



**Interim Report – Transforming Manufacturing in a  
Digital Economy Workgroup (Making It In Maryland)**

In accordance with

CHs 581 & 582, Acts of 2021

**December 2021**

## **Introduction**

Senate Bill 444/House Bill 658, passed by the General Assembly during the 2021 Legislative Session, created the *Transforming Manufacturing in a Digital Economy Workgroup (Making It In Maryland)*, and assigned the Department of Commerce as staff to the workgroup. The bill tasked the Workgroup with the following:

- Identify the new and emerging digital technologies that are shaping the work of the future, the education and skills needed, and the viable strategies for businesses to adopt these technologies;
- Examine the research conducted by the Massachusetts Institute of Technology (MIT) on the relationships between emerging technologies and the workforce to enable a future of shared prosperity, entitled “The Work of the Future: Shaping Technology & Institutions”, MIT Work of the Future, Fall 2019 Report;
- Examine existing financial resources available to manufacturers seeking to invest in Industry 4.0 technology.
- Make recommendations to facilitate the State’s robust entry into Industry 4.0 technology to improve the perception of manufacturing careers, including:
  - promoting the technological advancements of Industry 4.0 to shift the perception of manufacturing careers for the entry–level workforce; and
  - creating and advancing public–private partnerships between manufacturers, supportive community stakeholders, and education systems;
- Examine new and viable tax credits and programs for manufacturers to be more competitive and marketable in the new digital economy;
- Examine the State’s current statutory and regulatory authority over manufacturing to examine potential reforms to attract new manufacturing businesses brought by Industry 4.0 to invest in the State’s economy and workforce;
- Recommend additional financial support delivery mechanisms, as needed, to enable State manufacturers to adopt Industry 4.0 technology and enhance the ability of industry service providers to increase the scope of their industry support;
- Propose annual State funding to create a statewide training program to address the growing skills gap in the manufacturing workforce; and
- Develop recommendations for long–term private–public partnerships between educational institutions and manufacturers to develop curriculums that address the rapidly changing needs of the manufacturing industry.

## **Members of the Workgroup**

- Delegate Lily Qi - Chair
- Senator Chris West
- Senator Jim Rosapepe
- Delegate Johnny Mautz
- Bob Mather, Vice President - Lean, I4.0 & Advanced Manufacturing, Stanley Black and Decker Global Operations
- Kunjan Tokekar, Director, Industrial Engineering, Volvo Group
- Dr. Thomas VanCott, Chief Technology & Strategy Officer, Catalent Cell & Gene Therapy
- Kenneth Sanchez, President, Chesapeake Specialty Products
- April Richardson, Esq., Managing Partner, Food Opportunity, LLC
- Jack Weber, Uptown Press
- Suzy Ganz, Lion Brothers
- Mike Galiazzo, RMI
- Mike Kelleher, Executive Director, Maryland MEP
- Chris Cosgrove, Vice Chair of the Board, RAMP MD
- Marty Rosendale, CEO, Maryland Tech Council
- Donna S. Edwards, President, Maryland State and DC AFL-CIO
- Kelly Koermer, Carroll Community College
- Irnande Altema, Associate Vice President for Government and Business Affairs, MICUA
- Lindsay Ryan, Venture Development Director, USM
- Dr. Adam Porter, Executive Director, Fraunhofer USA Center Mid-Atlantic
- Wynne Briscoe, Regional Director, Maryland SBDC Southern Region
- Lance Schine, Deputy Secretary, DOIT
- Todd Sabin, Maryland Department of Commerce
- Erin Roth, Maryland Department of Labor

## **Activities of the Workgroup**

During the summer of 2021, Commerce staff worked to confirm the appointments of each representative to the Workgroup; engaged the services of the Jacob France Institute to support the research and evaluation requirements of the legislation; and prepared for the initial meetings of the Workgroup.

The Workgroup met four times in 2021 – September 14<sup>th</sup>, October 12<sup>th</sup>, November 9<sup>th</sup> and December 14<sup>th</sup>. A summary of each meeting follows, while full agendas and meeting minutes for these meetings are attached in the appendix.

