Manufacturing Momentum Summit

2025 REPORT

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MANUFACTURING *MOMENTUM*

Introduction

United States manufacturers face serious workforce challenges. Across the country, labor shortages, demographic shifts, negative perceptions, and social barriers to employment access prevent the manufacturing sector from filling in-demand jobs. Further, long-term projections of manufacturing job openings far outstrip the available labor supply, which hampers the future viability of secure, onshore manufacturing and threatens the U.S.'s long-run strategic posture.[1]

At the same time, rapid changes in technology are changing the landscape of manufacturing, requiring new skills and competencies that the current workforce system is not yet capable of supporting. Technologies such as artificial intelligence, robotics, biotechnology, semiconductors, and advanced materials require not only a new level of sophistication in the workforce producing them but also greater worker preparation that results from collaboration across government, higher education, philanthropies, businesses, and other partners.

The Manufacturing Momentum Summit, a national roundtable of workforce development professionals and policy makers, small and medium sized advanced manufacturing leaders, state and local governments, provided a forum for finding solutions to the current – and future – challenges the U.S. advanced manufacturing sector is facing.

1 (Ryskamp 2023)

About the Report

The Manufacturing Momentum Summit provided a venue for national, state, and local stakeholders to discuss the advanced manufacturing workforce challenge and share their ideas and experiences in implementing potential solutions. This report synthesizes Summit discussions and outputs within this context, highlighting intersections between national security priorities, workforce development strategies, and emerging technologies, and emphasizing evidence-based approaches to strengthening regional systems and preparing the workforce for the future of advanced manufacturing.

In addition to solutions and partnerships, participants underscored the urgent need for improved data infrastructure, more consistent accountability systems, and better communication of workforce outcomes. The conversations reaffirmed that without reliable metrics, even the most innovative training programs cannot deliver long-term impact. As regions across the United States strive to meet the workforce needs of an economy reshaped by artificial intelligence (AI), advanced manufacturing, and emerging technologies, our ability to measure, track, and evaluate progress is as critical as the training itself.

The following is a summary of the discussions and insights from the Manufacturing Momentum Summit 2025.

Participants underscored the urgent need for improved data infrastructure, more consistent accountability systems, and better communication of workforce outcomes.

To view Case Studies referenced in this report, click the Case Study links.

Understanding the Challenge

The Summit explored a range of interconnected challenges in hiring that impede the growth, innovation, and resilience of the U.S. advanced manufacturing sector. From perception and image issues, systemic fragmentation, and rapid technological changes, Summit attendees discussed these issues and explored potential solutions.

The central challenge is simply a lack of talent available to businesses, not just advanced manufacturing. Throughout the Summit, the talent gap dominated discussions. From artificial intelligence and robotics to CNC machining and semiconductor manufacturing, employers and policymakers alike stressed the urgent need for more skilled workers. Without a reliable talent pipeline, advanced manufacturing risks slower innovation and weaker long-term growth.

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Fragmented Credentialing and Training Ecosystem

Inconsistent metrics and confusing credentials further compound the problem, with many programs emphasizing enrollment or completion – because these measures drive program funding – rather than job placement, retention, or wage growth. Employers report that nearly half of the credentials they encounter lack credibility.

Yet, industry does not always articulate skill requirements precisely enough, and they often experience myopia in their search for talent. Education and training providers may not fully understand industry requirements because they are poorly articulated or the connection with industry is weak.

Furthermore, the fragmentation of federal, state, and regional workforce development efforts means that programs exist for different reasons, and the overlapping and sometimes contradictory narratives about those programs can confuse the very people they seek to benefit: employers and jobseekers.

This perception can make it difficult for traditional education and training programs to gain traction with employers seeking workers. Consequently, employers require educational criteria that is simply not necessary for the jobs offered, and this fact adds potentially unnecessary costs associated with training workers as employers "over-demand" skills or navigating poorly coordinated training and credentialing systems.

