

I. SYNOPSIS

Vision: The **Georgia AI Manufacturing (GA-AIM) Technology Corridor** will revolutionize the industrial economy of Georgia and the nation through the *equitable, development and deployment of talent and innovation in artificial intelligence (AI) for all manufacturing sectors*. GA-AIM will develop, promulgate, and implement a model for activating AI manufacturing, ensuring (1) the engagement and participation of underserved populations and communities and (2) the resilience of U.S. manufacturing from future shocks and global competition.

Success Metrics: GA-AIM will redirect today’s equity trajectory for technological opportunity towards demographic and geographic justice while creating an ecosystem that outpaces and averts tomorrow’s potential crises. GA-AIM will increase GA women and Black manufacturing workforce participation from 18% and 6% today to 23% and 15% in 5 years, respectively, and to 30% each in 10 years. GA-AIM will also close the wage gap in 75 rural and distressed counties and bring at least 10/25 of them out of distress in 5/10 years. In total, considering the average GA-AIM IMPLAN multiplier of 2.7, **16 companies documented a combined economic benefit of GA-AIM to their businesses will be greater than 28,800 jobs created, 10,000 jobs saved, and \$106,000,000 of private investment in 4-5 years.** This impact projection is made across only 1/3 of the more than 50 companies who have already established partnerships in GA-AIM. Across the Nation, GA-AIM advances 12 of the 17 U.S. National Academies key recommendations for U.S. materials and manufacturing global competitiveness in the coming decade, including that the U.S. should expand manufacturing programs in structural and energy materials; improve the economic sustainability of manufacturing of materials and parts; ensure that U.S. academia, industry, and government can access state-of-the-art facilities; and expand investments in automated materials manufacturing, especially automated materials synthesis and parts manufacturing, to ensure the U.S. is the leader in the field by 2030; all using, when appropriate, data analytics, machine learning, and autonomous 3D characterization.¹

Motivation: COVID-19, cyber-attacks, and global warming have exposed and accelerated the need for U.S. manufacturers to simultaneously increase their security and the pace of adopting new technologies and supply chain models. AI is the top technology investment need identified by manufacturers according to data from the National Association of Manufacturers, with 35% having already initiated investment, and another 47% considering investment soon.² 85% of those manufacturers cite the pandemic as the impetus for the marked increase in uptake in the most recent survey.² GA is an epicenter for these disruptions; Savannah port shipping crises,³ ransomware attacks,⁴ and poultry manufacturing losses⁵ hurt the economy in 2021. They were attributed to high technology transition times and costs, lack of technically qualified workforce⁶, and insufficient supply chain resilience.³ Moreover, COVID-19 disproportionately impacted minority⁷ and rural⁸ communities within GA and has resulted in the fifth largest number of state-wide COVID jobless claims in the nation from March 2020 to May 2021.⁹

AI infusion into manufacturing can utilize sensors and networks across modern digital infrastructure to continuously learn across millions-to-billions of tasks at the same time and rapidly transmit their knowledge to us and each other, making manufacturing more efficient while generating thousands of high paying AI manufacturing jobs. We need cooperative, secure, reliable,

¹ National Academies of Science Engineering and Medicine, ed., *Frontiers of Materials Research: A Decadal Survey*, National Academies Press, Washington, DC, 2019.

² <https://www.manufacturingleadershipcouncil.com/pedal-to-the-metal-24076/?stream=survey>

³ 14 October 2021, NYT, P.S. Goodman, “‘It’s Not Sustainable’: What America’s Port Crisis Looks Like Up Close”

⁴ <https://www.wsbtv.com/news/local/north-fulton-county/fbi-confirms-criminal-gang-responsible-ransomware-attack-gas-pipeline/ANOOVVF73FDEZE4MKBTDFLUMRE/>

⁵ <https://www.caes.uga.edu/research/impact/impact-brief/10060/estimating-economic-losses-from-covid-for-poultry-industry.html>

⁶ <https://www.cnn.com/2021/05/12/tech/colonial-pipeline-cyber-security-manager-job-search/index.html>

⁷ <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html>

⁸ <http://www.georgiahealthnews.com/2021/08/rural-georgia-counties-reeling-virus-onslaught/>

⁹ <https://www.nbcnews.com/business/economy/unemployment-claims-state-see-how-covid-19-has-destroyed-job-n1183686>

socially responsible, and trustworthy artificial intelligence (AI) innovation to ensure U.S. global manufacturing leadership. Today, women contribute only 18% and Black Americans less than 6% of GA manufacturing workforce, yet GA population is 51.4% women, 39.8% non-White, and 32.6% Black – one of the three most diverse states within the U.S.¹⁰ Furthermore, nationally, it is projected that Black Americans will experience 10% greater job loss due to automation and AI without immediate change.¹¹ We must also pursue equitable AI innovation that supports a diverse workforce -- among the advanced manufacturing workforce, Importantly, – and is thus poised to grow an equitable and diverse manufacturing workforce.

Coalition Members: Georgia is uniquely positioned within the Nation for implementing this vision given the variety of our manufacturing sectors and the diversity of our workforce. Furthermore, decades of past collaboration among GA-AIM coalition members have delivered economic, technological, and societal change for Georgia. The GA-AIM Coalition is led by Regional Economic Competitiveness Officer (RECO) Prof. Thomas Kurfess and the inaugural Director of the Cluster Operations Governance Advisory Committee (COGAC) Ms. Donna M. Ennis, C.P.F.

