

1. Executive Summary

Robotics and autonomous technologies are revolutionizing industries as varied as agriculture, manufacturing, healthcare, energy, logistics, and retail. Robotics and autonomous technologies enable machines and systems to make decisions without human intervention in both the physical and digital realms. Their deployment will continue to reshape the global economy throughout the 21st century. Considered one of the next great “general purpose technologies,” robotics and autonomy will increase economic productivity, spur job growth, and integrate with other major, crosscutting business trends such as digitalization, cloud computing, and open-source software.¹

Home to 2.7 million residents, the Southwestern Pennsylvania (SWPA) region covers 11 counties and is home to one in five residents of Pennsylvania. Building upon our regional assets, as the Southwestern Pennsylvania New Economy Collaborative (the Collaborative) we will put people and communities first to supercharge SWPA’s globally recognized robotics and autonomy cluster and ensure that its economic benefits equitably reach individuals from all corners of our region. This effort represents the first time our region has developed a truly systemic approach to creating opportunity for workers and employers, weaving together five comprehensive, interdependent projects to encourage the adoption, upskilling, and commercialization of robotics and autonomous technologies. Our five interconnected projects will enable employers from across the region to become more competitive, workers to become more highly skilled, and restore a higher quality of life for all communities across our region. Our hub-and-spoke approach fosters regionalism by investing most resources outside of the urban core. For the first time in decades, we will offer displaced workers – many of them former coal workers – with distinct pathways to find training and work in the communities they love, an important part of our regional culture. Not only will we build a more dynamic, competitive, and knowledge-intensive economy; we will also revitalize urban and rural communities and restore a higher quality of life throughout SWPA.

The Build Back Better Regional Challenge (BBBRC) presents a once-in-a-generation opportunity for SWPA to lead the nation and globe in applying the benefits of tomorrow’s technologies across its industries and workforce. A focus on the robotics and autonomy industries will expand the cluster – currently anchored in Pittsburgh and Allegheny County – to all 11 SWPA counties, while also broadening the cluster’s reach by diffusing related technologies and talent across our core industries. Our focus on this cluster will keep the United States at the forefront of robotics and autonomy innovation and enhance regional and national competitiveness.²

2. Context, Vision, and Strategy for Growth

This grant opportunity comes at a time when SWPA – a Coal Community – faces demographic and economic headwinds from long-term deindustrialization, including a pivot away from the traditional energy sector and acute challenges presented by the COVID-19 pandemic and related recession. Many communities across our region are seeking a new economic future. SWPA has suffered as the U.S. manufacturing and coal industries have declined, resulting in significant losses of family-sustaining jobs and population. Manufacturing employment declined more than 75% from 382,000 jobs in the 1950s to fewer than 85,000 in 2020.³ Employment in the coal industry declined by more than a third between 2010 and 2020. With employment loss came significant population loss, affecting rural counties especially. (See Project Location and Region section for more details.) These shifts have perpetuated economic and quality-of-life disparities by race and gender and widened the urban-rural divide in the region. Incomes in seven of SWPA’s 11 counties are below the national average, and 10 have higher rates of unemployment.

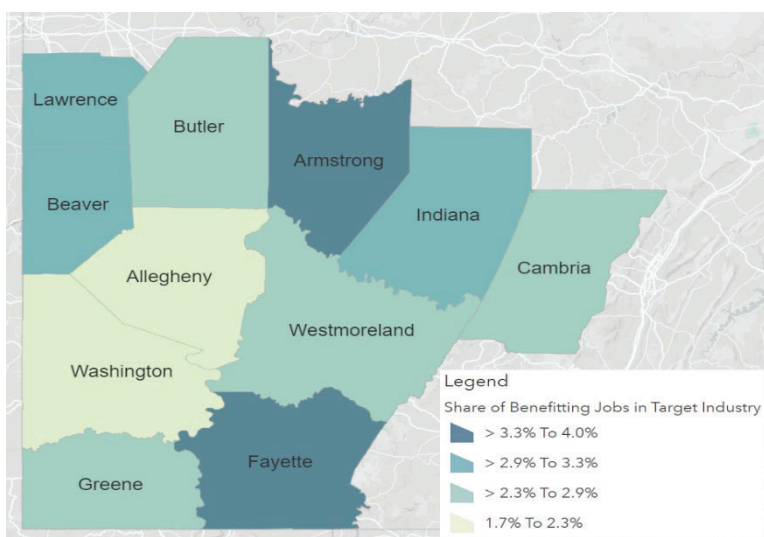
On top of economic and demographic challenges, the COVID-19 pandemic and resulting recession have exacerbated SWPA’s weak economic condition. According to the Pennsylvania Economy League of Greater Pittsburgh, as of early 2022, regional employment is still below pre-pandemic