Credentialing programs and local and state workforce development programs are not closing the industrial skills gap quickly enough. Similarly, the Department of Labor's 2025 "American Talent Strategy,"[2] calls the current credentialing and training ecosystem a "fragmented web of duplicative programs" which is "misaligned with employer needs due to a lack of coordination between education systems, workforce agencies, and business."

Poor Public Perception and Awareness

Persistent awareness and perception challenges exacerbate the talent shortage. Significant barriers include a lack of awareness overall of advanced manufacturing careers, knowledge of what they look like and what the requirements are, and understanding what the mission and national value is – especially among Generation Z. And where awareness does exist, it is eclipsed by the outdated stigma of dark, dirty, and dangerous.

Additionally, parental perceptions of manufacturing effect youth participation. A 2021 survey by Joblist found that 48 percent of respondents felt their parents strongly influenced their career path.[3] One Summit participant noted that the parental hurdle is

2 https://www.dol.gov/sites/dolgov/files/OPA/newsreleases/2025/08/Americas-Talent-Strategy-Building-the-Workforce-for-the-Golden-Age.pdf
3 (Joblist Trends 2021)

so large because of their prejudice against manufacturing careers. Some manufacturers develop reputations as not being good places to work. The stigma of jobs in the industry reinforce the perception that manufacturing is an undesireable field.

Changes to Workforce Demographics

The manufacturing workforce is shifting rapidly as seasoned, experienced workers retire, worsening an already severe talent shortage. Small and medium manufacturers are especially vulnerable since departing employees take institutional knowledge with them. Summit participants warned that without new, well-trained talent, production shortfalls could follow.

Cultural and demographic shifts are exacerbated by workforce eligibility challenges, specifically work visas. One business owner described hiring foreign workers to fill gaps but found the visa process slow and bureaucratic – an issue likely to intensify amid policies prioritizing U.S. workers.

Meanwhile, hiring locally remains difficult because many job seekers lack the skills or certifications for manufacturing and don't know how to gain them. The National Imperative for Industrial Skills Initiative confirms that piecemeal, uncoordinated efforts cannot close national industrial gaps at the scale needed to meet the Department of Defense's (DoD) strategic demands.

Economic and Social Barriers

Summit attendees highlighted workforce barriers that extend well beyond manufacturing's image problem. Low wages and limited benefits make some jobs unattractive. High personal costs – especially childcare and dependent care – often prevent workers from sustaining steady employment. The lack of affordable wraparound services was cited as one of the most significant barriers to workforce participation.

Justice system involvement also narrows the talent pool. Many industries bar workers with nonviolent criminal records, excluding individuals who are

Hiring locally remains difficult because many job seekers lack the skills or certifications for manufacturing and don't know how to gain them.

otherwise qualified and motivated to work in manufacturing. These hiring restrictions limit access to talent and weaken workforce growth.

Individually, low wages, social barriers, and stigma are serious

challenges. Combined, they further discourage young people from choosing manufacturing careers, which are often perceived as inflexible, low-paying, or unsafe.

Lack of Federal Coordination and Continuity

Advancing workforce development in manufacturing has long been a national priority, but efforts remain fragmented across multiple initiatives and institutions. State and regional partners are left to reconcile contradictions and overlapping mandates. Federal misalignment compounds the problem: a decades-long "college-for-all" focus has not matched employer demand, while responsibility is spread across numerous agencies, creating inefficiencies and gaps.

Bureaucratic barriers also slow progress. Inconsistent policies, duplicative reporting, and lengthy approval processes limit responsiveness. Underfunding, competing priorities, and unclear communication further erode efficiency, while conflicting objectives and weak governance prevent a unified approach.

Short-term grants add to the challenge. Many programs launch with promise but collapse when funding ends, leaving no accountability or path to scale. Without multi-year investments and clear accountability frameworks, workforce initiatives risk becoming temporary pilots instead of lasting solutions.

