Maryland Manufacturing Advisory Board

Annual Report

Submitted by:
Department of Commerce

January 2026

Maryland Manufacturing Advisory Board
2025 Recommendations and 2026 Strategic Outlook

Chair's Report

Introduction

Manufacturing remains one of Maryland's most critical economic engines—supporting middle-class jobs, driving innovation, anchoring supply chains, and strengthening regional competitiveness across urban, suburban, and rural communities. Over the past year and a half, the Maryland Manufacturing Advisory Board (MMAB) has engaged deeply with manufacturers, educators, workforce partners, economic developers, and state agencies to identify both the immediate challenges facing the sector and the long-term strategies required to ensure sustained growth.

This report reflects those deliberations. It presents a set of recommendations informed by national manufacturing trends, real-world conditions experienced by Maryland manufacturers, and the Board's collective expertise. These recommendations are intended to guide state policy, investment priorities, and cross-agency coordination as Maryland positions itself for the next era of advanced manufacturing.

While the recommendations herein reflect work completed in 2025, they are also designed to serve as a foundation for a forward-looking agenda in 2026—particularly as emerging technologies, workforce dynamics, and global competition accelerate.

Background: Manufacturing in Maryland

Manufacturing in Maryland is a dynamic and evolving sector that blends a rich industrial legacy with the innovation demands of the 21st century. Once anchored by traditional heavy industries, today's Maryland manufacturing landscape extends across advanced production technologies, digitally-enabled processes, and high-value specialty sectors. A strategic Mid-Atlantic location—with major ports, interstate connections, and proximity to the nation's capital—provides Maryland manufacturers with competitive logistics advantages that enhance market access across the U.S. and abroad.

Advanced Manufacturing & Industry 4.0 is a strategic priority for the state. Rather than traditional assembly-line operations, Maryland manufacturers increasingly deploy smart, tech-intensive production processes that integrate automation, data analytics, robotics, and other Industry 4.0 tools. The state supports this transformation through workforce development programs, apprenticeships, and partnerships with post-secondary institutions to ensure a skilled and technologically ready workforce. Dedicated apprenticeship programs and career and technical education initiatives prepare workers for roles in Computer Numerical Control (CNC) machining, additive manufacturing, industrial maintenance, and related fields.

Maryland's manufacturing base includes thousands of establishments that contribute significantly to the state economy. According to data from the National Association of Manufacturers, manufacturing contributes billions of dollars in value to Maryland's GDP and supports well-paying jobs with average earnings above the state non-farm average. Maryland manufacturers also export a substantial portion of their output to global markets, further strengthening the state's economic footprint.[1]

The sector spans a wide range of subsectors, including electronics, chemical products, computer and electronic products, and food processing, among others. Traditional and advanced manufacturing enterprises alike benefit from Maryland's physical and institutional infrastructure—such as deep-water port access, federal research institutions, and a network of universities and technical colleges—that fosters innovation and collaboration between industry and academia.

Additionally, the state has implemented targeted incentives and grant programs, including the Maryland Manufacturing 4.0 Grant, Maryland MADE Grant, Build Our Future Innovation Grants, and the Equitech Growth Fund, to help small and mid-sized manufacturers invest in advanced technologies, expand capacity, and enhance workforce development. These efforts aim to sustain competitiveness in an increasingly digital and interconnected production environment.

In summary, manufacturing remains a vital pillar of Maryland's economy—anchored in a mix of long-standing industrial expertise and forward-leaning technology adoption. Continued public-private collaboration and strategic support for innovation, skills training, and advanced technologies will be crucial to driving future growth and competitiveness for Maryland's manufacturing sector.

The National and State Manufacturing Context

Manufacturers nationwide are operating in an increasingly complex environment. Persistent workforce shortages, rising energy and operating costs, supply chain volatility, and global competition are reshaping how and where manufacturing investment occurs.[2] At the same time, digital transformation—through automation, data analytics, and artificial intelligence—is emerging as the primary driver of productivity growth and long-term competitiveness.[3]

For Maryland, these dynamics present both risk and opportunity. The state is well positioned, with strengths in defense, aerospace, life sciences, clean energy, and advanced research. However, capitalizing on these advantages will require intentional alignment across workforce systems, technology adoption programs, site readiness efforts, and innovation policy.

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[1] *https://nam.org/mfgdata/regions/maryland/*

[2] *Deloitte Research Center for Energy & Industrials. (2025, November 13). 2026 manufacturing industry outlook: Renewed strategic focus and targeted technology investments could be essential to maintaining a competitive edge in 2026. Deloitte Insights. https://www.deloitte.com/us/en/insights/industry/manufacturing-industrial-products/manufacturing-industry-outlook.html*

[3] *Gaus, T. (2025, May 1). 2025 smart manufacturing and operations survey: Navigating challenges to implementation [Survey overview]. Deloitte Insights. https://www.deloitte.com/us/en/insights/industry/manufacturing/2025-smart-manufacturing-survey.html*

Manufacturers consistently report that success depends not on a single policy lever, but on a coordinated ecosystem that enables them to grow, modernize, and compete.

Workforce Development and Education Reform

Across every Board discussion and external input, workforce challenges emerged as the most pressing constraint on manufacturing growth. Employers face difficulty recruiting skilled workers, while students and job seekers often lack clear, accessible pathways into manufacturing careers.

The Board recommends targeted reforms to strengthen alignment between education systems and industry needs. These include addressing barriers within the Blueprint for Maryland's Future that limit access to Career and Technical Education pathways, particularly GPA thresholds that unintentionally exclude capable students from skilled trades opportunities. The Board also emphasizes the importance of better supporting career coaches who can connect students and families to modern manufacturing careers and connect them to potential wage outcomes.