levels and continues to lag peer regions and the nation. The region is experiencing the lowest labor force participation rate in 30 years.⁴

We project that the robotics and autonomy cluster can address the region’s economic and demographic challenges, enabling SWPA to renew its economic prosperity, address long-standing economic disparities, and strengthen U.S. global competitiveness. Regionally, robotics and autonomous technology-enabled jobs are projected to grow by 6.5% over the next 10 years, while all other jobs are projected to decline by 0.5%. The economic development framework implemented by these five interconnected projects will accelerate broader investment and economic activity across the region, initiating a virtuous cycle of growth.

Our region has a globally recognized robotics and autonomy cluster, and through this strategy we will achieve its full potential. We will provide small, medium, and family-owned enterprises (SMEs) the expertise and resources to adopt robotics and autonomy in their operations; help entrepreneurs turn ideas into successful products; create networks for entrepreneurs and SMEs to engage with each other to trade expertise, products, and services in regional supply chains; and increase talent with the right technical and business skillsets. Running across this will be a targeted effort to expand career opportunities for entrepreneurs and workers from historically excluded communities through access to mentorship and other resources. Together, these threads constitute an enormous opportunity to grow regionally and lead the nation in this critical cluster.

With the EDA supporting our strategy, we expect to create or retain 17,250 direct jobs and generate \$700 million in direct regional GDP. We will achieve this by creating 1,460 net-new jobs and retaining 15,790 jobs at small and medium companies – benefiting 2.2% of all regional workers and reversing the projected loss of 5,500 jobs in the region by 2030. We will assist the modernization and growth of approximately 1,200 companies by providing technical assistance and reducing the risk involved in adopting new technology, as well as by connecting SMEs in industries adjacent to robotics and autonomous technology startups.



At least 50% of our strategy’s benefits – approximately 8,600 jobs, 600 companies, and \$350 million in GDP – will accrue to the 10 counties outside Allegheny County.

Our strategy will expand opportunities for all workers, overcoming lack of trust as a barrier to adoption. Robotics and autonomous technologies do have the potential to reduce the need for some types of jobs, leading to resistance. Yet the history – and expected future – of these technologies demonstrates that new jobs will be created in occupations not previously anticipated and will help shift workers away from mundane and dangerous jobs towards more skilled operations.⁵ Recent research shows that firms that adopt autonomous technologies create more jobs. People will continue to play an active role in building and running machines, particularly in helping to solve problems in real world environments. We already see job postings prioritizing “human-machine teaming.” Many of these positions will be higher-skilled and provide family-sustaining wages while not requiring college or advanced degrees. We will work to make this potential clear and to demonstrate the opportunity to people across the SWPA region.

Our projects are deeply interconnected. Adoption resources are part of the Upskilling infrastructure and vital to Commercialization. Similarly, Commercialization efforts are central to the cluster, creating startups to strengthen our domestic manufacturing supply chain and fostering breakthrough technologies that will in turn transform Adoption activities and Upskilling programs across our region.