Fragmented and Incomplete Data Systems

Workforce and labor market data should guide education and training investments, but current systems fall short. Traditional sources like the American Community Survey and IPEDS provide useful benchmarks, yet they lag behind technological change and fail to capture real-time needs. Employers often lack detailed information on sector-specific skills, temporary workers, and regional workforce trends.

Data limitations are compounded by weak integration across sources. Linking records often requires "fuzzy matching" based on names, addresses, or demographics – methods prone to errors. This undermines the accuracy of workforce ROI measurement and leaves employers and workforce boards without the reliable, actionable insights they need to make sound investment decisions.

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Gaps in Workforce Readiness for Emerging Technologies

The rapid pace of AI and advanced manufacturing adoption has outstripped the capacity of traditional workforce systems. Employers are looking for workers with interdisciplinary skills like data analytics, materials science, CAD/CAM, and systems integration. Yet, education and training pipelines are slow to adapt. Without clear pathways and validated skill taxonomies, employers face a problem in which they create job postings that are so unrealistic that no candidate would ever be qualified for the position.

Advanced materials and additive manufacturing require highly specialized skills, so they are susceptible to labor shortages. At the same time, these once unique job roles are becoming increasingly necessary in other industries, driving up wages and pulling needed workers away from other key roles important to the industrial base as employers poach the most skilled from one another rather than try to train their own workers.[4]

As manufacturing integrates the Internet of Things into the production process, the sector increasingly relies on talent in related industries, including the information sector. As manufacturers replace open positions with automation, robotics, and AI, companies rely increasingly on IT workers and cybersecurity specialists. Of note, the manufacturing industry is the most common target for cyberattacks.

And while cyberattacks become increasingly sophisticated, compliance with Cybersecurity Maturity Model Certification (CMMC) – a standardized set of cybersecurity requirements for contractors and subcontractors in the Defense Industrial Base (DIB) – has lagged.

4 https://3dprint.com/316712/the-state-of-the-talent-and-job-market-in-am-2025-outlook/

Solutions and Best Practices

Summit attendees participated in robust discussions around addressing the challenges for the industry.

This report grouped the solutions identified in into three sections:

- Workforce Program Innovation and Scaling
- Data, Metrics, and Accountability
- Regionalism, Coordination, and Partnership Development

In summary, these solutions recognize the importance of developing programs that can identify, train, and place workers in jobs; coordinate regional stakeholders with national initiatives to ensure success and use data both to inform program development and evaluate program effectiveness.

Workforce Program Innovation and Scaling

Across discussions, several models, best practices, and new programs came to the fore at the Summit that offer ideas about what initiatives might be scaled in ways that would revitalize the manufacturing workforce.

The Summit highlighted a range of strategies designed to strengthen the manufacturing workforce pipeline at every stage of the development process: from sparking early interest among young people, to engaging non-traditional populations unfamiliar with manufacturing, to expanding work-based learning, reskilling, and accelerated training opportunities. What follows are examples of how educators, employers, policymakers, and community leaders are experimenting with approaches that both expand access and align talent development with industry needs. Together, these efforts illustrate a continuum of solutions that can help build, diversify, and sustain the advanced manufacturing workforce of the future.

Educate Young People about Manufacturing Career Opportunities

To address the manufacturing workforce shortfall and build future capacity, policy makers, workforce professionals, and even industry, must expand early career exploration programs. Waiting until college to introduce young people to manufacturing is untenable – early exposure is essential to spark interest and sustain engagement. Students are drawn to manufacturing when they see it as innovative, creative, and socially impactful.

In addition to early exposure, young people need clear guidance to identify careers that align with their skills and interests. The DeRocco Fellowship program – highlighted at the Summit – exemplifies effective intervention. By pairing participants with mentors, immersing them in advanced manufacturing environments, and guiding them through the maze of skills, credentials, and career options, it removes key barriers such as limited technical training and unclear career pathways.