Employer engagement must be a central pillar of workforce strategy. The Board recommends incentivizing greater participation in apprenticeships, pre-apprenticeships, and paid work-based learning models. In addition, Maryland should explore adapting proven early-college, early-career models—such as employer-driven youth apprenticeship frameworks—that blend high school credit, paid employment, and industry-recognized credentials. These approaches shorten the distance between education and employment while responding directly to manufacturer demand. Finally, the State of Maryland should work to ensure that middle school and high school students understand the benefits of a career in manufacturing.

Scaling Maryland Manufacturing 4.0

The Maryland Manufacturing 4.0 program has demonstrated clear demand and measurable impact[4], yet its current scale falls far short of manufacturer need. The Board has repeatedly observed that requests for funding significantly exceed available resources, with many qualified applicants receiving little or no support.

To address this gap, the Board recommends a substantial expansion of the Manufacturing 4.0 program. Increasing annual funding to a level commensurate with demand—paired with larger, more meaningful award sizes—would allow manufacturers to pursue transformative investments in automation, digital systems, industrial AI, and smart manufacturing technologies.[5]

Importantly, the program plays a critical role in democratizing access to advanced technology. Small and mid-sized manufacturers often lack the capital or risk tolerance to modernize without public support. Strategic expansion of Manufacturing 4.0 would help ensure that productivity

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[4] *https://commerce.maryland.gov/Documents/ProgramReport/ManufacturingIndustry4.0_ImpactReport.pdf*

[5] *Gaus, T. (2025, May 1). 2025 smart manufacturing and operations survey: Navigating challenges to implementation [Survey overview]. Deloitte Insights. https://www.deloitte.com/us/en/insights/industry/manufacturing/2025-smart-manufacturing-survey.html*

gains are broadly shared across Maryland's manufacturing base rather than concentrated among only the largest firms.

Competitiveness, Costs, and Site Readiness
Manufacturers consistently cite cost pressures and operational uncertainty as barriers to expansion and retention.[6] Energy costs, permitting timelines, and uneven competitiveness across jurisdictions create challenges that affect site selection decisions and long-term planning.

The Board recommends conducting a statewide competitiveness study focused on regulatory, cost, and infrastructure factors affecting manufacturers. Such an effort would provide data-driven insight into how Maryland compares regionally and nationally, while identifying opportunities for targeted reforms.

In parallel, the state should continue to prioritize incentives for energy efficiency and resilience, particularly for legacy facilities facing rising utility costs. The revitalization of vacant or underutilized industrial sites also represents a significant opportunity to support growth while minimizing greenfield development. Finally, targeted support for succession planning and leadership transitions can help prevent the loss of long-standing manufacturers that remain economically viable but vulnerable due to ownership changes.

Tax Policy and Innovation Incentives
Innovation is one of Maryland's defining strengths, yet the connection between innovation and in-state manufacturing remains incomplete. The Board recommends exploring state-level policy responses to recent federal changes affecting research and development incentives, as well as evaluating mechanisms to encourage in-state procurement through a "Buy Maryland Manufacturing" approach.

Strengthening the pipeline from innovation to production is essential. Technologies developed in Maryland's universities, federal labs, and startup ecosystem should have clear pathways to be manufactured within the state whenever feasible. Aligning tax policy, commercialization support, and manufacturing capacity can help ensure that Maryland captures the full economic value of its innovation investments.

Building a Coordinated Maryland Industrial Strategy
National experience increasingly demonstrates that successful manufacturing states pursue integrated industrial strategies rather than isolated programs. These strategies align industry, education, workforce, infrastructure, and innovation around shared priorities.

The Board recommends developing a coordinated Advanced Manufacturing Ecosystem Plan for Maryland. Such a plan would align state agencies, higher education institutions, community

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[6] *Deloitte Research Center for Energy & Industrials. (2025, November 13). 2026 manufacturing industry outlook: Renewed strategic focus and targeted technology investments could be essential to maintaining a competitive edge in 2026. Deloitte Insights. https://www.deloitte.com/us/en/insights/industry/manufacturing-industrial-products/manufacturing-industry-outlook.html*

colleges, accelerators, and industry partners around key sectors where Maryland has a competitive advantage. This whole-of-ecosystem approach can improve efficiency, reduce duplication, and provide manufacturers with clearer entry points to available resources.

Ensure Broad-Based Participation Across Maryland's Manufacturing Ecosystem
The Board recommends that the Department of Commerce ensure that all manufacturing initiatives including workforce development, Manufacturing 4.0, site readiness, innovation-to-production pipelines, and competitiveness strategies, are designed and implemented in a manner that expands access for underrepresented manufacturers. Broad-based participation strengthens workforce supply, accelerates technology adoption, improves retention of in-state manufacturers, and supports a more resilient and competitive manufacturing economy.

Looking Ahead: Industrial AI and the 2026 Agenda
As the Board looks toward 2026, industrial artificial intelligence emerges as a cross-cutting opportunity with the potential to reshape productivity, quality, and resilience across manufacturing sectors. The Board sees a critical role for Maryland in ensuring that access to industrial AI tools, infrastructure, and expertise is not limited to large firms alone.

Future Board work should focus on defining practical deployment pathways, workforce implications, and policy considerations related to industrial AI adoption. By doing so, Maryland can position itself as a leader in responsible, inclusive industrial digitalization while strengthening the competitiveness of its manufacturing base.