Project	Transformational Impact	Beneficiaries
<p>Adoption of robotics and autonomous technologies will allow SMEs to become more competitive, driving increased revenues and hiring.</p> <p><u>Project 1: SME Robotics Adoption</u></p>	<p>Modernize SMEs in a broad range of industries through technology adoption, strengthening SMEs while creating regional customers and supply chains for new technologies.</p>	<ul style="list-style-type: none"> SMEs and workers in the agriculture, construction, energy, healthcare, manufacturing, mining, and transportation industries
<p><u>Project 2: Robotics Manufacturing Hub</u></p>	<p>Create a Robotics Manufacturing Hub that will facilitate rapid deployment of technology within SMEs to increase their competitiveness and a build a network of five Enhanced Makerspaces across the SWPA region to provide tools and technical assistance.</p>	<ul style="list-style-type: none"> Manufacturers across all industry verticals “Main Street” entrepreneurs High-growth startups
<p>Upskilling will provide students and incumbent workers with training, placement, and wraparound services to enable them to transition to higher-skilled positions, increasing average wages and supporting worker retention.</p>		
<p><u>Project 3: Expanded Pathways to New Economy Careers</u></p>	<p>Expand the talent pipeline and allow people of different skillsets and educational aspirations to participate in robotics and autonomy careers, opening a range of training options outside of four-year and advanced degrees and ensuring that programs evolve based on industry needs.</p>	<ul style="list-style-type: none"> Current and future workers (including former coal workers) through programs for in-demand skills, occupations, and wraparound services Employers through a higher skilled workforce Regional training providers
<p>Commercialization will guide the region’s robotics- and autonomy-focused startups from launch to growth-stage companies and weave these new firms into the ecosystem of existing, multi-industry SMEs as both purchasers and suppliers of products and services.</p>		
<p><u>Project 4: Applied Robotics Startup Factory</u></p>	<p>Bridge gaps between a growing robotics and automation sector, a strong SME industry base, an existing entrepreneurial support system, and global academic and R&D leadership to create a robust entrepreneurial cluster with dedicated facilities and programming.</p>	<ul style="list-style-type: none"> Robotics and autonomy founders and startups Robotics and autonomy firms preparing to scale Manufacturers who will supply those firms
<p><u>Project 5: Expanded Pathways to Entrepreneurship</u></p>	<p>Expand the number and diversity of entrepreneurs in the cluster via two programs with significant industry support: Training and Market Access for Entrepreneurs and an annual 12-month Carnegie Mellon University-sponsored Fellowship.</p>	<ul style="list-style-type: none"> Entrepreneurs and aspiring entrepreneurs from historically excluded communities (e.g., women, people of color, veterans, rural and coal community residents)

The Southwestern Pennsylvania New Economy Collaborative will implement our strategy and govern its implementation. The Collaborative represents the full spectrum of public and private partners from across the 11-county region, including governments, workforce boards, organized labor, educational institutions, nonprofit and community-serving organizations, and innovators and businesses of all sizes. A diverse set of organizations will lead the projects over the grant period, responding to changing conditions on the ground and the evolving needs of those being served by each project.

Our regional assets are represented in the Collaborative Board of Directors, which is co-chaired by Dr. Farnam Jahanian, President of Carnegie Mellon University (CMU), and Stefani Pashman, Chief Executive Officer of the Allegheny Conference on Community Development (ACCD). The Board will guide the execution of the projects, ensuring they continue to work toward the shared vision and attain established goals. The Board will establish subcommittees, each led by a corporate sector Board member and subject matter expert, that will provide regular oversight of all projects. Additionally, the Board will secure accountability by requiring that each project lead track implementation against Board-established metrics for success; provide regular updates to relevant subcommittees; participate in an annual summit to report publicly on the project's activities and progress; and implement the Board's recommended plans of action to accelerate progress toward goals or to redirect in the event a project falls off course.

Leading the Collaborative will be the inaugural Regional Economic Competitiveness Officer (RECO). The RECO will guide this coordinated strategy, working as a convener and collaborator to harness the capacity of our diverse Collaborative and ensuring that each project achieves its goals. The RECO will participate in Board subcommittees and be responsible for the annual summit and adherence to recommendations. The RECO will be the EDA's single point of contact. Upon award of a Phase 2 grant, the Board will begin the search for a permanent RECO. The ACCD's Chief Equity Officer will support the RECO, Collaborative, and Community-Based Organizations (CBOs) on our Board by ensuring active involvement from historically excluded communities and requiring that our equity principles are foundational to all aspects of project implementation and evaluation.

Each project will have a project lead organization serving as the grant recipient for the project and responsible for its execution. Leads will be joined by project partners who will implement parts of projects distinguished either by activity or geographic area.