Kurfess is instrumental in strategic planning for technology and workforce development for the Nation. He led the advanced manufacturing team at the White House Office of Science and Technology Policy for the Obama administration (2012-2013). Key technical areas he identified for U.S. advanced manufacturing dominance are enacted through now established USA Manufacturing Innovation Institutes and their workforce programs. In his more recent role as Chief Manufacturing Officer at Oak Ridge National Lab (2019-2021), he formulated strategic plan for identifying critical nascent technologies for U.S. advanced manufacturing, and scaling moving them to a higher TRL for deployment in U.S. industries. This effort culminated in founding a new Manufacturing Science Division (MSD) at ONRL with approximately \$200M in annual expenditures and 185 personnel. MSD worked closely with industrial, educational and government partners to move technologies forward in a wide variety of critical areas including 3D printing, advanced/high temperature materials, composites and hypersonics. His team strived to fulfill their mantra, “Innovating faster than the competition can copy,” and is used as an exemplar for advanced manufacturing teams throughout the Nation and the world.

Ennis provides leadership across all GT EI² units and serves as director and operator representative for the Georgia Minority Business Development Agency (MBDA) Business & Advanced Manufacturing Centers and the Southeast MBDA Inner City Innovation Hub. In this role, she provides strategic direction, marketing, outreach, and operations for the Centers and the Innovation Hub and business assistance to Minority Business Enterprises (MBEs). She has been at the forefront of helping MBEs learn and understand the role that technology plays in scaling businesses and established the annual National MBE Manufacturers Summit to connect MBE manufacturers for partnerships with corporations and other suppliers. She also launched the NEXTTECH initiative for MBEs to bring technology solutions to federal agencies and corporations. Under Donna’s leadership, the Centers have assisted companies in generating over \$3.5B in contracts, financing, and sales and creating or retaining more than 6,000 jobs.

Institutionally, GA-AIM is led by the Georgia Institute of Technology (GT) and the GT Enterprise Innovation Institute (EI²). Membership includes the project leads shown in the table below and their partners: Project 1 - Georgia Manufacturing Extension Partnership (GaMEP), Georgia Minority Business Development Agency (GMBDA) Business Center, Advanced Technology Development Center (ATDC), Economic Development Lab, Partnership for Inclusive Innovation, VentureLabs, I-Corps South, GT Supply Chain & Logistics Institute, K-12 Hispanic STEM engagement (GoSTEM), and the Center for Education Integrating Science, Mathematics and Computing (CEISMC); Project 2 - Technical College System of Georgia (TCSG), Spelman College, Georgia Poultry Federation, Georgia Veterans Education Career Transition Resource Center (VECTR); Project 3 - Russell Innovation Center for Entrepreneurs (RICE), University of Georgia

¹⁰ <https://www.brookings.edu/research/americas-racial-diversity-in-six-maps/>

¹¹ <https://www.businessinsider.com/mckinsey-finds-black-men-will-lose-more-jobs-automation-2019-10>

(UGA), Technologists of Color, Albany Community Together; **Project 4** - GA Cyber Center, Augusta University, Savannah River National Laboratory, U.S. Army Ft. Gordon; **Project 5** - Technology Association of Georgia Education Collaborative (TAG-Ed); **Project 6** - 21st Century Partnership, Houston County Development Authority, Middle Georgia Regional Commission, Warner-Robins Airforce Base; **Project 7** - Southwest Georgia Regional Commission (SWGRC), Albany State, GA Center for Rural Prosperity and Innovation, Colquitt-Moultrie Development Authority, United Way of Southwest GA (UWSGA), Salvation Army, Red Cross, Southwest GA Community Organizations Active in Disaster; **Project 8** - GT Manufacturing Institute (GTMI), GT Ethics, Technology, and Human Interaction Center (ETHIC^x).

As lead applicant, GT will lead governance. GT currently manages more than \$2B/yr in technology and workforce development programs, including EDA grants. These resources and experiences

ensure that GA-AIM will be successfully managed. GT is a foundational pillar in the GA nation-leading AI Manufacturing economy, as evidenced by 3 of 10 NSF AI Institutes awards to GA (the most of any state) and the #1 GT manufacturing program and “top 5” computing, cyber security, and engineering programs as ranked by U.S. News and World Report. GT ranks #1 - #3 nationally

Project Title	Lead	Leader
GA-AIM Competitiveness & Governance	GT, EI ²	Prof. Kurfess & Ms. Ennis
1. Community Engagement	EI ²	Ms. Ennis & Mr. Bridges
2. Technical Workforce Development	TCSG	Ms. Beaudette & Prof. Volcy
3. Underserved Entrepreneurship Activation	RICE	Ms. Prince & Prof. Camelio
4. Manufacturer Cyber Security Adoption	Cyber Center	Mr. Toler
5. Manufacturer Engagement	TAG-Ed	Ms. Maxfield
6. Middle GA Innovation Infusion	21 st Century	Brig. Gen. (Ret.) Kubinec
7. Southwest GA Ecosystem Building	SWGRC	Ms. Shiver
8. AI Manufacturing Pilot Facility (AI-MPF)	GTMI	Prof. Stebner