Top Recommendations to Strengthen Maryland's Manufacturing Sector

1. **Modernize and Expand Manufacturing Workforce Pathways**
   Priority: Immediate

   - Remove or revise barriers within the Blueprint for Maryland's Future that limit access to Career and Technical Education (CTE) and skilled trades pathways.
   - Expand and professionalize career coaching statewide to ensure students and families understand manufacturing career opportunities and wage outcomes.
   - Incentivize employers to participate in apprenticeships, pre-apprenticeships, and paid work-based learning programs.
   - Pilot and scale early college / early career models that blend high school credit, paid employment, and employer-driven credentials.
   - Fund educational programs that allow for middle school and high school students to understand the benefits of a career in manufacturing.

   Outcome: A skilled, job-ready manufacturing workforce aligned to employer demand.

2. **Scale Maryland Manufacturing 4.0 to Meet Industry Demand**
   Priority: Immediate

   - Increase annual funding for the Maryland Manufacturing 4.0 program to a level that reflects demonstrated demand.
   - Increase individual award sizes to enable meaningful investments in automation, digital systems, and industrial AI.
   - Maintain a strong focus on small and mid-sized manufacturers to democratize access to advanced manufacturing technologies.

   Outcome: Increased productivity, resilience, and competitiveness across Maryland's manufacturing base.

3. **Establish a Statewide Manufacturing Competitiveness Strategy**
   Priority: Near-Term
   - Conduct a statewide competitiveness study examining energy costs, permitting timelines, regulatory consistency, and infrastructure readiness.
   - Identify county-level disparities and best practices that can inform statewide policy alignment.
   - Use findings to guide targeted reforms that improve predictability and reduce barriers to expansion and site selection.

   Outcome: A more predictable and competitive operating environment for manufacturers statewide.

4. **Reduce Energy and Operating Cost Pressures**
   Priority: Near-Term

   - Expand incentives for energy efficiency, electrification, and on-site generation for manufacturing facilities.
   - Align energy policy with manufacturing growth goals to ensure reliability, affordability, and resilience.
   - Prioritize manufacturers as strategic customers within clean energy and grid modernization initiatives.

   Outcome: Lower operating costs and improved long-term sustainability for Maryland manufacturers.

5. **Improve Industrial Site Readiness and Reuse**
   Priority: Near-Term

   - Accelerate the reuse and redevelopment of vacant or underutilized industrial properties.
   - Streamline permitting and approvals for industrial redevelopment projects.

- Support legacy manufacturers with succession planning and facility modernization to prevent avoidable closures.

Outcome: Faster project timelines, increased investment attraction, and retention of existing manufacturers.

6. **Strengthen Innovation-to-Manufacturing Pipelines**
   Priority: Strategic

   - Incentivize universities, federal labs, startups, and manufacturers to ensure technologies developed in Maryland are produced in Maryland.
   - Expand commercialization and pilot-to-production pathways for manufacturers adopting new technologies.
   - Encourage public-private partnerships that connect research assets directly to manufacturing deployment.

   Outcome: Increased in-state manufacturing of Maryland-developed innovations.

7. **Advance Tax and Procurement Policies that Support Manufacturing**
   Priority: Strategic

   - Explore state-level policy options to offset federal changes affecting R&D incentives.
   - Evaluate a “Buy Maryland Manufacturing” incentive to encourage in-state procurement and supply chain localization.
   - Ensure tax and incentive programs reward production, job creation, and capital investment within Maryland.

   Outcome: Stronger in-state supply chains and increased manufacturing investment.

8. **Develop a Coordinated Advanced Manufacturing Ecosystem Plan**
   Priority: Long-Term

   - Establish a cross-agency, whole-of-ecosystem manufacturing strategy that aligns workforce, infrastructure, innovation, and economic development, ensuring that we are expanding access for underrepresented manufacturers.
   - Focus on sectors where Maryland has a competitive advantage, including defense, aerospace, life sciences, clean energy, and advanced materials.
   - Use the plan to guide future investments, grant programs, and policy development.

   Outcome: A cohesive, long-term industrial strategy for Maryland manufacturing.

9. **Position Maryland as a Leader in Industrial AI Adoption**
   Priority: Immediate / 2026 Focus

   - Define a clear statewide approach to industrial AI for manufacturing, with an emphasis on practical deployment and workforce readiness.
   - Ensure small and mid-sized manufacturers have access to AI tools, infrastructure, and expertise.
   - Align industrial AI initiatives with workforce development, cybersecurity, and data governance standards.

   Outcome: Broad-based productivity gains and leadership in next-generation manufacturing technologies.

10. **Establish Clear Metrics and Accountability**
    Priority: Cross-Cutting

    - Track outcomes related to productivity, workforce placement, technology adoption, and investment attraction.
    - Use data to refine programs, guide future funding decisions, and demonstrate return on public investment.
    - Ensure transparency and continuous feedback from manufacturers.

    Outcome: Evidence-based policymaking and sustained impact.

Conclusion

The recommendations outlined in this report reflect the Maryland Manufacturing Advisory Board's commitment to pragmatic, industry-informed guidance. Manufacturing in Maryland is at a pivotal moment—one that demands coordinated action, sustained investment, and a clear strategic vision.

By strengthening workforce pathways, scaling technology adoption, improving competitiveness, and aligning innovation with production, Maryland can ensure that manufacturing remains a durable engine of economic growth and opportunity for decades to come. The Board looks forward to continuing this work in partnership with state leadership, industry, and communities across Maryland.