The region's globally recognized leadership in robotics and autonomy has driven economic growth in parts of the region, and we will expand these benefits to historically excluded groups like people of color, women, and rural and coal-impacted communities. Our Collaborative prioritizes equity by placing members of excluded communities at the heart of our decision-making and governance and targeting excluded communities through accountability metrics. Trusted, local organizations that have worked within these communities will execute this vision, including community colleges, workforce boards, labor unions, and small business development centers (SBDCs).

Our Collaborative's strategy embraces environmental sustainability by investing in a cluster that will facilitate a green transition by partnering with existing industries, not replacing them. Robotics and autonomous technologies enable emissions reductions in production and supply chains and through their business applications. In the region, these systems are being developed and used to perform environmental remediation, including cleanup of oil spills and sewer repairs; monitor decommissioned wells and mines; optimize use of materials in manufacturing and agriculture; and enable both large-scale energy grids and building-level systems to manage energy generation, storage, and optimal usage through artificial intelligence. We will ensure coordination and areas of collaboration between our cluster strategy and a decarbonization strategy being led by a tri-state partnership of large firms that will transition our energy sources, pursue carbon capture, test hydrogen as a fuel source, update our grids, and electrify transportation.

3. Project Location and Region

Our strategy will focus on the entire 11-county region of Southwestern Pennsylvania (see table below). The entire region requires investment to assist and empower historically excluded communities, which include women, people of color, and those that live in rural communities, many of whom have been impacted by the decline of coal and manufacturing. In SWPA, women earn 20% less and are more likely to live in poverty than men. Women are also underrepresented as business owners, and the average woman-owned business generates annual sales that are a third of the average for men-owned businesses. Earning gaps between white people and people of color are more pronounced in SWPA than nationally: median income for Black households in SWPA is 53% that of white households, and below the national figure of 61% – a difference of \$29,000. Black-owned businesses comprise 1% of the region’s businesses despite accounting for 8% of the population; their average annual sales that are less than a third of the average for white-owned businesses. Disparities between SWPA’s most- and least-advantaged neighborhoods are also growing: over the previous decade the earnings gap has increased by more than \$6,200. The 24-month unemployment rate in Allegheny (7.5%), though higher than the national average, is still at least 1 percentage point lower than four other SWPA counties, including Fayette which has a 24-month unemployment rate above 10%. Though SWPA’s population has declined since 2000, outlying counties to the south and east of Pittsburgh – Cambria, Fayette, and Greene – have borne the brunt of these losses, seeing double-digit percentage population decreases over two decades.

County	FIPS Code	2020 Population	% Pop. Change 2000-2020	Unemployment	ACS PCMI
Allegheny	42003	1,250,600	-2.4%	7.5%	\$38,700
Armstrong	42005	65,600	-9.4%	8.5%	\$27,700
Beaver	42007	168,200	-7.3%	8.6%	\$31,300
Butler	42019	193,800	11.3%	6.7%	\$37,800
Cambria	42021	133,500	-12.5%	8.3%	\$26,000
Fayette	42051	128,800	-13.3%	10.1%	\$27,400
Greene	42059	36,000	-11.6%	8.4%	\$27,800
Indiana	42063	83,200	-7.1%	8.0%	\$26,500
Lawrence	42073	86,100	-9.1%	8.8%	\$28,900
Washington	42125	209,300	3.2%	7.9%	\$35,500
Westmoreland	42129	354,700	-4.1%	7.6%	\$34,300
SWPA Total		2,709,700	-3.5%	7.8%	\$35,000
United States		331,449,300	17.8%	6.7%	\$34,100

Bold values under Percent Population Change 2000-2020 denote population loss; bold values under 24-Month Unemployment denote rate that is at least 1% point higher than the national average; bold values under ACS 5-Year per capita money income (PCMI) denote values at least 10% below the national average.

Sources: U.S. Bureau of Labor Statistics (unemployment) and U.S. Census Bureau (ACS 5-year PCMI) data.

