1.0 Executive Summary

Maryland has a proud history in Manufacturing and is still home to some of the global brands that speak to our competitive advantages and economic strengths, from Under Armour to McCormick, and from Northrop Grumman to AstraZeneca. Despite significant manufacturing job losses due to offshoring and technological advancement over the past half century, manufacturing is coming back. In fact, there has never been a better alignment of market forces and political leadership than now to grow Maryland manufacturing.

The pandemic has made it abundantly clear that beefing up domestic production is not only a market necessity but also a national security imperative. With the Biden administration's focus on "Buy America" and "Make it in America," this is an opportune time to revive Maryland's manufacturing leadership and usher in a new era of modernization that reflects Maryland's rich institutional and human assets. The recently passed Inflation Reduction Act includes approximately $28 billion in new manufacturing investment, and the CHIPS and Science Act provides another $52.7 billion for American semiconductor research, development, manufacturing, and workforce development.

Maryland is well-positioned to capitalize on these opportunities. The state's manufacturing jobs in 2022 are well above pre-pandemic levels and since the pandemic, the recovery in manufacturing jobs has outpaced the overall Maryland economy. Maryland has already seen success in new manufacturing companies and jobs directly associated with pandemic-related domestic production such as Ellume in Frederick County make COVID home test kits, and United Safety Technology in Baltimore County making nitrile gloves.

Manufacturing is a key sector (or industry cluster) of Maryland's economy. Manufacturing accounts for 4.3% of Maryland jobs, but 8% of Maryland economic activity and 62% of Maryland exports. Manufacturing jobs in our state pay an average annual wage of $88,979, well above the State average. Five-year employment grew at 5%, while the overall private sector employment in the state fell.

But compared to the rest of the country, Maryland is punching below our weight in manufacturing capacity. Maryland has a relatively small manufacturing industry, ranking 46th in the proportion of private-sector workers employed in manufacturing. In fact, the state would have twice as many manufacturing workers if manufacturing made up the same proportion of the Maryland economy as it does nationwide. According to data from the Jacob France Institute, Maryland's manufacturing sector has the 8th highest employee compensation and 4th highest productivity. This demonstrates significant room for growth and increasing the size of Maryland's manufacturing sector would be a strong strategy to provide a pathway to the middle class for even more Marylanders.

The manufacturing sector is undergoing a rapid transformation. Increasingly, manufacturers are incorporating advanced technologies, automation, big data, and more interconnected systems into their production processes. These changes, often referred to as Industry 4.0, come with an increased

up-front cost to producers but enable companies to make increasingly complex products more efficiently than ever before.

The Industry 4.0 initiative aligns with Maryland's strategic focus of advanced manufacturing and continues to extend Maryland's rich manufacturing heritage and technological know-how to develop the innovative, high-tech products of the future. An increased investment in advanced manufacturing workforce in the state secures continued opportunity and stability for Maryland's manufacturing workforce for years to come.

In recognition of a rapidly growing global transformation in manufacturing based on Industry 4.0 technologies, Maryland manufacturers advocated for legislation in 2021 to put Maryland on a competitive playing field with other states and countries. The Regional Manufacturing Institute of Maryland, the state's primary advocacy group for Maryland manufacturers, was instrumental in initiating and advocating for the legislation during the 2020 and 2021 legislative sessions. SB444 was introduced by Senator Chris West (R-Baltimore County, MD) and HB658, was introduced by Delegate Lily Qi (D- Montgomery County, MD). These companion bills became law on July 1, 2021. The bills created the "Transforming Manufacturing in a Digital Economy Workgroup (Making It in Maryland)" to address the need for policies and programs to help Maryland manufacturers adopt new Industry 4.0 technologies and to identify skills gaps in emerging advanced tech environments. The Department of Commerce was assigned to staff the workgroup.