MMAB MARYLAND MANUFACTURING ADVISORY BOARD

Wednesday, January 29, 2025
12:00-1:30 PM
Meeting Minutes

Attendees:
Mina Izadjoo, Integrated PharmaServices
Sue Chambers, Strouse
Luke Chow, Prime Manufacturing Technologies, Inc
Sam Griffith, National Jet
April Richardson, Food Opportunity, LLC
N. Scott Phillips, Scott Phillips Consulting

Commerce Staff & Invited Speakers:
Ricardo Benn, Deputy Secretary of Commerce, Innovation and Growth
John Gilstrap, Assistant Secretary of Commerce, Innovation and Growth
Ulyana Desiderio, Senior Director, OSIE, Department of Commerce
Benjamin McGlaughlin, Manufacturing Program Manager OSIE, Department of Commerce
Michael Kelleher, Executive Director, Maryland Manufacturing Extension Partnership (MEP)

I. Call to Order & Chairman Remarks

At 12:06 pm Ben McGlaughlin called the meeting to order.

II. Approval of the December 2024 minutes

Board members were provided the draft minutes from the December 18, 2024 meeting both via email beforehand and a hard copy at the meeting. Ben asked the Board to review the minutes, then requested a motion to approve. A motion was made to approve by April Richardson, this motion was seconded by Luke Chow, and with no discussion the minutes were approved unanimously.

III. Maryland MEP and NIST Program Updates

Below is a summary of the discussion Mike Kelleher, Executive Director for Maryland MEP provided to the Board:

Role of Maryland MEP in Maryland

Maryland MEP works to support and grow manufacturing across all regions of the state by leveraging partnerships with state and local government, third-party providers, and national networks. While headquartered in Columbia, the organization serves all manufacturers in Maryland that fall under NAICS codes 31, 32, and 33, regardless of company size. The MEP is a partner in the national MEP network under NIST, which includes one center in each U.S. state and Puerto Rico.

Manufacturing Landscape in Maryland

According to state data, Maryland has approximately 4,677 manufacturing firms, employing about 115,000 workers and contributing $28 billion to GDP and $13.5 billion in exports. The average wage in manufacturing is around $130,000, though this is skewed by high-paying sectors like aerospace and defense. More than 50% of manufacturers in Maryland have fewer than five employees, and over 90% have fewer than 100. Maryland's manufacturers are predominantly small and diverse, lacking the industrial concentration found in states with dominant sectors like automotive or heavy industry.

Key Industry Clusters

Major sectors in Maryland include aerospace and defense, food and beverage (the fastest-growing), chemicals, machinery, and computer/electronics. Life sciences—including biotech, pharmaceuticals, and medical devices—is also a fast-growing area, although not always captured in broader data due to how it's categorized. The quantum sector is emerging and typically aligns with defense or electronics based on its funding sources.

Workforce and Succession Issues

Workforce remains the top concern for Maryland manufacturers, across all skill levels. Unskilled and semi-skilled labor, in particular, is hard to find and retain. The state's strength in highly educated labor supports higher-skilled roles, but gaps persist in trades like machining, welding, and general production roles. Maryland has also seen generational turnover in family-owned manufacturing businesses, with challenges in succession when heirs are uninterested or unprepared to take over.

Innovative Workforce Practices

Some companies have adopted creative approaches to staffing, such as flexible shifts, seasonal and migrant labor, and partnerships with organizations supporting asylum seekers. High school work-study programs exist in many counties, with Harford and Cecil counties noted for strong participation. However, barriers exist,

such as age restrictions preventing youth from working on manufacturing floors.

Technology, Innovation, and Program Impact

Maryland manufacturers are increasingly using technology to remain competitive, especially as regional labor costs are higher than surrounding states. Programs like Maryland Manufacturing 4.0 and Maryland MADE, supported by the US Department of Energy (DOE), offer grants and roadmapping to help small manufacturers adopt new technologies. Automation and innovation are not leading to job losses but rather to redeployment or increased efficiency.

Supply Chain and "Buy America" Policy

MEP assists companies with compliance and supplier scouting for Buy America/Build America mandates. Maryland companies, often embedded within broader supply chains rather than producing finished consumer goods, benefit from stronger upstream and downstream supply chain capabilities. The Maryland Department of Commerce manages this website that helps to connect manufacturers with suppliers in-state.

Federal and State Policy Outlook

While federal MEP funding is uncertain due to potential cuts, the current Maryland administration has proposed increased funding for manufacturing programs, including an Innovation Infrastructure Act and additional Manufacturing 4.0 support. Concerns were raised about job creation metrics in grant programs, particularly for companies focused on automation that are replacing hard-to-fill low-skill roles rather than reducing workforce size.

Maryland MEP Role and Engagement

MEP delivers direct support on plant floors through services like lean/six sigma training, plant layout, technology adoption, and succession planning. The organization aims to be a convener of industry voices, coordinating with partners like RMI and the Maryland Department of Commerce to amplify efforts and share impactful success stories. Monthly partner calls, workforce summits, plant tours, and internship programs are among the many engagement strategies being used.

Closing Notes

Participants expressed strong interest in continued support for flexible training programs and encouraged a broader understanding of how automation-driven efficiency aligns with economic development goals. The group also emphasized the need to document and share success stories from state-supported programs to highlight impact and build support.

IV. Department of Commerce Manufacturing Program Updates

Benjamin McGlaughlin, Manufacturing Program Manager, provided the following updates on the Department of Commerce's efforts to engage the manufacturing community:

Ben McGlaughlin, Manufacturing Program Manager, provided a brief update on the upcoming Maryland Manufacturing 4.0 grant awards. The list of recipient companies, along with details on their industry sectors and locations, has been submitted to the Governor's Office and the Commerce marketing team for the creation of an official press release. That announcement is expected in the coming weeks.