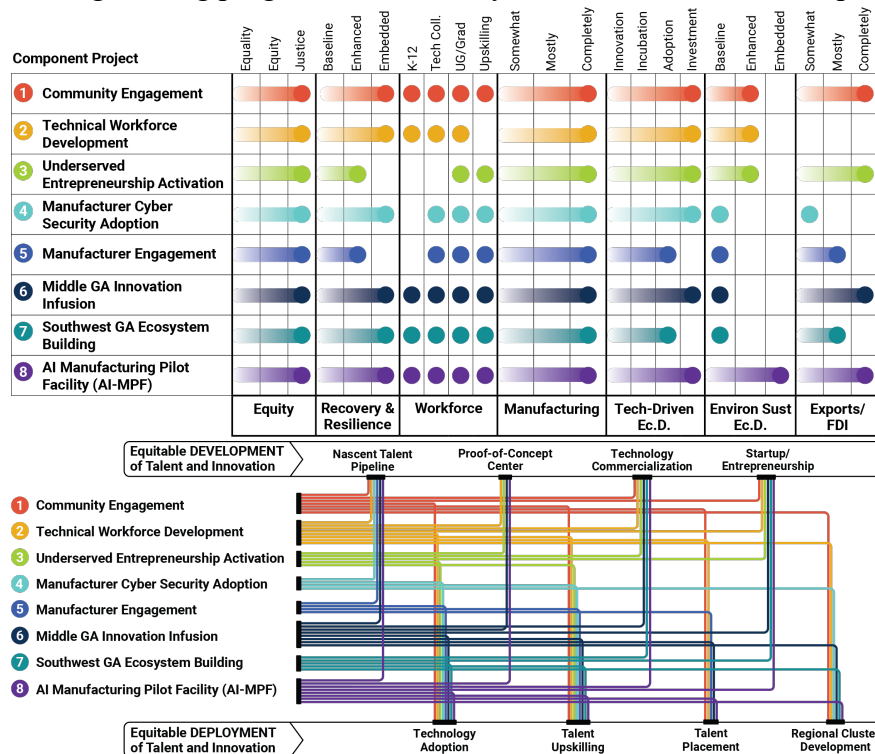


Fig. 1: Collectively, GA-AIM projects advance all 7 EDA investment priorities through equitable development and deployment of talent and innovation. The self-assessment here reflects scoring from “red-team” mock reviews conducted 1-2 weeks prior to submission, adjusted for project revisions made in response.

graphically underserved Georgians; make low-skilled jobs easier and less physically demanding, reducing turnover; provide opportunity for higher-skilled and higher-paying jobs, e.g., mechanics,

for each category of minority engineering degrees awarded.¹²

Component Projects:

RECO Kurfess will convene and respond to this multi-sector industry alliance to transform the nascent AI manufacturing sector in GA¹³ into a regional economic engine by overseeing the implementation of the eight projects summarized in the table above. As shown in **Fig. 1.**, they collectively address all seven EDA investment priorities (top), and bridge equitable talent and innovation deployment and development (bottom). GA-AIM projects will (see Project Narratives): engage, include, and prioritize demographically and geographically underserved Georgians; make low-skilled jobs easier and less physically demanding, reducing turnover; provide opportunity for higher-skilled and higher-paying jobs, e.g., mechanics,

¹² <https://ceed.gatech.edu/coe-diversity-rankings>

¹³ Manufacturing is the second-highest contributor to GA GDP (Real Estate is first). In Q4 of 2021, 621 AI-specific manufacturing (NAICS 31) jobs were posted (EMSI Q4 2021 Data Set www.economicmodeling.com)

technicians, planners, engineers; introduce more technical skills into rural areas, improving opportunities for other industries; help ensure retention and growth of high-paying jobs; innovate world-leading AI manufacturing technologies; incubate new high-tech businesses; infuse AI into manufacturers; and increase security and resilience of supply chains.

CEDS: GA-AIM addresses key sectors of the GA Office of the Governor¹⁴ including electric mobility, aerospace, food production, robotics, advanced manufacturing, logistics, and cyber security. The strategic plan for GA will serve as the Comprehensive Economic Development Strategy (CEDS) equivalent. Specifically, programs to put hard working Georgians first, strengthen rural Georgia, grow jobs, incomes, and investment, educate Georgians, develop a skilled workforce to meet current and future needs across the industry spectrum, and apply research in the communities of Georgia¹⁵ align with the proposed scope and projects of GA-AIM. This alignment is evidenced in the \$5M commitment from the governor to cost share and further invest in the rural GA focused Projects 2, 3, 4, 6, and 7. Additionally, the letter from the Atlanta Regional Commission, home to the GT main campus, validates that GA-AIM is aligned with their CEDs¹⁶.

Complementary Initiatives: GT commits to a faculty cluster hiring initiative, graduate fellowship program, and a foundation campaign element in AI Manufacturing to ensure the sustainability of GA-AIM leadership in governing and operating GA-AIM programs for decades to come. Project partner specific initiatives are further documented with each component application.

Timeline: GA-AIM projects start 10/2022 and span 48 months (see Project Narratives).