Support Upskilling and Reskilling with AI

With U.S. demographic shifts expected to slow overall employment growth, occupations requiring only a high school diploma are projected to decline.

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This makes AI a potential game-changer: when applied effectively, automation and AI can enable workers without college degrees to boost their productivity and contribute meaningfully to high-growth sectors of the economy.

Continuous reskilling and adaptive learning models, building on foundational skills, are key to helping the workforce keep pace with rapid technological change.

Cisco Networking Academy, Microsoft Skills Build, and AI-enabled Career Skill Passports are promising examples, offering flexible, just-in-time learning that builds digital literacy and adaptive problem-solving skills, helping workers bridge the gap between their current abilities and the fast-changing demands of new technologies.

AI-powered skill systems enable structured, project-based workforce development. Using skills taxonomies and AI agents that extract or learn skills from data and workers, employers can identify gaps, target training, and onboard new hires efficiently. This integration of AI insights with structured learning scales workforce development while aligning talent pipelines with technology-driven manufacturing needs.

Create Flexible and Responsive Programs to Supplement Traditional Programs

Accelerated programs quickly supply qualified talent in high-demand sectors like semiconductors. Certificate programs requiring training of under eight months have achieved 92 percent job placement rates for technician roles. Industry driven curriculum and hands-on training models offer a proven, scalable method for addressing workforce shortages and complement existing degree pathways, helping maintain the pace of technological adoption in manufacturing.

Credentialling innovations are improving skill alignment and recognition across sectors. MxD Capital – a Manufacturing Innovation Institute (MII) - bundles new and existing credentials into occupation-specific packages that streamline validation for hiring and training (see Case Study 1). Heroes Make America – a training program for service members and veterans – translates military experience into industry-recognized credentials. See Case Study 2 for more details. Both models support skills based hiring and faster integration of qualified workers.

Engagement initiatives like mobile manufacturing studios strengthen early talent pipelines by exposing K–12 students and communities to robotics, AI, and advanced manufacturing. These approaches create awareness, build foundational interest, and prepare future workers for technical pathways.

Retention strategies ensure regional workforce stability. Programs offering tuition support and residency incentives successfully reduce outmigration and promote persistence in applied learning. By aligning education, credentials, and retention supports, workforce systems can maximize return on training investments and build sustainable local talent ecosystems.

Data, Metrics, and Accountability

The Summit highlighted emerging strategies to build more fit-to-purpose data systems, ones that not only track program outcomes but also provide actionable insights for employers, educators, and policymakers.

Developing Fit-to-Purpose Data Systems

Participants agreed that traditional datasets and workforce measures are often too broad or outdated to give employers the confidence to invest. What employers need instead are timely, detailed data and systems that capture forward-looking indicators. States and institutions are also more likely to support programs and partnerships when they can demonstrate clear, measurable benefits.

Two foundational data principles can improve the communication of such benefits:

1. tracking individuals from training to employment to understand ROI of workforce programs,
2. using employer-sourced skills data broken down by industry sector and skills demanded because it is more granular than existing public datasets.

Creating a sustainable data architecture requires a coalition-based approach that uses common, replicable data standards and prioritizes high-value shared variables. Adding employer engagement and real-time data to that architecture can help communicate realistic job descriptions to avoid the "unicorn candidate" problem of seeking unrealistic combinations of qualifications.

Attendees emphasized the importance of "ground truthing" data by auditing remotely collected or matched data to ensure that they accurately reflect the condition expected.

Building a Regional Workforce Dashboard

Readily available, localized data about workforce availability and costs can help companies find talent pools and jobseekers determine better aligned career pathways. CREC showcased a workforce insights dashboard created to offer a regional view of labor market opportunities and assets at the Metropolitan Statistical Area (MSA) level – designed to serve the needs of Manufacturing Innovation Institutes (MIIs), employers, and workforce and economic development partners supporting the U.S. manufacturing base. The dashboard draws on American Community Survey (ACS) data to provide a snapshot of local workforce demographics.