Ricardo Benn, Deputy Secretary of Commerce, followed with remarks on the department's transition and strategic direction. He introduced incoming Secretary Harry Coker, Jr., who brings extensive experience in cybersecurity and technology. Ricardo also highlighted Commerce's new strategic plan and reorganization, which includes a focus on "lighthouse sectors" where Maryland has unique strengths—namely life sciences, aerospace, and quantum technology. These areas were selected for their existing base of companies, institutional R&D, and federal partnerships. Ricardo emphasized the critical role of next-generation manufacturing across all of these sectors and the importance of telling Maryland's story effectively, especially in niche areas where the state has a competitive edge. He noted that while Maryland may not be the location for massive manufacturing facilities, it is well-positioned for specialized, high-value manufacturing operations.

V. Public Comments/Discussion

There were no members of the public in attendance.

VII. Closing Comments/Discussion

During the closing portion of the meeting, the group discussed updates and logistics for the board's continued work. A permanent chair for the board is expected to be appointed in the coming month or two, following the leadership transition at the Department of Commerce. The next board meeting is scheduled for March 12, with the location still to be determined. Attendees were asked to suggest potential venues or hosts and share preferences regarding meeting times (morning, lunch, or afternoon). A poll may be distributed to help finalize the logistics. Several members expressed interest in hosting and noted the value of including facility tours where possible.

A key suggestion was raised around increasing the board's impact by directly engaging with Maryland manufacturers. The group discussed the importance of gathering current, firsthand insights through informal phone conversations and structured outreach rather than relying solely on older reports and surveys. This could potentially be supported by existing contact databases held by the Department of Commerce and MEP. There was consensus that a more nimble and informal approach would yield more timely and useful data, avoiding the delays associated with formal government surveys. Members agreed to further discuss targeted questions and outreach strategies as an agenda item at the March meeting.

MMAB MARYLAND MANUFACTURING ADVISORY BOARD

Thursday, April 24, 2025
1:00-2:30 PM
Hybrid Meeting - Virtual & In-person
The Strouse Corporation - 1211 Independence Way, Westminster, MD 21157

Meeting Minutes

Attendees:
Mina Izadjoo, Ph.D., Integrated PharmaServices - VIRTUAL
April Richardson, Food Opportunity, LLC - VIRTUAL
N. Scott Phillips, Scott Phillips Consulting - VIRTUAL
Luke Chow, Prime Manufacturing Technologies, Inc - IN PERSON
Susan Chambers, the Strouse Corporation - IN PERSON

Commerce Staff & Invited Speakers:
Ricardo Benn, Deputy Secretary of Commerce, Innovation and Growth - VIRTUAL
John Gilstrap, Assistant Secretary of Commerce, Innovation and Growth - VIRTUAL
Ulyana Desiderio, Senior Director, OSIE, Department of Commerce - VIRTUAL
Benjamin McGlaughlin, Manufacturing Program Manager OSIE, Department of Commerce - IN PERSON

I. Call to Order & Chairman Remarks

At 1:15 pm Benjamin McGlaughlin (temporary chair) called the meeting to order. The start of the meeting was previously delayed due to lack of a quorum.

II. Review and Acceptance of the January 29, 2025 Meeting Minutes

Board members were provided the draft minutes from the January 29, 2025 meeting both via email before-hand and hard copy at the meeting. Ben asked the Board to review the minutes, then requested a motion to approve. A motion was made to approve by Susan Chambers, this motion was 2nd-ed by April Richardson, with no discussion the minutes were approved unanimously.

III. Department of Commerce Manufacturing Program Updates

Benjamin McGlaughlin provided updates on the Maryland Manufacturing 4.0 Grant Program (M4 program), noting the finalized M4 program for FY 2025, budget implications from the legislature, and uncertainty around M4 program funding for FY 2026. The success of the M4 program for 2025 was highlighted due to additional

funding provided by the governor from $1 million statutory to $5 million, resulting in a significant increase in capital expenditures on the part of manufacturers. Ben also discussed the Maryland Made program, funded by the US Department of Energy (DOE), which includes assessments, webinars, and mini technology grants. Risk Assessment of DOE Funding was brought up by Scott Phillips who raised concerns about the availability of funds coming through the DOE. Ben responded that they had worked with the Attorney General's office and were confident in continuing operations until notified otherwise by DOE.

Discussions clarified the Maryland Made program's scope. It focuses on energy savings and smart manufacturing technologies for Maryland manufacturers, not solely Maryland-made products. The program includes technology assessments, assistance, and mini-grants for energy efficiency improvements. A question arose about whether environmental waste reduction would fall under the "energy savings" category. Ben agreed to look into this.

Ben announced an event focused on leveraging AI in Maryland manufacturing, specifically targeting medium and small manufacturers to help them adopt AI in their processes. He highlighted the importance of starting small and scaling up, rather than implementing AI across the entire organization at once. The event aims to show how accessible AI solutions are and how they can improve processes, maintenance and quality systems. The event, *AI for Smart Manufacturing Productivity Forum* will be held at the A James Clark Hall, University of Maryland, College Park, MD from 1pm to 6pm on May 13, 2025.