II. THE REGION

60% of GA-AIM coalition members sites are in distressed and underserved counties (Fig. 2). GA is a U.S. advanced manufacturing leader, outpacing the U.S in 10-year GDP growth in the manufacture of products including machinery, electrical equipment, and fabricated metals. The combined manufacturing-logistics multi-sector contributes \$302.9B to the GA economy and realizes \$3.3B FDI through 287,400 workers at 1,244 international firms.¹⁷ Manufacturing alone has an abundant workforce of more than 270,000 production workers and more than 387,000 total employees that comprise 8.9% of GA workforce.¹⁸ In addition, manufacturing products are 90% of GA total exports¹⁹ and the 2nd highest contributor to GA GDP.¹³ GA-AIM will leverage the existing network of 4,374 manufacturing firms²⁰ for the diffusion of AI manufacturing innovation and workforce development. These companies are spread across the state with larger concentrations in the metropolitan Atlanta area and in small cities such as Athens, Augusta, and Savannah. Still, GA company locations in small city concentrations and in distressed and underserved communities is significant at 72% of all firms that will be served and engaged by GA-AIM (Fig. 2).

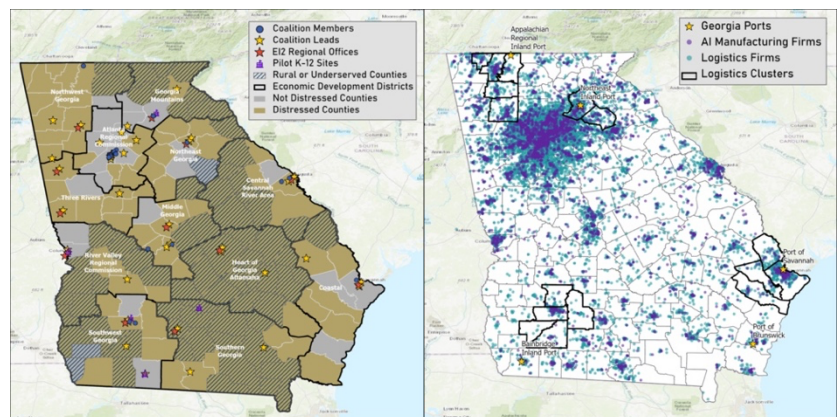


Fig. 2: GA-AIM: (left) Distressed and rural/underserved counties, the 12 Ec.D. districts, partner locations, and K-12 pilot sites; (right) impacted manufacturers (4,369), logistics firms (23,163), ports (5), and proposed logistics clusters (4).

¹⁴ <https://www.georgia.org/industries/advanced-manufacturing>

¹⁵ [file:///C:/Users/db99/Downloads/state_strategic_plan_%20\(2\).pdf](file:///C:/Users/db99/Downloads/state_strategic_plan_%20(2).pdf)

¹⁶ <https://cdn.atlantaregional.org/wp-content/uploads/catalyst-executive-summary-2017.pdf>

¹⁷ [Georgia Department of Economic Development](https://www.georgia.org/industries/advanced-manufacturing) (2019) and [Global Business](https://www.georgia.org/industries/advanced-manufacturing)

¹⁸ <https://www.georgia.org/industries/advanced-manufacturing>

¹⁹ <https://www.nam.org/state-manufacturing-data/2019-georgia-manufacturing-facts/>

²⁰ The data was gathered using NAICS codes. Distress designations originated from the United States Census Bureau and the United States Bureau of Labor Statistics. The underserved designations were obtained from the Consumer Financial Protection Bureau.

Primary Service Area: The service area for GA-AIM is the State of GA, including 159 counties (a table of all 159 county FIPS codes is provided in the project applications), 120 of which are economically distressed, primarily impoverished (**Fig. 2**).²⁰ There are also underserved and/or distressed communities within the remaining 55 counties. Georgia is one of the top five states in the country for job loss related to COVID²¹. GA is third in diversity of Black, Hispanic, and Asian residents²². GT main campus, the lead applicant, is in Fulton County (FIPS Code 05049).

Communities Served: GA-AIM will focus its efforts on the (a) 120 underserved and/or distressed counties and (b) distressed communities within the 39 non-distressed counties by leveraging deep reaching networks. Specifically, the coalition has an existing outreach, training, and technical assistance network which reaches all corners of the state through programs such as the GaMEP, GMBDA Business Center, ATDC, and TCSG.

Congressional Districts Served: All 14 Georgia U.S. Congressional Districts will be served.

Target Participants: The coalition will focus predominantly on reaching, engaging, and supporting underserved populations in rural and distressed communities. Underserved populations include rural residents, women, BIPOC (black, indigenous, people of color), disabled, and veterans.

Stakeholders Engaged: The growth of a cluster requires a broad multi-sector alliance to oversee the progression of the cluster through near-term challenges and long-term sustainability. Ennis, the inaugural Director of the COGAC, will be supported by COGAC representatives from each of the eight projects, ETHIC^x, and external advisors from the GA Department of Community Affairs (GDCA), GA Department of Economic Development Center for Innovation, and the Georgia Association of Manufacturers (GAM). Budget and scope for cluster operations and governance are included within the Project 1: Community Engagement application. The term “cluster operations” includes all activities to ensure that the federal funding is applied in the manner proposed to rapidly accelerate the growth of the GA-AIM cluster, as well as the anticipation and examination of societal and ethical implications of GA-AIM operations and innovations by ETHIC^x. A three-person team will directly support Ms. Ennis day-to-day: a senior certified project management professional (PMP), a junior PMP, and a financial analyst with a decade of EDA project experience.