Our vision is consistent with SWPA’s 2017 Comprehensive Economic Development Strategy (CEDS), *Mapping the Future*,⁶ produced by Collaborative and Board member the Southwestern Pennsylvania Commission (SPC). *Mapping the Future* recommends supporting strategic industry clusters, such as robotics and autonomy, and highlights goals including:

- *Existing business retention and expansion:* Supported by Adoption and Commercialization projects for existing SMEs to adopt robotics and autonomous technologies and both existing SMEs and startups in the industry to connect to expanded market opportunities.
- *Improving the quality and quantity of the region’s workforce to meet the demands of emerging industries:* Directly supported by the Upskilling project.

- *Attracting and retaining a diverse population:* Supported through Commercialization projects that encourage entrepreneurship, especially among historically disadvantaged communities.

This vision is also consistent with the CEDS for Cambria County – the only county in SWPA outside of SPC’s jurisdiction – prepared by the Southern Alleghenies Planning and Development Commission, which targets diversified job growth. *Advancing the Alleghenies’* goal is to expand the regional economy by continuing the region’s transition to a more technology-enabled, diversified economy; creating an entrepreneurial environment to support startups; and supporting workforce development initiatives that build the talent pipeline and enhance the skills of the incumbent workforce to ensure regional competitiveness.⁷

The Southwestern Pennsylvania Region: A Coal Community

Each of our 11 counties has workers in the coal industry vertical (production, supply chain, transportation, and generation). Employment across these sectors declined by a third from 2010 to 2020, from 11,100 to 7,500 jobs, with further losses projected over the next three years. This has meant the loss of jobs that pay more than the regional average without growth in other sectors with family-sustaining jobs. The Appalachian Regional Commission indicates that all SWPA counties have high dependence on coal and high risk of suffering the impacts from a decline in coal, and the U.S. Intergovernmental Council on Energy Communities ranks this region in the top 25 most coal-dependent areas in the nation. The Biden administration specifically identified three counties in the SWPA region – Greene, Indiana, and Lawrence – as energy communities that have been “hard-hit by coal mine and coal power plant closures, which should be prioritized for focused federal investment,” in the *Working Group on Coal and Power Plant Communities and Economic Revitalization* report.

Our projects will complement other transformative initiatives planned or underway in SWPA. The Robotics Innovation Center at CMU will provide flexible spaces for research, integration, and commercialization of robotics technologies and a large, unique testing area.⁸ Broader initiatives include advancing the Regional Industrial Development Corporation’s 2021 “Forefront” report’s recommendations to help secure the region’s position in autonomous mobile systems, including the expansion of an industry cluster of engaged stakeholders and fostering business growth and talent development. This proposal aligns with efforts to reskill workers – particularly energy sector workers – for STEM industries.⁹ Across the region, SPC is partnering with a broad base of regional stakeholders to develop a roadmap for equitable access to broadband, providing a crucial ingredient to enabling adoption of robotics and autonomy technologies across SWPA.¹⁰

4. Private Sector and Philanthropic Participation and Financial Sustainability

Our region has a long history of cooperation between leaders in government, business, and nonprofit and civic institutions. Founded in 1944, the ACCD was one of the earliest public-private partnerships aimed at regional economic development when it was founded by business leaders, local government, and philanthropists. Moreover, initiatives like InnovatePGH – a public-private partnership of universities, business, government, and philanthropy built to accelerate the region’s status as a global innovation cluster – demonstrate the breadth of cooperation among our regional partners.

The private sector and philanthropic community will guide development and execution of the projects, including through roles on the Board. Pittsburgh has the largest philanthropic community nationally on a per capita basis, and is committed to ensuring the financial sustainability of these projects. The local foundations will continue to seed innovation, support capacity and expansion for regional educational institutions, and drive commitments targeting excluded communities. The private sector will inform training curricula and execution, communicate talent demand, and participate in training and hiring.

With \$88 million in EDA funding, we will leverage \$22 million in matching funds from our Collaborative and tens of millions in additional complementary investments throughout the grant award period and beyond. We will multiply each federal dollar, enabling our projects to continue beyond 2027 through a combination of capacity-building investments, revenue-generating activities, and sustained support from partners. The Board will guide projects towards sustainability. All projects will continue to generate strong value for people and businesses past 2027.