- September – This was an introductory meeting. Members of the workgroup introduced themselves, heard an overview of the purpose and tasks assigned to the workgroup, received a presentation on the current state of the manufacturing industry in Maryland,

and received a presentation on Industry 4.0 and the importance of digital transformation in manufacturing facilities.

- October - Delegate Qi led a discussion among workgroup members focused on their reactions to the information from the first meeting, insight into the barriers manufacturers face in implementing new technologies, and preliminary discussion of what is needed to support and accelerate the adoption of Industry 4.0.
- November – The Workgroup received a presentation on the CTE-related components of the Kirwan Commission, and an open discussion regarding effective ways to contribute to the workforce development discussions to ensure Maryland’s education and workforce systems address the skills and training needs of Maryland manufacturers.
- December – The Workgroup received a presentation from TEConomy on the MD MEP Manufacturing Strategy report. The Workgroup then reviewed, discussed and approved an interim report to be submitted to the General Assembly. A virtual tour of the Stanley Black & Decker Manufactory in Connecticut is being planned for January 2022.

### **Future Work to be Accomplished**

Over the last six months, the foundation was laid and groundwork begun on the accomplishment of the tasks set forth in the legislation. The Workgroup has developed a strategy for execution over the next 12 months to ensure a thoughtful and timely report of final recommendations by December 1, 2022.

January-May, 2022 – Review, Discussion and Recommendations regarding technology adoption in Maryland manufacturing:

- January 2022 – Presentation on national best practices for supporting technology adoption and implementation in manufacturing.
- February 2022 – Discussion on best practices, barriers to adoption for Maryland manufacturers
- March 2022 – Initial discussion of recommendations to aid in technology adoption in Maryland manufacturing
- April – Refinement of recommendations to aid in technology adoption
- May 2022 – Finalize recommendations to support technology adoption

June-July 2022 – Review, Discussion and Recommendations regarding state regulatory, tax and policy topics that impact the manufacturing sector.

- June 2022 – Initial discussion of regulatory, tax and policy topics that impact Maryland manufacturers.
- July 2022 – Discussion recommendations for changes in state regulatory, tax and policy to positively impact manufacturing.

August-September, 2022 – Review, Discussion and Recommendations regarding workforce implications, education and training needs to support transition to technology-enabled manufacturing:

- August 2022 – Presentation on Maryland Manufacturing Workforce Analysis – workforce supply/demand analysis; current and evolving skills requirements; and impact of Industry 4.0 on skills needs.
- September 2022 – Initial discussion of recommendations to enhance existing, and create new programs to meet the changing skill needs of manufacturing employees.

October-November, 2022 – Finalize Recommendations and Report:

- October 2022 – Refinement of recommendations to enhance existing, and create new programs to meet the changing skill needs of manufacturing employees. Review and discuss rough draft of report
- November 2022 – Finalize and approved final report for submission to General Assembly

## **Appendix A: Meeting Minutes**

### **Meeting Minutes September 14, 2021; 10:00am-12:00pm**

#### Workgroup Members in Attendance:

Delegate Lily Qi, Chair  
Senator Chris West  
Senator Jim Rosapepe  
Delegate Johnny Mautz  
Todd Sabin, Maryland Commerce  
Lance Schine, Deputy Secretary, Maryland DoIT  
Will Grant, Maryland Labor  
Mike Galiazzo, RMI  
Marty Rosendale, Maryland Tech Council  
Leslie Weber, MICUA  
Lindsay Ryan, USM  
Wynne Briscoe, SBDC  
Suzy Ganz, MMAB  
Kelly Koermer, MACC  
Chris Cosgrove, RAMP MD  
Mike Kelleher, Maryland MEP  
Peter O'Neill, Fraunhofer USA  
Donna Edwards, MD-DC AFL-CIO  
Bob Mather, Stanley Black & Decker  
Ken Sanchez, Chesapeake Specialty Products  
Jack Weber, Uptown Press

#### Staff:

Heather Gramm, Maryland Commerce  
Jen LaHatte, Maryland Commerce  
Mike Siers, Maryland Commerce  
Richard Clinch, Jacob France Institute

#### Public:

Christine Krone, Schwartz Metz & Wise  
Dakota Matthews, Rural Maryland Council  
David Brousell, Manufacturing Leadership Council (presenter)  
Drew Greenblatt, Marlin Steel (presenter)

#### Welcome and Introductions:

Delegate Qi and Senator West gave welcome remarks, provided an overview of the legislation and their vision for the Workgroup. The Workgroup members introduced themselves and the organizations they represent on the Workgroup.