Participants emphasized the importance of making the

dashboard more comparable and portable across regions, as well as the value of integrating employer data with ACS and IPEDS sources. Such a regional tool not only illustrates supply and demand dynamics but also serves as a public accountability resource.

Community Impact through Storytelling and Broadened Partnerships

Storytelling magnifies the power of data by translating numbers into human-centered narratives that stick. It is a key tool to transform workforce data from abstract numbers into stories of real people, real communities, and impacts. This approach builds trust and strengthens buy-in from employers, policymakers, and the public.

Attendees emphasized that effective storytelling starts with knowing your audience and tailoring messages to what listeners care about, making for a more effective effort.

Beyond technical solutions, advocacy and investment strategies play a pivotal role in advancing workforce initiatives. Impact storytelling, which blends ROI data with worker and employer narratives, amplifies support through venues such as conferences, awards, and testimonials. Philanthropic alignment is most effective when targeted toward programs that place individuals directly into jobs, demonstrate measurable outcomes, and attract further investment.

Harnessing AI for Workforce Intelligence

AI tools are reshaping how workforce systems understand and respond to skill demands. Beyond simple automation, they enable new ways to capture skills, map career pathways, and deliver just-in-time training. For example, AI agents can scan technical documents, certifications, and job postings to extract the precise skills needed for specific roles. They can also help employers avoid the "unicorn candidate" problem mentioned earlier. These systems can also learn directly from workers by analyzing task performance,

Effective storytelling starts with knowing your audience and tailoring messages to what listeners care about.

workplace interactions, and on-the-job training experiences, creating more accurate and dynamic profiles of individual skill sets.

Another powerful application is the development of project-based learning modules tailored to immediate industry needs. Instead of static curricula, AI can

adapt training content in real time, ensuring that workers are building the competencies required by fast-changing technologies. This creates a more responsive learning environment that better aligns with both employer expectations and worker aspirations.

Michigan's Career Explorer Tool offers an early example of how these capabilities can be applied in practice. By integrating machine learning with administrative data and wage records, the tool forecasts the return on investment of training programs for individual jobseekers. It provides case managers with customized guidance on training options, expected wages, job search duration, and occupational comparisons. While still evolving, models like this demonstrate how AI can turn fragmented data into actionable intelligence – helping states, educators, and employers design smarter pathways into high-demand careers and giving workers clearer insights into the value of their training choices.

Regionalism, Coordination, and Partnership Development

Building a resilient manufacturing workforce requires moving beyond isolated programs to coordinated strategies that treat talent development as a system. At the Summit, participants highlighted approaches that mirror supply chain management, strengthen regional and employer partnerships, and engage communities in sustaining long-term pipelines. From employer-led models like the U.S. Chamber Foundation's Talent Pipeline Management™ initiative to university-led applied learning, apprenticeships, and industry – faculty collaborations, these strategies illustrate how aligning education, training, and support services can generate a steady, well-prepared workforce.

Approach Workforce Development as Supply Chain Management

Several strategies demonstrate pathways to overcome barriers to workforce development. Talent Pipeline Management (TPM), for example, reframes workforce development as a supply chain challenge: employers define the skills they require, and education providers align curricula accordingly. See Case Study 3 for this initiative implemented in San Antonio.

Applied learning pipelines serve as a critical entry point for students into manufacturing research and production. Wichita State University (WSU) embeds undergraduates in real-world aerospace and Department of Defense projects through co-ops and applied learning experiences. Nearly half of WSU's students are first-generation undergraduates, and programs like Shocker Partners attract out-of-state talent by offering in-state tuition, increasing the likelihood these students remain in the region after graduation.