GDCA manages hundreds of millions of dollars of federal funding each year, successfully adheres to the controls, processes, and procedures to ensure timely expenditure of federal funds, ensure sub-awards are managed in accordance with requirements and established procedures to detect and prevent fraud, waste, and abuse of funds. GDCA has recommended, and GT will enact, a fiscal management policy that operates as a pro-rata cost share throughout the life of the award to limit financial risk and meet match requirements. As guidance, GDCA has provided GT with samples of its fiscal management policies regarding administration of federal grants.

While this is a complex endeavor with 8 projects, a \$125 million budget, and over 30 coalition partners, the team of GT professionals proposes a governance approach based upon our benchmarking of similar projects in the public²³ and private sectors²⁴. Specifically, GA-AIM will develop a data collection and reporting structure, a software solution, and key performance indicators (KPIs) for ensuring projects stay on track. A remediation strategy will be deployed with any project which falls behind on performance or off message.

One Mission and One Voice Approach: Beyond the advisory committee, the COGAC Director will be responsible for coordinating that all eight component projects focus on fulfilling the vision defined in **Section i**. This coordination will be managed via monthly meetings of component leads to double check activities/initiatives against the mission/vision and implementation plans and to discuss coordinated communications on activities, events, and successes.

Data Collection and Reporting Structure: Data collection will begin in the first weeks after the award. The level of detail required will include task specific information such as personnel

²¹ <https://www.nbcnews.com/business/economy/unemployment-claims-state-see-how-covid-19-has-destroyed-job-n1183686>

²² <https://www.brookings.edu/research/americas-racial-diversity-in-six-maps/>

²³ Georgia Department of Community Affairs which oversees numerous grants such as the CDBGs

²⁴ Best practices were shared by PMP practitioners in telecom and automotive sectors

assignments, timelines, deliverables, and budgeted vs. actual federal and cost share expenditures by month. In addition, output and outcome metrics forecasts and actuals will be captured as required by the sponsor, including the most important metrics of diversity and equitable engagement. Data will be reported to GT monthly. All data will be shared with the Cluster Sustainability Governance Alliance (CSGA, see Section IV), COGAC, and EDA.

Software Solution: A software platform such as Salesforce will be purchased and implemented for all 8 project leads to collect and roll-up the data mentioned above.

Key Performance Indicators (KPIs): For project oversight, KPIs include items such as actual versus budgeted expenditures, timeliness of task completions, meeting deliverables, budgeted versus forecast metrics, timeliness of governance reporting, and equity engagement measures.

Risk Mitigation: In benchmarking GA-AIM Phase II, 6 key risks were identified: (1) specific deliverables are not yet defined for projects, (2) limited connectivity of metrics to project objectives, (3) partial oversight authority due to funding model, (4) insufficient proactive project management, (5) failure to consider Low Probability-High Impact project risks, and (6) limited resources or skillsets in support of some projects. In the first month of GA-AIM, the lead PMP will develop processes and procedures to mitigate these risks and to quickly escalate issues for resolution to the COGAC Director and the Regional Economic Competitiveness Officer (RECO).

Assets in Region Critical to Growth of Cluster are the equitable development and deployment of talent and innovation elements indicated in **Fig. 1**. Project 1 narrative further describes how th

III. PRIVATE SECTOR PARTICIPATION

Industry Partners: In total 65 government and industry partners including more than 50 private sector partners have established partnerships and proposed roles for their participation in GA-AIM through the attached letters. 16 companies were able to document the projected benefit to their companies in ED900B forms to be **28,800 jobs created, 10,000 jobs saved, and \$100,000,000 of private investment in 4-5 years** as stated in Section I. Furthermore, most companies, including Boeing, could not submit ED900B forms yet still pledge strong commitments and projects. Boeing projects that 3,000 of more than 6,000 anticipated new engineering jobs will require AI manufacturing training in the next four years and a strong desire to invest in AI-MPF and to hire AI-MPF trained workforce, or 8,100 further new AI manufacturing jobs considering the mean IMPLAN multiplier. In total, **companies have already committed to \$300,000 cash and more than \$6,360,000 in kind contributions to GA-AIM.**

Engagement Strategy: Through the CSGA, these industry partners will work closely to advise the RECO and COGAC Director, as further described in Section IV. The GA-AIM strategy engages industry in: (1) invitations to participate on an advisory board to guide equity, commercialization, and workforce development strategies, (2) requests to collaborate and innovate in the pilot facility by providing equipment, know-how, and innovation, and (3) offers for inclusion in workforce development ladders, equity inclusion, and job placements. As further detailed in the project applications, specific industry engagement is directly embedded within every GA-AIM project. At the coalition level, Project 5: Manufacturer Engagement led by TAG-Ed is design to communicate the voice of GA-AIM manufacturers to the governance board, project enactors, and broader community via their Georgia Pathways program.