#### Overview of Workgroup:

Heather Gramm with Commerce gave a presentation on the goals and tasks of the Workgroup, reporting requirements, and the role of Commerce in supporting the efforts of the group. She also presented on existing programs and resources for manufacturers in Maryland as a baseline for the current landscape for manufacturing industry support in the state.

Mike Galiazzo provided comments on RMI's vision for the Workgroup, and what RMI would like to see accomplished through this effort to help Maryland manufactures adapt to and adopt new digital technologies in order to sustain and grow their operations in the future.

Bob Mather and Drew Greenblatt presented on the ways their companies have embraced Industry 4.0 technologies, the positive impacts those technologies have had on their operations, and why the work of this group is so important to help the broader manufacturing sector in Maryland to do the same.

Delegate Mautz emphasized the importance of ensuring the recommendations of the Workgroup were relevant to, and had a positive impact on, manufacturing throughout all of Maryland, including the Eastern Shore and the unique needs of manufacturers in that region of the state.

#### Setting the Context:

Richard Clinch (Jacob France Institute at UMB) provided a presentation on the current state of Maryland manufacturing. The presentation included broad manufacturing trends, analysis of Maryland's manufacturing sector including sectors of high concentration, manufacturing in each county, and occupational and workforce data.

David Brousell (Manufacturing Leadership Council) gave a presentation entitled "Accelerating Digital Transformation" which including an overview of Industry 4.0 broadly, the drivers of industrial disruption, and trends in Industry 4.0 technology adoption.

Following these presentations, there was a brief open discussion among the manufacturers on the workgroup regarding challenges and opportunities for technology adoption within the manufacturing sectors.

The meeting adjourned at 12:00pm

#### **Meeting Minutes October 12, 2021; 10:00am-12:00pm**

##### Workgroup Members in Attendance:

Delegate Lily Qi, Chair  
Senator Chris West  
Senator Jim Rosapepe  
Delegate Johnny Mautz  
Todd Sabin, Maryland Commerce  
Jim Rzepkowski, Maryland Labor  
Mike Galiazzo, RMI  
Marty Rosendale, Maryland Tech Council  
Lindsay Ryan, USM

Wynne Briscoe, SBDC  
Suzy Ganz, MMAB  
Kelly Koermer, MACC  
Chris Cosgrove, RAMP MD  
Mike Kelleher, Maryland MEP  
Adan Porter, Fraunhofer USA  
Donna Edwards, MD-DC AFL-CIO  
Bob Mather, Stanley Black & Decker  
Ken Sanchez, Chesapeake Specialty Products  
Paul Foster (on behalf of Jack Weber), Uptown Press  
Irnande Altema, MICUA  
Kunjan Tokekar, Volvo Group  
April Richardson, Food Opportunity

Staff:

Heather Gramm, Maryland Commerce  
Jen LaHatte, Maryland Commerce  
Mike Siers, Maryland Commerce  
Richard Clinch, Jacob France Institute

Public:

Peter O'Neill, Fraunhofer USA  
Katie Hardy, Office of Delegate Qi

Welcome and Introductions:

Delegate Qi gave welcome remarks and provided a recap of the September 14th meeting. She then opened the meeting to discussion and reactions from the Workgroup members.

Open Discussion:

A robust discussion of the members followed, providing reactions and insights into the presentations from the previous meeting, input on the importance of digital transformation in manufacturing and the challenges faced when implementing these new technologies. There was discussion on the importance of workforce and shifts in the types of positions and skills needed. There was also discussion on the types of support, both technical and financial, that may be helpful to manufacturers to support adoption of technologies in their operations.

Closing Remarks:

Delegate Qi thanked the members for their valuable insights. She then showed a portion of a recently produced video by Maryland Public Television highlighting Maryland manufacturing.