- Project 1 will generate ongoing funds through the project lead's established fundraising network from state, corporate, and local philanthropic sources and will generate program revenue to sustain its operations by providing fee-for-service technical assistance to SMEs.
- Project 2 will generate ongoing funds through the project lead's established fundraising network from state, federal, and local philanthropic sources and will, in addition, pursue sponsorship agreements with the lead's more than 340 corporate members and potentially through a fee-for-service model. The makerspaces are embedded with existing organizations and will leverage fee-for-service, state and, foundation support for their continued operations.
- Project 3 will, by the end of 2027, have built extensive training capacity that persists through a train-the-trainer approach and established connections between industry and training providers.
- Project 4 will have ongoing revenue through a combination of state, local philanthropic, and corporate funding, as well as returns from investments made in startups – a proven model from the operator's three existing accelerators.
- Project 5 will structure ongoing funding for its two programs separately. For Training and Market Access for Entrepreneurs, entrepreneur-serving organizations, the SBDCs, and project leads will identify and secure external funding to sustain programming and outreach. For the Fellowship, CMU will seek to fully fund operational and program delivery costs after 2027.

5. Community-Based Organizations and Labor Unions

The Collaborative's management model involves partnership with CBOs and labor to disseminate resources and expertise to workers, SMEs, and historically excluded communities. By supporting over 100 CBOs and other organizations, we will leverage CBOs' experience and relationships to ensure that these communities can guide decision-making and benefit from our projects. Our projects will involve locals from four unions, the Allegheny-Fayette Central Labor Council, AFL-CIO; United Steelworkers (USW); International Brotherhood of Electrical Worker (IBEW), and United Mine Workers of America (UMWA). Unions and CBOs have seats on our Board through Juan Garrett (Executive Director, Riverside Center for Innovation), Darrin Kelly (President, Allegheny-Fayette Central Labor Council, AFL-CIO), and Kim Miller (Assistant to the President, United Steelworkers).

- Project 1 will work with labor leaders to support outreach to SMEs through the unions' relationships with businesses, amplifying the impact of Catalyst Connection's outreach team.
- Project 2 will consider union and CBO affiliation and benefits in its screening process to select the five regional makerspaces, ensuring that these spaces are accessible to those communities.
- Project 3 will engage all four labor partners to work with regional firms to refine workforce upskilling and provide needed training (including in facilities in Projects 2 and 4), either directly or through partnerships with other providers. This project will also support training and wraparound services provided by community colleges, workforce boards, regional universities, and other regional ecosystem actors with close links to local CBOs.
- Project 4 will enable entrepreneurs to tap into labor expertise related to scaling production from prototyping to commercial levels and allow labor to stay current on emerging technologies and how they shape the needs for talent and workplace structuring.
- Project 5 will engage with CBOs for both its programs, including the Riverside Center for Innovation (which serves women, minorities, veterans, LGBTQ+, and others), SBDCs (which serve businesses in rural and coal-impacted areas), Women in Tech PGH, and Black Tech Nation.

These partnerships will advance career pathways for entrepreneurs from historically excluded communities through existing and new relationships.

6. Equity

Our Collaborative's equity strategy has multiple prongs. First, members who work with excluded communities guided this strategy's development and will guide grant implementation and ongoing planning. Second, we will leverage member organizations with capacity and trust to engage excluded communities. Many of our partner organizations serve excluded populations directly, supporting students, workers, entrepreneurs, and SMEs led by women, people of color, and people from rural and coal communities. These organizations will receive resources for work as a critical contribution to the cluster's success. Third, each component project identifies barriers to equitable participation and growth in its planned activities and develops strategies to overcome these barriers. Lastly, all five projects are guided by a common set of inclusive growth and equity principles developed in conjunction with our partner organizations and the ACCD's Chief Equity Officer. Each component application addresses these factors in detail, but planned activities and partner commitments include:

