfolio of technology-related apprenticeship programs integrated with secondary and post-secondary education and company-specific, on-the-job training.

Partners: Our Coalition and region have a deep network of workforce development partners that will support each area of this project for the entire ecosystem of employers, community colleges, bootcamps, workforce development boards, and community organizations. This network leverages labor organizations that have a strong history of providing training and placement support throughout our region and will be a key partner in informing and deploying our Upskilling initiatives.

Beneficiaries: This project will serve those who have historically been underserved, especially people in coal communities and Black, Latinx, and female residents of our region. The objective of this project will be to facilitate access to economic prosperity while also increasing diversity.

Project 4 (Commercialization): Develop robotics and AI accelerators that provide wraparound business support and development services. This project will provide growth-stage companies with resources to scale, and pathways from university research labs to the marketplace, creating jobs in SWPA. The support we provide will include access to high bay testing and development facilities and specialized equipment. These spaces will allow for collaboration and networking among firms, strengthening the ecosystem. This project will also include programs and resources that provide growth-stage companies with wraparound supports, including connections to mentors and targeted programs that focus on the key business functions that growth-stage companies need to scale: operations, fundraising, supply chain management, early customer adoption, and sales.

Partners: The Advanced Robotics for Manufacturing Institute, Riverside Center for Innovation, and PSU - New Kensington's Launchbox will lead this work through their spaces for robotics and AI and by establishing dedicated programs co-designed with entrepreneurs.

Beneficiaries: This project will support growth-stage firms that use robotics and AI, especially those with founders from underrepresented communities, creating family-sustaining jobs.

Project 5 (Commercialization): Build and strengthen pathways to entrepreneurship in robotics and AI for founders and aspiring founders from underrepresented communities. This project will expand opportunities, access, and support for founders of early- and growth-stage companies from underrepresented populations including women, Black and Latinx people, and rural and coal community residents who are seeking to grow their business. This project will build on the broader network of supports, including the accelerators in Project 4, ensuring that founders have access to necessary wraparound services like childcare and transportation. We will build an investor network, expand inclusive mentorship programs, connect students interested in entrepreneurship, provide

technical assistance to founders to plan their growth around recruiting diverse talent, and linking early-stage companies run by diverse founders with investors to support access to capital.

***Partners**:* Innovation Works, Riverside Center for Innovation, and Women in Tech PGH will lead this project. We will reach early-stage firms through our network of entrepreneurial support organizations that serve founders from underrepresented backgrounds, including Bridgeway Capital (our region's largest community development financial institution) and Magarac Ventures partners. We will leverage the expertise and networks of labor organizations, economic development organizations, and national research centers with a presence in Pittsburgh – such as the National Energy Technology Laboratory – in supporting entrepreneurs.

Beneficiaries: This project will support entrepreneurs from underrepresented communities in accessing resources to establish and grow robotics and AI firms, supporting family-sustaining job creation.

Our Complementary Investments

We will match federal investment in our cluster through project-specific funds from trusted partners, including state and local government, private industry, and our nationally recognized foundations. Members of our Coalition are in conversation with the Commonwealth of Pennsylvania about allocating significant funding to SWPA in support of our robotics and AI cluster. Our industry partners are committed to providing additional time and resources to advance the Coalition's vision, as outlined in Section II in the appendices. In addition to public- and private-sector resources, we expect to leverage funding from SWPA's philanthropic donors, who over the last five years have invested over $130 million to support programs to grow the region's robotics and AI cluster.

Potential Barriers and Mitigation Strategies

Our strategy will only be successful if we deliver economic benefits to all communities in our region, which are diverse by geography, demographics, industrial background, capacity, and available assets. We will balance achieving quick wins in each county with long-term strategies. We will also build in flexibility in our projects to allow them to respond to regional needs as conditions evolve over time. We will adopt an iterative approach in which we monitor project performance in key metrics, allowing us to adjust and improve delivery where necessary. Our stakeholder engagement is designed to support this strategy through intentional feedback loops that ensure that the voices of those served by the programs continuously inform implementation.

Our Implementation Timeline

Our strategy is ready to be implemented: we are building upon existing regional assets and do not depend on construction to get started. We will complete the Technical Assistance phase of our program by December 2022. By that time, we will have projects informed by and tailored to local needs, an active network of regional delivery partners, and a pipeline of participants for both worker- and company-focused programs that are ready to begin adoption, upskilling, and commercialization activities as soon as we receive Phase 2 funding and launch the projects.

We will phase the launch of our projects and scale them through pilots to ensure effective delivery. We will launch Adoption projects (#1 and #2) in Q1 of 2023 with pilots for up to 10 select SMEs and will expand the program to all counties and target industries by Q3 of 2023. We will also begin a pilot of Upskilling (project #3) in Q1 of 2023, delivering training modules in a subset of regional community colleges and universities before expanding the program throughout the entire region in 2024. For Commercialization, we will begin project #4 with outreach and engagement for participants in the accelerator program in Q1 of 2023 and will launch the first cohort by Q3 in parallel with the launch of or project #5 supports. We expect all projects to continue throughout the grant period (through September 2027) and to disburse all BBBRC funding by the deadline while lining up other sources to extend the projects beyond this date.