IV. Board Discussion Re: Advancing Maryland's Manufacturing Sector

The board discussed how to best understand the needs of Maryland's manufacturing sector. They considered using surveys or in-person events to collect feedback from various industry segments. April Richardson suggested starting by defining target industries and leveraging existing relationships. Mina Izadjoo favored an initial online questionnaire followed by in-person meetings. Concerns were raised about the accuracy of the existing 4,500-5,000 manufacturer count and the need to identify active manufacturers. Scott Phillips suggested a statewide manufacturing event to allow for self-identification and feedback, similar to methods used in Virginia. Benjamin McGlaughlin noted the availability of a free technology assessment through Maryland MEP, utilizing CESMII's tools, which could help companies identify their technology readiness and needs.

Benjamin McGlaughlin also suggested focusing initial outreach on the Governor's "lighthouse sectors" (AI & quantum technologies, computational biology, and PNT—-position-navigation-timing) but not ignoring other sectors and their contributions to the supply chain.

V. Public Comments/Discussion

There were no members of the public in the meeting when the agenda item for public comment was presented.

VI. Closing Remarks

The next meeting date was initially listed as May 7th, but Benjamin McGlaughlin clarified that it has been rescheduled to May 29th due to prior scheduling conflicts. He asked attendees to check their calendars and confirmed they would send a reminder if needed.

VII. Adjournment

A motion to adjourn was received at 2:01pm

MMAB MARYLAND MANUFACTURING ADVISORY BOARD

Thursday, May 29, 2025
12:00-1:30 PM
Hybrid Meeting - Virtual & In-person
Maryland Department of Commerce
401 E Pratt Street, 17th floor
Baltimore, MD 21202

Meeting Minutes

Attendees:
Mina Izadjoo, Ph.D., Integrated PharmaServices
April Richardson, Food Opportunity
N. Scott Phillips, Scott Phillips Consulting
Luke Chow, Prime Manufacturing Technologies, Inc
Susan Chambers, the Strouse Corporation

Commerce Staff & Invited Speakers:
Benjamin McGlaughlin, Manufacturing Program Manager OSIE, Department of Commerce

I. Call to Order & Chairman Remarks

At 12:05 pm Benjamin McGlaughlin (temporary chair) called the meeting to order.

II. Review and Acceptance of the April 24, 2025 Meeting Minutes

Board members were provided the draft minutes from the April 24, 2025 meeting both via email beforehand and a hard copy at the meeting. Ben asked the Board to review the minutes, then requested a motion to approve. A motion was made to approve by Susan Chambers, this motion was seconded by April Richardson, and with no discussion the minutes were approved unanimously.

III. Department of Commerce Manufacturing Program Updates

Benjamin McGlaughlin provided updates from the Department of Commerce on current manufacturing initiatives, grant programs, and future strategic opportunities aligned with Maryland's Five Pillars Manufacturing Strategy: Workforce Development, Technology Adoption, Supply Chain Resiliency, Quality & Lean Systems, and Energy Efficiency & Sustainability.

The Office of Strategic Industries and Entrepreneurship (the Office) provided an update on its current priorities, including the identification of a new Board Chair and additional members to the MMAB. A major area of focus continues to be developing a deeper understanding of statewide manufacturer needs. This includes launching a cross-industry manufacturing survey and conducting stakeholder empathy interviews throughout Q2–Q3 of 2025. These efforts will directly inform how Commerce and partner agencies align resources across the five strategic pillars. The Office also reaffirmed its commitment to expanding technology adoption, pursuing additional Manufacturing 4.0 funding, leveraging the federal DOE Office of Manufacturing and Energy Supply Chains (MESC) resources for assessment tools, deploying micro-equipment and project assistance grants, and supporting companies through new federal programs such as the Small Business Administration (SBA) 7(a) Working Capital Pilot Program. Additionally, the Office addressed the impacts of the withdrawal of federal MEP funding and emphasized that a forward-looking strategy is being developed to mitigate any negative impacts on Maryland manufacturers.

A detailed update was provided on the Manufacturing 4.0 (M4.0) Grant Program. All M4 2025 awards are fully under contract and currently being funded. Planning is underway for the upcoming M4 2026 program, expected to open around August 1, 2025, with outreach webinars beginning in mid-July. While the M4 2025 program was funded at $5 million, the M4 2026 budget request of $6 million was approved at $2 million by the legislature, indicating continued demand that exceeds available funding.

Program performance metrics from M4 2025 demonstrate significant demand and impact. Of 124 applications, 43 projects (35%) were funded, representing $5 million awarded out of $20.75 million requested (24% of total demand). The awarded funds leveraged over $11.7 million in total project investment, yielding a 2.3x leverage factor. Small manufacturers accounted for 65% of all awardees and received 71% of total funding. Current employment among awarded firms includes 699 FTEs at small companies and 1,790 FTEs at mid-sized companies. Additionally, 26% of funded companies identified as minority- and/or women-owned, though self-reporting is voluntary and actual representation may be higher.

The Board also received a briefing on the AI for Smart Manufacturing Productivity Forum, held on May 13, 2025, at the University of Maryland's A. James Clark School of Engineering. The event drew 124 registered participants, including legislators, with 100 attendees in person. Several actionable learnings emerged from the forum, and Commerce will share follow-up insights and next steps to inform future AI deployment strategies for Maryland manufacturers.

An update was provided on the Maryland MADE Program (Manufacturing Assets Deployment for Energy Efficiency), supported by a $1.01 million U.S. Department of Energy grant and a $305,000 non-federal match, for a total program value of $1.315 million over a two-year period (July 2024–June 2026). The program supports manufacturers in identifying and deploying energy-efficient advanced manufacturing technologies. Additional Commerce funding will provide $200,000 in 2025 and $175,000 in 2026 for M4-related technologies. Maryland MEP will serve as a subcontractor to provide technology demonstrations, readiness assessments, and direct technical assistance to participating companies.