- Project 1 will facilitate access to technical assistance resources for SMEs in distressed neighborhoods, many of whom operate in coal communities across SWPA. By providing opportunities for technology adoption, SMEs in these places will be able to expand capacity, increase revenues, and hire additional workers at higher wages.
- Project 2 will connect SMEs to business development opportunities with startups. In addition, makerspace facilities in coal-impacted communities will serve as an on-ramp to resources and help spread programming geographically across SWPA.
- Project 3 will establish inclusive career pathways for workers, especially those from excluded communities. This project will address underlying barriers such as non-instructional support for career exploration, childcare, transportation, living stipends, and mentorship. Training assets will be spread across the region at community colleges, workforce development boards, and regional universities, ensuring access for residents across SWPA.
- Project 4 will grant priority access to its facilities and programming to graduates from the Fellowship program in Project 5 and directly engage startups with small manufacturers in outer counties creating increased demand for their manufacturing services, thereby enabling them to benefit from the high growth potential of new startups.
- Project 5 will empower and support entrepreneur support organizations (ESOs) in the region to deliver expert training, mentorship, and networking to entrepreneurs from excluded communities as they work to start businesses and expand their reach. The project will also create a competitive fellowship to prepare entrepreneurs from excluded communities to launch their own companies as part of SWPA's robotics and autonomy cluster.

The Board will ensure accountability for equity goals through MOUs with project leads and partners. We will disaggregate metrics to assess progress for historically excluded communities to provide regular insight into whether the impacts are distributed equitably. Unlike project goals, these metrics are shaped by factors outside the control of the Collaborative but are indicators of the region's progress toward equitable economic development. The Collaborative's equity goals, and progress on them, will be an important aspect of regular reporting to the Board, including the annual summits.

7. Goals and Outcomes

Each project has expected impacts measured by outputs and outcomes, aligned with the SMART framework (specific, measurable, attainable, relevant, and timebound). In addition to project-specific goals, the Collaborative has outlined desired outcomes for the region based on EDA and complementary investments in the cluster. By March 2027, these outcomes will include:

- **17,250 direct jobs created and retained** including the creation of 1,460 net-new jobs and retaining more than 15,790 jobs at SMEs across the region. Combined, our goal is for 55% of all jobs created and retained by our projects to occur in counties outside Allegheny County.
- **14,150 students and workers trained and placed** from Project 3 activities. Applicants will track earnings before and after training and placement, worker residence, and other characteristics such as gender, race, and ethnicity. We will target participation rates by residents outside Allegheny County (60%), women (25%), and people of color (20%), improving on the current baseline.
- **1,200 companies of various sizes assisted across the region**, including nearly 1,100 SMEs supported in Projects 1, 2, and 4 and small business clients assisted in Project 5, equal to 3.2% of the region's total SMEs. Projects will track SMEs by firm industry, location, and race and gender of SME ownership, as self-identified by assisted companies. To ensure the benefits of this assistance are shared broadly across the region, we will seek to ensure that half of these companies are outside Allegheny County. Projects will also measure themselves against current baselines for women- and minority-owned firms.
- **\$700 million in regional GDP.** The Collaborative will also track GDP of each of the 11 counties in SWPA. To ensure the benefits of these projects reach the entire region, we will aim to have more than half of this economic activity occur outside of Allegheny County.
- **\$130 million in private follow-on investments** to companies receiving support through Project 4 based on comparable startups in similar industry sectors in existing accelerators.

We will continually assess individual projects and the broader initiative during the award period, including, but not limited to, quarterly project reporting to relevant subcommittees and an annual summit of the Board and Collaborative. These assessments will track project outcomes, opportunities to improve performance, and help identify which projects can scale and exceed initial goals.

8. Overview of Work Between Phase 1 and Phase 2

Between November 2021 and March 2022, we engaged regional communities to advance this strategy. We convened four workshops with an additional 15 key stakeholders, primarily outside of Allegheny County, to establish roles and define success for a Phase 2 award. We convened over 80 organizations in November, January, and February to provide updates on our project development, receive feedback, and ensure buy-in for our vision for equity and regionalism. We also held Board meetings in January and February to confirm our governance structure, strategic goals, and industry engagement approach for Phase 2 and beyond. The responsive changes we made to our strategy are detailed below.

Our Collaborative has strengthened our partnership with labor, expanding from one to four directly involved unions. The labor partners helped shape the proposed projects and committed to specific roles, including to train over 1,000 workers and connect nearly 100 SMEs to the initiative, ensuring that our workers are placed in well-paying, family-sustaining careers.