Develop Partnerships Among Employers and Regions

A number of collaborations and partnerships were presented that provide employees with services and students with different learning models:

- Employer Resource Networks (ERNs) pool resources across multiple employers (or within divisions of a single firm) to deliver on-site services such as financial counseling, transportation assistance, and access to social services. By directly addressing barriers outside the workplace, ERNs improve retention and reduce turnover. See Case Study 4 for an example in Southwest Minnesota.
- Earn-and-learn apprenticeships boost employer engagement by blending paid, on-the-job training with classroom learning. Sponsored by regional groups, they lower employer costs, standardize training, and ensure a steady skilled workforce. See Case Study 5 in Chicago for more real-life details.
- Curriculum alignment ensures training meets labor market needs. Industry–faculty partnerships, guided by data and credential frameworks, build responsive pathways, while strategies like train-the-trainer programs and employer-supported onboarding strengthen education-to-employment links. See Case Study 6 in San Diego for a hands-on look at this approach.

Build Ecosystems through Community Engagement

Regional partnerships further demonstrate how community engagement can drive workforce growth. Utah's aerospace hub relies on 47G, a private entity supported by state funding, to create an ecosystem connecting industry, government, and education. Over five years, the program reached thousands, including 10,000 young women and girls, introducing them to advanced manufacturing through community events and educational initiatives.

Establishing National Frameworks and Federal Coordination

At the opening session, National Institute of Standards and Technology (NIST) advisors to the White House Subcommittee on Advanced Manufacturing (SAM) led a discussion to inform the 2026 National Strategic Plan for Advanced Manufacturing. Workforce leaders called for a national framework for credentials and apprenticeships to make learning transferable across companies and regions. Participants also urged federal alignment – among National Science Foundation, NIST, Department of Defense, and Manufacturing USA – for consistent metrics and language to give employers clarity and help regional leaders plan effectively. The dialogue set the stage for later sessions on industry and regional workforce strategies.

Recommendations and Key Takeaways

Informed by insights from the Manufacturing Momentum Summit, preparatory briefings, case studies, and expert input, these recommendations reflect input from leaders across industry, education, workforce organizations, philanthropy, and government. Discussions focused on the root causes of workforce shortages in advanced manufacturing – demographic shifts, skills misalignment, fragmented credentialing, and barriers to participation – and surfaced strategies that have shown measurable results in practice.

Employers stressed the need for reliable, portable, and transparent talent pipelines. Educators emphasized early exposure and alignment with emerging technologies, while policymakers and workforce leaders highlighted systemic gaps in data, accountability, and coordination that prevent successful models from scaling.

The recommendations therefore represent not abstract ideals, but concrete priorities designed to address the most pressing obstacles to building a future-ready advanced manufacturing workforce. By investing in early exposure, inclusion, reskilling, fit-to-purpose data systems, and regional partnerships, the U.S. can build a future-ready manufacturing workforce that supports global competitiveness and national security.

IMPROVING WORKFORCE MARKET INSIGHTS

RECOMMENDATION 1:

Build Fit-to-Purpose Data and Accountability Systems

ACTION STEPS:

- Move beyond fragmented labor market datasets toward real-time, employer-sourced skills data.
- Track individuals from training into employment to calculate return on investment (ROI) and identify what programs actually work.
- Use regional dashboards to inform investments and program evaluation.

RATIONALE FOR ACTION:
Without reliable data and accountability, workforce programs cannot scale or gain the trust of employers. Current systems are fragmented and outdated, making it difficult to align investments with results.

BUILDING AND SUPPORTING CONNECTIONS

RECOMMENDATION 2:

Strengthen Regional Partnerships and Employer-Led Pipelines

ACTION STEPS:

- Promote employer-led models such as Talent Pipeline Management to ensure training reflects real demand.
- Support regional earn-and-learn collaborations to reduce costs, standardize training, and expand access.
- Align curricula through industry–faculty partnerships and stackable credentials, ensuring consistent pathways across regions.
- Encourage consistent and long-term federal coordination and national credential frameworks to reduce duplication and provide a coherent national framework.