IV. SUSTAINABILITY

GA-AIM will convene a multi-sector alliance (industry, state and local government, higher education, communities, startups, entrepreneurs, and non-profit organizations) that is much broader than the GA-AIM core coalition and partners. The mission for this alliance will be to guide the sustainable future of GA-AIM. This broader community will form a Cluster Sustainability Governance Alliance (CSGA) that will guide the RECO and the COGAC Director. The cadence of these meetings and various working groups will be determined by the CSGA membership. The goals of the CSGA will be to (1) establish a technical adoption roadmap for firms of various sizes and from various sectors which considers costs/benefits, (2) equitably engage members of the

community in the future direction of the cluster, (3) monitor key performance indicators on the equitable and inclusive growth of the cluster, (4) identify immediate and long-term impediments to the sustainability of the cluster, and craft objectives and tactics for overcoming them (e.g., public policy challenges, availability of talent and innovation, engagement of startup vertical activities), (5) review societal and ethical impacts of AI innovation, (6) connect and engage other federal agencies in various cluster initiatives, and (7) promote awareness for the cluster and share best practices across other regions.

The means for financial sustainability of GA-AIM Governance is described in Section I “Complementary Initiatives”, with the means for financial growth and sustainability for each GA-AIM project and partner detailed within the Project Narratives.

V. COMMUNITY BENEFITS AND LABOR STANDARDS

The AI-MPF construction in Project 8 will be bound to the US Dept. of Labor Fair Labor Standards Act (FLSA) and the GA Dept. of Labor’s FLSA. Also, in support of the GA FLSA, it will be bound by GA Labor Rules²⁵ which are supplemental to the GA FLSA. To promote **equity**, the following clause will be included within construction and capital procurement RFP/Q’s:

“Minority, Women, and Small Business Enterprise

It is the policy of the Owner and Georgia Tech that minority business enterprises (MBEs), woman business enterprises (WBEs) and small business enterprises (SBEs), have a fair and equal opportunity to participate in the purchasing process. Therefore, the Owner and Georgia Tech encourages all MBE, WBE and SBE firms to compete for contracts to provide goods, services, and construction, and urges contractors to solicit MBE, WBE and SBE firms when procuring subcontractors and suppliers. The Owner and Georgia Tech support an equitable competitive process that will result in the utilization of MBE, WBE, and SBE firms on the project and recognize that full participation by MBEs, WBEs, and SBEs on this project will yield economic benefits to the local communities in which these enterprises reside. To promote fair and equal access to the project, the Owner and Georgia Tech will utilize the expertise of the Georgia MBDA Business Center to ensure that MBEs, WBEs, and SBEs capable of responding to each RFP/Q are made aware of the opportunities through a robust outreach initiative that includes communication through direct emails, prebid meetings, and other marketing channels.

This desire on the part of the Owner or GT is not intended to restrict or limit competitive bidding or to increase the cost of the work. The Owner and GT support a healthy free market system that seeks to include responsible businesses and provides ample opportunity for business growth and development.”

To promote **equity**, GMBDA Center will ensure that each RFP/Q to MBEs that could respond to the solicitations are made aware of the opportunities by sending direct emails and establishing other forms of communications such as bulletin boards.

VI. SHARING OF BENEFITS

GA-AIM is a demographically and geographically equitable, technology-driven cluster across GA’s nation-leading AI manufacturing economy. The GA-AIM coalition will activate innovation, incubation, adoption, and investment in an equitable way while embedding resilience and workforce across a diverse set of manufacturing sectors – energy, aerospace, automotive, food production, semiconductors, construction, logistics, biomedical, flooring, and more. GA-AIM will address ongoing systemic U.S. supply chain challenges and prove that the deployment of disruptive AI manufacturing innovations can forever change the industrial economy of our country for the better. GA-AIM will sustain decades of economic prosperity for all Georgians. GA-AIM hinges on catalyzing AI manufacturing within diverse communities, specifically, underserved Black and Brown urban communities and rural GA communities of all demographics. Our approach will

²⁵ <https://dol.georgia.gov/employment-laws-and-rules>

reach K-12, BIPOC, women, military (active and veteran, rural communities, and others). It will also target individuals that are low-skilled and/or without a college education to engage them in the future AI workforce. Our comprehensive outreach strategy coupled with the implementation of key project components that include the partners documented in Section I and the project elements described in the Project Narratives ensures that GA-AIM will engage underserved/underrepresented communities such that they enjoy an equitable share in the outcomes of the project.

Achieving Justice: GA-AIM will deploy four strategies for achieving demographic and geographic justice: (1) co-create, (2) collaborate, (3) educate, and (4) participate.

Co-creating programs and initiatives with underrepresented communities creates the ability for the communities to benefit from the beginning of any initiative. The communities often bring new ideas and innovation to co-creation efforts. Co-creation also creates buy-in from participants. For example, our AI Manufacturing Technical Workforce Development project with Spelman College and TCSG guarantees that all types of diverse students and women will be engaged with and benefit from this project. It will also target individuals who are low-skilled or do not have a college degree. The LaunchPad AI Innovation Mobile Studio with RICE and UGA will not only engage Black and Brown communities but rural and economically distressed communities as well.