Looking ahead, Commerce outlined several future strategic opportunities, including the development of an AI-focused industrial manufacturing initiative in partnership with The Industrial AI Center at the University of Maryland, which is exploring the

establishment of a data repository and research center focused on democratizing Industrial AI for small and mid-sized manufacturers. The governor has expressed initial support for this concept. Additional opportunities exist to leverage forthcoming DoD, DOE, and Department of Commerce federal funding programs, as well as to expand partnerships with private-sector manufacturing stakeholders statewide.

IV. Board Discussion Re: Advancing Maryland's Manufacturing Sector

The board continued the discussion on how to best understand the needs of Maryland's manufacturing sector. We discussed committee formation to guide MMAB recommendations to the Secretary of Commerce by the end of the calendar year. The following members suggested an interest in working on the highlighted committees below:

1. Advancing Technology - Chambers, Chow, Izadjoo
2. Incentivizing Manufacturing in Maryland - Richardson, Phillip
3. Workforce Development - Izadjoo, Koemer

Committees will be formalized once the Commerce Secretary designates a board chair over the next few months.

V. Public Comments/Discussion

There were no members of the public in the meeting.

VI. Closing Remarks

The next meeting date was not scheduled during this meeting.

VII. Adjournment

A motion to adjourn was received at 1:25pm.

MMAB MARYLAND MANUFACTURING ADVISORY BOARD

Monday, December 8, 2025
3:00-5:00 PM
Hybrid Meeting - Virtual & In-person
Maryland Department of Commerce
401 E Pratt Street, 17th floor
Baltimore, MD 21202

Meeting Minutes

Attendees:
April Richardson, Food Opportunity (Chair)
Mina Izadjoo, Ph.D., Integrated PharmaServices
Susan Chambers, The Strouse Corporation
Luke Chow, Prime Manufacturing Technologies, Inc.
Greg Maxwell, Northrop Grumman
Sam Griffith, National Jet Company
Kelly Koermer, Carroll Community College

Commerce Staff & Invited Speakers:
Benjamin McGlaughlin, Manufacturing Program Manager OSIE

I. Call to Order & Chairman Remarks

The meeting was called to order at 3:12 PM by April Richardson, Chair. Chair Richardson welcomed board members and attendees and requested that participants briefly re-introduce themselves, including their organization and connection to Maryland's manufacturing sector.

II. Review and Acceptance of the May 29, 2025 Meeting Minutes

Board members were provided the draft meeting minutes from the May 29, 2025 meeting in advance. A motion to approve the minutes was made by Greg Maxwell and seconded by Sam Griffith. With no further discussion, the motion carried unanimously, and the minutes were approved as presented.

III. Department of Commerce Manufacturing Program Updates

Benjamin McGlaughlin provided an overview of current priorities and initiatives

within the Office of Manufacturing, framed around Maryland's Five-Pillar Manufacturing Strategy:

1. Workforce Development
2. Technology Adoption
3. Supply Chain Resiliency
4. Quality & Lean Systems
5. Energy Efficiency & Sustainability

Key focus areas include identifying additional MMAB members, developing a clearer understanding of statewide manufacturer needs, aligning workforce efforts from middle school through post-secondary and upskilling programs, and increasing technology adoption through state and federal funding mechanisms.

Manufacturing 4.0 Grant Program (M4) Update

An update was provided on the Manufacturing 4.0 Grant Program (M426).

- 78 applications were received and reviewed
- 22 awards were made (28% award rate)
- $2 million awarded out of $13.16 million requested (15% of demand)
- Awarded funds leveraged approximately $3.13 million in total project investment (1.5x leverage)
- 77% of awards were made to small manufacturers, exceeding the statutory minimum
- Current employment at awarded firms includes 432 FTEs at small firms and 677 FTEs at mid-sized firms
- Planning is underway for the M4 2027 program, anticipated to open on or about August 1, 2026.

Maryland MADE (Manufacturing Assets Deployment for Energy Efficiency) Program Update

An update was provided on the Maryland MADE Program, supported by a $1.01 million U.S. Department of Energy grant with a $305,000 non-federal match, totaling $1.315 million over a two-year period (July 2024 – June 2026).

The program provides programmatic, technical, and financial assistance to manufacturers seeking to adopt advanced, energy-efficient manufacturing technologies.

Additional funding through the Department of Commerce supports M4-related technologies, including $180,000 in 2025 and $215,000 in 2026. Maryland MEP serves as a subcontractor, delivering technology demonstrations, readiness assessments, and technical assistance.

IV. Board Discussion Re: Advancing Maryland's Manufacturing Sector

The Board discussed priorities and recommendations to be included in its advisory report to the Secretary of Commerce, emphasizing the importance of producing actionable, industry-driven guidance.

Key discussion topics included:

- Increasing the number of MMAB meetings from four to six annually, with flexibility for optional sessions
- Preference for primarily in-person meetings, with limited hybrid use for accessibility or legislative conflicts
- Hosting meetings at manufacturing facilities across different regions of Maryland
- Developing a manufacturing workforce knowledge, skills, and abilities (KSA) framework to align education and training pathways
- Strengthening skilled labor training investments and removing regulatory barriers to apprenticeship training
- Exploring a "Buy Maryland Manufacturers" procurement concept to support in-state supply chains
- Improving coordination and visibility of manufacturing resources through a consolidated Commerce-hosted platform

Scheduling of Future Meetings:

The Board agreed to hold a special virtual meeting on December 22, 2025, from 1:30 – 2:30 PM, to finalize recommendations for the year-end advisory report.