We have also engaged local, regional, and federal elected officials. Collaborative Board Member Leslie Osche, Chairman of the Board of Commissioners for Butler County and Secretary-Treasurer for SPC, guided our rural and coal communities strategy. Upon taking office, we included newly elected Mayor Ed Gainey – Pittsburgh's first Black mayor and a Collaborative Board member – in our efforts, receiving his endorsement for our commitment to removing barriers for historically excluded communities. We have met multiple times with the office of U.S. Senator Bob Casey of Pennsylvania, who has shown tremendous interest in our strategy. In addition, we met with the offices of Senator Pat Toomey and Congressmen Mike Doyle, John Joyce, Mike Kelly, Conor Lamb, Guy Reschenthaler, and Glenn Thompson, as well as with state-level elected officials. Lastly, President Biden and Secretary Raimondo visited Mill 19 – a former steel mill converted to a robotics

innovation center and site of our future Robotics Manufacturing Hub – and touted the region’s accomplishments in robotics in January 2022.¹¹ We briefed the President, Secretary, and members of their delegation.

Starting in January, we established working groups to further refine the projects in our three categories of Adoption, Upskilling, and Commercialization, each of which met weekly with oversight from a Steering Committee that provided oversight and liaison with the Board.

- Adoption (Projects 1 and 2): Through dozens of meetings with representatives of more than 35 organizations and a survey for the region’s over 90 robotics and autonomy companies, we engaged universities, manufacturers, cluster experts, and economic development organizations to understand the technology adoption context. The group identified opportunities for SMEs to integrate new technologies into their production and needs for Enhanced Makerspaces.
- Upskilling (Project 3): We mapped the region’s robotics and autonomy educational and training ecosystem, including surveying more than 20 organizations representing over 1,000 training programs. We conducted interviews with more than 20 individuals at organizations across the region and held numerous meetings to identify barriers to expanding programming, attracting/graduating students from historically excluded communities, job placements, and industry participation in needs identification and curriculum guidance.
- Commercialization (Projects 4 and 5): We met with 45 representatives of ESOs, training providers, universities, accelerators, mission-driven lenders, industry groups, and public-private partnerships and identified gaps in the robotics and autonomy ecosystem for excluded populations; interventions to address those gaps; and relevant best practices. Refined interventions will include assisting firms with development and commercialization processes; robotics and autonomy firms entering regional supply chains to design, prototype, and market their products; and building connections across the region.

List of Changes to Strategy Since Phase 1

Our Phase 2 application includes the following material refinements from our Phase 1 application.

- Project 1 (Adoption): We will now focus on a smaller number of industries and firms that are best suited to receive technical assistance to adopt robotics and autonomy.
- Project 2 (Adoption): We shifted away from providing capital to centers of excellence to assist SMEs. Instead, we shifted technical assistance to Project 1 and focused Project 2 on establishing a Robotics Manufacturing Hub. This hub will benefit SMEs by providing a facility to de-risk the implementation of advanced automation prototypes. We also added support for five regional makerspaces that will be digitally connected to the Hub creating a hub-and-spoke approach.
- Project 3 (Upskilling): We created a hub-and-spoke structure to ensure equitable distribution of upskilling opportunities across the region and selected partners who are best positioned to help underrepresented populations achieve success in new economy careers. We also added programming to ensure that all partners have access to high-quality teaching curricula and technologies, strong connectivity with industry, and effective collaboration.
- Project 4 (Commercialization): Our model for the accelerator shifted from being focused solely on growth-stage companies to encompassing pre-launch and launch-stage companies with significant industry engagement to improve outcomes and provide a unique solution that gives entry points to startups of different maturity levels. We also enhanced our prototyping and growth models to increase focus on leveraging local supply chains and to network startups with regional SMEs who can fabricate core components and systems locally, instead of overseas.
- Project 5 (Commercialization): We expanded to include grassroots organizations trusted by target communities. We also added a competitive Fellowship for aspiring entrepreneurs from excluded communities, which will integrate new talent into the region’s cluster ecosystem.