Collaborating: Offers opportunities for industry and community partners to connect to small, mid-sized, and diverse manufacturers, the workforce, and students to provide mentoring, talent development, and technology deployment. It also offers an opportunity for all involved to learn from each other and share challenges, ideas, and solutions. Project-specific collaborations are described within the Project Narratives. As a whole, the RECO will organize 3 meetings each year (fall, spring, summer) for all GA-AIM partners to collaborate in sharing best practices, reporting outputs and outcomes, and more; one event each year will be held at the AI-MPF, the other two will alternate between host sites of the other 8 projects leads (recognizing that Project 2 has two parts and leads), such that over the 48 months, each project has hosted.

Educating: GA-AIM Projects 1-7 will develop and deliver a wide variety of training, education and outreach programs designed to engage, ignite, and upskill underrepresented communities. GA-AIM provides a network to keep companies, innovators and workforce engaged and up-to-speed with the latest technologies available and needs of industry. It also provides a means by which all participants can be rapidly informed of new ideas, capabilities and needs. This is done using focused centers such as AI-MPF (Project 8), mobile training through Projects 3 and 6, and dissemination centers through project 2A, and electronic/virtual technologies across all projects.

Participating individuals, companies and organizations will be drawn from the communities outlined earlier. However, it is the “measurement of participation” that is the critical cog in the wheel of equitable share of benefits. Thus, our CSGA team will develop metrics and a process to track participation of underrepresented communities at all levels of GA-AIM from leadership to program participants. Through action and evidence, GA-AIM will ensure that communities realize equitable benefits ranging from higher paying employment opportunities to higher education levels to operational efficiencies that lead to increased company profits.

VII. OUTPUTS AND OUTCOMES:

The table on the next page documents GA-AIM coalition-spanning Outcomes. Component project-specific outputs and outcomes are found in the Project Narratives. Collectively, the outputs of each project enable these coalition-wide outcomes, and they are too numerous to list here.

Our rationale for growth projections because of GA-AIM projects follows (data aggregated from sources documented in previous footnotes). Over 2013 – 2018, pre-COVID, manufacturing revenues in GA grew at a rate of 5.5%. To prove that GA-AIM has “built back better”, we aim to surpass this rate in job and revenue growth. Approximately 272,000 employees worked in the NAICS codes connected to the growth of GA-AIM in 2018. At this pace (compounded annually), 2022 – 2027 GA-AIM related jobs would grow by 86,000/200,000 jobs in 5/10 years. The numbers below reflect our goal for GA-AIM to extend that forecast by 10 percent in manufacturing.

Similarly, for GA-AIM to impact wages, AI manufacturing jobs must grow the average manufacturing wage in GA ahead of the national average to address income distress, it must grow the average manufacturing wage of \$47,654 by more than 3% annually, therefore must exceed \$55,355 in 5 years. We aim for 6% annual growth over 5 years.

According to the more than 50 companies committed to partner in GA-AIM and 16 documenting benefit projections through ED900B forms, our goals are modest. Still, we recognize that the “first to the table” companies are predominantly companies who have already begun AI adoption, so we temper their projects with these calculations against all GA manufacturers. We do adopt the private investment goal of \$106M in 5 years from our partners ED900B projection total.

We will measure this growth through external assessments and the Georgia Manufacturing Survey. We will increase the frequency of the Georgia Manufacturing Survey. We will also track data using Salesforce.

Metric	Current Baseline/Forecast	Desired Outcomes
GA-AIM Job Growth	86,000 jobs in 5 years 200,000 jobs in 10 years	8,600 additional GA-AIM jobs (366,500 total) in 5 years 23,200 additional GA jobs in 5 years using 2.7 IMPLAN 20,000 additional GA-AIM jobs (490,000 total) in 10 years 54,000 additional GA jobs in 10 years using 2.7 IMPLAN
GA-AIM Equitable Revenue Growth	Not Available	6.25% Revenue growth of all GA-AIM firms 10% Revenue growth of underserved GA-AIM firms
GA-AIM Equitable Cost Savings	16% of revenues for small GA manufacturers (GaMEP database)	20% AI Cost Savings of all GA-AIM firms 25% AI Cost Savings of BIPOC & Women owned GA-AIM firms
GA-AIM mfg average wage	\$47,654	\$64,278 in 5 years
BIPOC GA-AIM Workforce	6% Black, yet 35% in USA	15% black/ 20% BIPOC: Yr 5 30% Black/ 40% BIPOC: Yr10
Women GA-AIM Workforce	18%	23% by year 5 30% by year 10
GA-AIM Startups/yr.	currently 1-2 AI Manufacturing startups/yr. in GA	5 startups/yr by Year 5 10 startups/yr by Year 10
BIPOC GA-AIM Startups/yr.	Currently unknown	More than 60% of all GA-AIM startups in all years
Woman GA-AIM Startups/yr.	Currently 18% of GT Startups	At least 50% of all GA-AIM startups in all years
GA-AIM Greenhouse Gas Emissions	8,236,765 metric tons from manufacturers in GA	25% reduction by year 5 to 6,177,575 metric tons 50% reduction by year 10 to 4,188,382 metric tons
Distressed County Impact	120 Counties	110 in year 5 (10 of the 18 currently within 10% of poverty line) 95 in year 10 (25 of the 38 currently within 15% of poverty line)
Distressed Rural County Impact	75 counties	72 in year 5 (3 of 4 currently within 10% of poverty line) 65 in year 10 (10 of 12 currently within 15% of poverty line)
GA-AIM Private Investment	Not Available	\$106M in 5 years
GA-AIM FDI	\$3.3B	5% growth in 5 years
GA-AIM Exports	\$37.5B (ITA, US Cens. Bureau 2021)	7.5% growth in 5 years
GA-AIM GDP	\$302B (BEA 2020)	6.25% growth in 5 years 1-5
GA Manufacturer AI Adoption	34.6% nationally	60% in GA in 5 years 85% in GA in 10 years