The Board also confirmed a bimonthly meeting schedule for 2026, beginning in January, with most meetings to be held in person.

V. Public Comments/Discussion

Sharon Brow provided comments related to small-batch manufacturing, early-stage validation, and micro-credentialing pathways. The Office of Manufacturing clarified program eligibility requirements and committed to follow-up discussions outside the meeting.

VI. Closing Remarks

The next meeting date is scheduled for December 22, 2025 from 1:30-2:30pm as a virtual meeting.

VII. Adjournment

A motion to adjourn was made by Greg Maxwell and seconded by Luke Chow. The meeting was adjourned at approximately 5:05 PM.

MMAB MARYLAND MANUFACTURING ADVISORY BOARD

Monday, December 22, 2025
1:30 PM
Virtual Meeting

Meeting Minutes

Attendees:
April Richardson, Food Opportunity (Chair)
Mina Izadjoo, Ph.D., Integrated PharmaServices
Susan Chambers, The Strouse Corporation
Luke Chow, Prime Manufacturing Technologies, Inc.
Greg Maxwell, Northrop Grumman
Sam Griffith, National Jet Company
N. Scott Phillips, N. Scott Phillips Consulting

Commerce Staff & Invited Speakers:
Ulyana Desiderio, Senior Director, OSIE
Benjamin McGlaughlin, Manufacturing Program Manager, OSIE

I. Call to Order & Chairman Remarks

The meeting was called to order at 1:33 PM by April Richardson, Chair. Chair Richardson welcomed board members and attendees.

II. Review and Acceptance of the December 8, 2025 Meeting Minutes

Board members were provided the draft meeting minutes from the December 8, 2025 meeting in advance. A motion to approve the minutes was made by Sue Chambers and seconded by Greg Maxwell. With no further discussion, the motion carried unanimously, and the minutes were approved as presented.

III. Board Discussion Re: Advancing Maryland's Manufacturing Sector

Chair April Richardson, Esq. provided clarification regarding the advisory process, noting that formal Board votes are not required for the transmittal of recommendations. Authority to advance recommendations to the Secretary of the Maryland Department of Commerce rests with the Chair.

It was further clarified that the compiled recommendations are intended for review by the Secretary of the Maryland Department of Commerce, and subsequently the

Governor.

The Board discussed and affirmed the inclusion of the following thematic recommendation areas in the 2025 report:

Workforce Development and Education

Board members reiterated that workforce challenges remain the most significant barrier facing Maryland manufacturers. Prior discussions within the board emphasized:

- Barriers within the Blueprint for Maryland's Future, including GPA thresholds impacting access to Career and Technical Education (CTE)
- The need to expand and better support career coaches and employer engagement
- Increased parent and student awareness of manufacturing career pathways
- Expanded use of apprenticeships and pre-apprenticeships
- Exploration of early college / early career models that integrate paid work experience with secondary education

Scaling Maryland Manufacturing 4.0

The Board reaffirmed its long-standing recommendation to expand funding for the Maryland Manufacturing 4.0 program. Prior discussion highlighted:

- Significant unmet demand relative to available funding
- The importance of democratizing access to advanced manufacturing technologies for small and mid-sized firms
- Alignment with national smart manufacturing principles emphasizing scalable adoption and practical implementation
- Competitiveness, Costs, and Site Readiness
- Board members reiterated concerns regarding:
    - High energy costs and permitting delays
    - Variability in competitiveness across counties
    - Opportunities for energy efficiency investments
    - Reuse of vacant or underutilized industrial sites
    - Support for legacy manufacturers planning leadership or ownership transitions
    - Tax Policy and Innovation Incentives
- The Board discussed the importance of:
    - Evaluating state-level approaches to offset recent federal changes to R&D tax incentives
    - Encouraging in-state procurement and manufacturing
    - Strengthening linkages between Maryland-based innovators and in-state manufacturing capacity to ensure technologies developed in Maryland are also produced in Maryland

Building a Coordinated Industrial Strategy

Members emphasized the value of a coordinated, ecosystem-based industrial strategy that aligns:

- State agencies
- Universities and federal laboratories

- Community colleges and workforce partners
- Industry and accelerators
- Particular attention was given to Maryland's strengths in defense, aerospace, life sciences, clean energy, and advanced manufacturing.

Discussion of Artificial Intelligence (AI) in Manufacturing

An additional recommendation related to Artificial Intelligence in manufacturing was introduced by the Chair for consideration.

Key discussion points included:

- Strategic emphasis: The Board agreed that AI should be recognized as a critical component of the future of manufacturing and that the Department of Commerce should continue to integrate AI considerations into manufacturing policy, programs, and planning.
- Access and equity: Discussion emphasized the importance of ensuring that AI tools and capabilities are accessible to small and mid-sized manufacturers.
- Intellectual property protection: Board members underscored the need for safeguards to protect proprietary data and intellectual property, particularly for smaller firms engaging with AI technologies.

The Chair noted that the inclusion of AI in the 2025 recommendations would remain principle-based and forward-looking, with the opportunity for the Board to develop more detailed AI-focused recommendations during the 2026 planning cycle.

IV. Public Comments/Discussion

There were no members of the public present at the meeting.

V. Closing Remarks

The next meeting date is scheduled for January 26, 2025 from 10am - 12pm as a hybrid meeting. Meeting notice will be sent out over the next few weeks.

VI. Adjournment

A motion to adjourn was made by N. Scott Phillips and seconded by Susan Chambers. The meeting was adjourned at approximately 1:48 PM.