Now is the time for the State to step up our support of Maryland manufacturing. Not only has the sector experienced strong recent employment growth, but the national trend of reshoring coupled with the productivity enhancing capabilities of Manufacturing 4.0 have the potential to support a manufacturing renaissance nationally and in Maryland. Providing incentives to manufacturers to invest in advanced production technologies and expanding the pipeline of skilled workers is critical to creating quality jobs, growing Maryland's economy, and expanding the State's tax base.

While there needs to be a comprehensive roadmap for rebuilding manufacturing, this workgroup was tasked with helping Maryland manufacturers ease the transition to the digital economy by derisking the adoption of new technologies. In particular, the workgroup focused on supporting **small and medium enterprises** that make up the vast majority of Maryland manufacturing landscape.

The 24-member workgroup, made of industry, academic, nonprofit and government representatives, started its work since September 2021 and concluded with this report in December 2022. The detailed meeting minutes can be found on our webpage at https://commerce.maryland.gov/commerce/boards-and-commissions. The Jacob France Institute of the University of Maryland Baltimore County was engaged by the workgroup through the Department of Commerce to conduct research and analysis in support of the workgroup.

At the conclusion of the workgroup, members voted on and approved the following recommendations to enable manufacturers to adopt Industry 4.0 technology and to better prepare Maryland workers for the jobs of the future:

1. Establish a special fund of $50,000,000 in FY24 to be used for small and mid-sized (SME) manufacturers to be used for the purchase, implementation and related employee training of industry 4.0 technology. This would include advanced sensors, embedded software, robotics that collect data, ERP and supply chain integration, cloud computing, AI, and the infrastructure needed to implement these solutions.

2. Commit $10,000,000 as seed funding to establish a Manufacturing Innovation Center, with an industry-led partner to be selected by the state to manage and operate the center. As a public-private partnership, the Center would raise additional funds to support the operations. The purpose of the center is to build a national showcase for next-generation manufacturing technology, talent, and transformation. The Center will be a public-private sector digital network and physical Center offering a quick response system that promotes the technological Future of Maryland manufacturing. The Center is a catalyst for forging new systems of success serving manufacturers with an improved system of service.

3. Align manufacturing industry skills needs with statewide curriculum development through the efforts of the CTE Committee and other reforms resulting from the Kirwan legislation. Require the CTE Committee to partner with MD Labor's Division of Workforce Development Adult Learning, RMI, MD MEP, and local workforce boards to analyze existing programs, identify gaps, and make investments in programs to fill those gaps.

4. Pass legislation that would open PEO (professional employer organization) access to any manufacturer under 50 employees. Manufacturers want to offer the best benefits to our employees, but Maryland law currently prohibits manufacturers under 50 employees to get together to offer "large company benefits" to their employees.

5. To further encourage manufacturers to invest in Industry 4.0 technologies and to help enable the free flow of information from factory floor to cloud and other computer systems, amend Sec. 03.06.01.32-2, Section C (1) to include indirect digital product purchases, such as software.

6. Pass legislation to create a Buy Maryland Manufacturing tax credit program – modeled after the Buy Maryland Cyber program, a Buy Maryland Manufacturing Tax Credit would promote the manufacturing industry in Maryland by encouraging other Maryland businesses to purchase products manufactured in Maryland.

7. Encourage local land use and zoning regulations, as well as local incentives, to ensure an adequate inventory of properties for the expansion of existing, and attraction of new manufacturers in the state. State agencies should work with local officials to identify best practices in land use and zoning regulations to meet the needs of today's manufacturing sector.

8. Create a state matching fund to buy-down the costs and improve the ROI to 3-4 years for the purchase of major facility systems such as HVAC systems, electrical switchgear, transformer, industrial logic controllers and similar advanced controls. This fund would be managed by the Maryland Energy Administration and promoted by the Regional Manufacturing Institute (RMI) and Maryland MEP.

9. Establish a program within Maryland Commerce to identify Maryland companies that make products or components that support sustainability and reduce carbon footprints. Identify strategies for developing this emerging sector. Market Maryland as a State that wants to attract Green Manufacturing companies. Research shows that younger workers are attracted to companies that support green initiatives. Promote in schools and colleges careers in Maryland Green Manufacturing companies.