VIII. WORK TO DATE

Already steps have been taken to mitigate risks identified in Phase I as follows:

Risk 1. Underserved population engagement may be limited. At Phase I submission, mitigation comprised the inclusion of Spelman, RICE, TCSG, GaMEP, and GMBDA Business Center and their established networks and successful programs within these communities. To bolster this mitigation, since Phase I award the RICE project evolved into an AI Innovation Mobile Studio project to grow RICE’s initial Atlanta-centric mission into the premier, state-wide Black innovation and entrepreneurship incubator, with special emphasis on delivering RICE programs, resources, and training to rural GA. Furthermore, five of the planned Phase II projects were consolidated to make room for rural region led projects in Augusta, Middle Georgia, and Southwest Georgia, with further inclusion of additional MSIs and underserved K-12 school districts across those projects. The

planned rural supply chain projects expanded from two to the four logistics clusters indicated in **Fig. 2** (right figure). Veteran retraining program elements were added within the projects.

Risk 2. The workforce training may not be connected to the industry need for work ready jobs. At Phase I submission, the mitigation included placing workforce training at the region of manufacturer need. As further mitigation, the TAG-Ed and GAM have been engaged as coalition members with TAG-Ed leading Project 5 to engage and communicate the voice of manufacturers, in complement to the small manufacturer-focused GaMEP program. Furthermore, Phase I funds were used to facilitate an Industry Listening Day held February 11, 2022. In attendance were at least 132 participants (more than 190 registered, we recorded a maximum simultaneous attendance number of 132, we project 150 in total participated at some point) representing 105 different organizations, of which 74 were confirmed AI manufacturing firms. Of these 74, 47 (64%) have operations in GA distributed across 25 different cities and 32 unique zip codes, 18 (24%) are women or minority owned, and 17 (23%) are certified small businesses. Many of these GA businesses have multiple operations within GA, so their true geographic spread is even larger. Working groups were facilitated to solicit their technology and workforce needs and primary interests in AI-MPF. These five priorities communicated from their voices will guide near-term GA-AIM focus: (1) Manufacturers need proven data to better quantify Industry 4.0 (i4.0) return on investment (ROI). (2) Industry wants support in implementing i4.0 technologies. (3) The manufacturing workforce needs new i4.0 skills and competencies. (4) Businesses are most interested in using the AI-MPF to explore process automation. (5) Maintenance solutions are a particular interest.

Risk 3. The AI-MPF may not work as an accelerator of innovation. At Phase I submission, the mitigation was to model AI-MPF after successful accelerators, such as the Global Center for Medical Innovation. Since then, GT has worked with leading architects, increased industry engagement and partnerships, and considered priorities set by industry in the Listening Day to envision and engineer AI-MPF, as further documented in the component application.

Additional risk exists in coalition members not subscribing to a unified “north star” vision. To mitigate this risk, liaisons from the governance team have been assigned to work with each component application team, meeting several times per week, sometimes several times per day. Furthermore, a full coalition virtual meet and greet was held on February 17, 2022. From that meeting, five new collaborative touchpoints between component application teams were identified: collaboration on design and deployment of mobile programming between Projects 3 and 6, collaboration on VECTR programming between projects 2 and 6, connections between project 4 and all other projects, remote operations for poultry manufacturing connections between projects 2, 6, and 7, and connections between project 5 and all other projects.

IX. BROADER IMPACTS

While our focus will stay upon the GA-AIM objectives and outcomes, GA-AIM will more broadly impact the GA economy and the nation. The most direct evidence is the 2.7 IMPLAN multiplier across all GA-AIM NAICS codes. Furthermore, the AI innovations will spill over into 4 of the other 6 top economic sectors in GA (Real Estate, Finance, Information, Government). This means that for every 1 AI manufacturing job created by GA-AIM, 2.7 jobs will be created in total in the GA economy. Furthermore, we will share our workforce programs and content with other MEPs and the national MEP office at NIST and provide support in other states adopting them. The same is true regarding CyManII, MxD, America Makes and IACMI (as well as any other Manufacturing Institute). Our innovations will be shared through publication, patents, and media. Furthermore, we will partner with other BBBRC teams – in fact, we have already planned a trip to exchange ideas and collaborate with the El Paso manufacturing team as part of our Phase I activities. Beyond BBBRC, we will assist other communities around the nation and the world in deploying technology-driven economic development programs and in adopting our methods and measures to their region's assets and needs. EI2 has done this with immense success in its national initiatives to share best practices in attracting Foreign Direct Investment, building nascent startup ecosystems, and fostering international soft landings.