RATIONALE FOR ACTION:
The workforce challenges facing manufacturing are too large and complex for any single entity to solve. Solutions must be regional, employer-driven, and connected through a coherent national framework.

BUILDING AND SUPPORTING CONNECTIONS

RECOMMENDATION 3:

Foster Cross-Sector Collaboration and Shared Responsibility

ACTION STEPS:

- Leverage the outcome of the National Strategic Plan for Advanced Manufacturing (NSAM), **America's Talent Strategy: Equipping American Workers for the Golden Age**, and other White House guidance to create more coordinated messaging and to better align Federal workforce investment programs.
- Establish structured mechanisms (e.g., cross-agency task forces, regional consortia, and industry councils) to align federal, state, local, industry, and academic partners including plans for long-term coordination and funding.
- Incentivize collaboration across Manufacturing Innovation Institutes (MIIs), workforce boards, and employers to reduce duplication and ensure that successful models are scaled nationally.
- Promote knowledge-sharing through convenings, communities of practice, and common data standards that make it easier for partners to compare results and build on one another's work.

RATIONALE FOR ACTION:
No single organization can close the manufacturing workforce gap on its own. Progress requires coordinated action that leverages the unique strengths of government, industry, education, and philanthropy.

PILOTING AND SCALING SOLUTIONS

RECOMMENDATION 4:

Expand Early Exposure and Career Advising

ACTION STEPS:

- Begin introducing students to manufacturing career pathways as early as K–12, not just at the college level.
- Use mentorships, fellowships, and hands-on experiences to overcome persistent stereotypes that manufacturing is "dirty, dark, and dangerous" and to create greater visibility for manufacturing as a viable career option.
- Tailor career guidance to highlight the creativity, problem-solving, and purpose-driven aspects of modern manufacturing work.

RATIONALE FOR ACTION:
The industrial base cannot sustain long-term competitiveness without a reliable pipeline of skilled workers. Yet, negative perceptions and lack of awareness mean that many students never consider manufacturing as a viable career option. Early exposure programs are one of the most effective ways to reverse this trend, ensuring that students not only understand the opportunities available but also see manufacturing as meaningful, innovative, and future-oriented.

RECOMMENDATION 5:

Invest in Upskilling, Reskilling, and AI-Enabled Training

ACTION STEPS:

- Support adaptive learning models that provide just-in-time, project-based training aligned with employer demand.
- Leverage AI tools to extract skills from documentation, track worker learning, and create career skill passports.
- Ensure these programs have clear strategies, scalable infrastructure, and ethical governance, while aligning with national frameworks for AI workforce preparation.

RATIONALE FOR ACTION:
Emerging technologies such as AI, robotics, semiconductors, and advanced materials are rapidly reshaping manufacturing. Traditional workforce systems are too slow to adapt, leaving critical skills gaps in the industrial base.

Conclusion

The Manufacturing Momentum Summit underscores a central truth: the strength of the U.S. industrial base depends as much on workforce readiness as on technological innovation. Persistent labor shortages, fragmented credentialing systems, and misaligned training pipelines are not abstract problems – they are direct risks to national security and supply chain resilience.

The path forward is clear. We must:

- Inspire early interest by exposing young people to manufacturing careers before they reach college.
- Broaden participation among key constituencies in manufacturing careers, including those that are not widely found already in the industry.
- Accelerate reskilling through adaptive, AI-enabled learning models that keep pace with technology change.
- Strengthen accountability with fit-to-purpose data systems that measure outcomes, not just inputs.
- Scale what works by promoting employer-led, regional pipelines and ensuring federal alignment around common frameworks.
- Leverage resources and talent from a broad range of federal, state, regional, industry, and philanthropic partners.

THE MESSAGE IS SIMPLE: invest in people, measure outcomes, leverage partners, and scale success. Doing so will secure not only the future of advanced manufacturing but also America's strategic advantage.

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