The meeting adjourned at 12:00pm

**Meeting Minutes November 9, 2021; 10:00am-12:00pm**

Workgroup Members in Attendance:

- Delegate Lily Qi, Chair



- Senator Chris West
- Senator Jim Rosapepe
- Delegate Johnny Mautz
- Todd Sabin, Maryland Commerce
- Erin Roth, Maryland Labor
- Lance Schine, Maryland DOIT
- Mike Galiazzo, RMI
- Lindsay Ryan, USM
- Wynne Briscoe, SBDC
- Suzy Ganz, MMAB
- Kelly Koermer, MACC
- Chris Cosgrove, RAMP MD
- Mike Kelleher, Maryland MEP
- Adam Porter, Fraunhofer USA
- Bob Mather, Stanley Black & Decker
- Ken Sanchez, Chesapeake Specialty Products
- Jack Weber, Uptown Press
- Irnande Altema, MICUA
- April Richardson, Food Opportunity

Staff:

- Heather Gramm, Maryland Commerce
- Jen LaHatte, Maryland Commerce
- Mike Siers, Maryland Commerce
- Richard Clinch, Jacob France Institute

Public:

- Peter O'Neill, Fraunhofer USA
- Katie Hardy, Office of Delegate Qi

Welcome and Approval of Minutes:

Delegate Qi gave welcome remarks and presented draft minutes from the September and October 2021 meetings. With no comments on the minutes, Senator West made a motion to approve, Senator Rosapepe made the 2nd, and the minutes were approved unanimously.

Delegate Qi provided a recap of the open discussion from the October 2021 meeting. There was discussion regarding a trip to visit the Stanley Black & Decker facility in Connecticut, to be organized by RMI, for interested Workgroup members. There was also a discussion regarding meeting dates and times during the legislative session. Future meetings dates may need to be adjusted based on legislative hearing schedules. Finally, Mike Galiazzo welcomed members to contact him with any questions about the original intent of the Transforming Manufacturing in a Digital Economy Workgroup legislation.

Kirwan CTE Mandate Presentation and Discussion:

Senator Rosapepe gave a presentation on how the Kirwan School Reform Law invests in work skills over the next ten years. The presentation included information on the 2031 goal of

apprenticeship jobs for at least 45% of high school graduates, discussion of the modernization of CTE as related instruction in the high school level of registered apprenticeships, and the creation of a new state CTE Committee to design and oversee this plan. The call to action for the Workgroup members is an opportunity to engage and help the CTE Committee design a plan for the manufacturing sector, and comes to the table early and with data to make specific recommendations.

An open discussion followed in which apprenticeships were discussed at length, including both opportunities and challenges associated with the current model of youth apprenticeships. It was noted that there are labor laws associated with age and certain function within manufacturing (operating heavy equipment as an example) that limit opportunities for youth apprentices. It was also noted that there needs to be better alignment between the CTE/Community College curriculum and the job requirements of manufacturers for both interns and apprenticeships. It was also noted that, as an apprentice, a high schooler is no longer covered by the school's workers comp insurance and the employer's insurance often won't cover those under 18. South Carolina was given as an example where targeted programs at the CTE and community college level are built around very specific anchor employers that very closely align the training and curriculum to the needs of the employer.

#### Proposed Scope of Work and Timeline:

Richard Clinch (JFI) presented a proposed scope of work and timeline for the remainder of the Workgroup's activities. His two lines of research will include 1) a comparative analysis and alignment of Maryland to best practices around the country with a focus on Industry 4.0 adoption support and 2) a manufacturing workforce analysis looking at supply and demand, the talent pipeline, current and evolving skills requirements and the impact of Industry 4.0 on skills needs. The approach had the concurrence of members.

During the discussion of the proposed scope of work, it was suggested that any program recommendations may be best proposed as a pilot program rather than a statewide solution. It was also suggested that the government may not always be the best solution-provider, and recommendations should not simply focus on government solutions. It was also suggested that a private sector or non-profit partner be considered for any type of test bed, de-risking and integration solutions as opposed to a university-based solution.

#### Closing Remarks:

Delegate Qi thanked the members for their valuable insights. She noted that the MD MEP is associated with NIST, and that small businesses can use federal facilities and leverage the labs and technologies – perhaps there is a partnership that could be established to create a test bed through collaboration with federal assets in Maryland.

RMI will evaluate options for a tour of the Stanley Black & Decker facility in Connecticut.

The meeting adjourned at 12:00pm