WRITTEN TESTIMONY OF
DAVID VASKO
SENIOR DIRECTOR, ADVANCED TECHNOLOGY
ROCKWELL AUTOMATION

REGARDING
PROMOTING AND INVESTING IN SMALL AMERICAN MANUFACTURERS

SUBCOMMITTEE ON OCEANS, FISHERIES, CLIMATE CHANGE AND MANUFACTURING
COMMITTEE ON COMMERCE, SCIENCE & TRANSPORTATION
U.S. SENATE

December 13, 2022

Good afternoon, Chair Baldwin and Ranking Member Sullivan, and distinguished Members of the subcommittee. Thank you for this opportunity to speak with you today about the value and continued importance of our nation's manufacturing, supply chain and workforce development.

My name is David Vasko. I am the Senior Director of Advanced Technology for Rockwell Automation, responsible for applied research and development and global product standards and regulations. I have been working in this field for 38 years and am honored to serve on the Department of Commerce's National Institute of Science and Technology (NIST) Visiting Committee on Advanced Technology.

Founded in 1903 as Allen Bradley, Rockwell Automation -- "Rockwell" -- is a global leader in industrial automation and digital transformation. We connect the imaginations of people with the potential of technology to expand what is humanly possible, making the world more productive and more sustainable. Headquartered in Milwaukee, Wisconsin, Rockwell employs nearly 26,000 problem solvers dedicated to our customers in more than 100 countries.

Rockwell's automation tools help our customers produce key products and solutions Americans need and use every day, including electric vehicle and automotive parts and components, pharmaceuticals and vaccines, food and beverages, medical devices, chemicals, printing, paper and publishing materials, products and components for the defense industry, semiconductors, and extractable minerals, oil, and gas. Additionally, Rockwell's products and systems operate critical infrastructure such as power generation and water treatment facilities. Our products permeate across our nation's manufacturing ecosystem. In fact, it would be difficult to walk into a factory in the U.S. and not see our hardware and software helping manufacturers to become more competitive, agile, and sustainable.

Rockwell partners with small- and medium-sized enterprises (SMEs) every day to provide automation products and solutions enabling them to be globally competitive and deliver high quality products and services. SMEs are a vital part of our nation's integrated supply chain.

U.S. manufacturers are facing a new era of uncertainty and change because of global supply chain disruptions, and greater demands for mass customization. These upheavals have spurred new opportunities, driving reshoring and localization of manufacturing – both a great opportunity and a challenge for SMEs.

The CHIPS and Science Act aims to support this reshoring trend by strengthening domestic chip manufacturing and creating a stronger manufacturing ecosystem – from a more robust supply chain to a greater skilled manufacturing talent pool.

To ensure a stronger domestic ecosystem for generations to come, the Commerce Department, through its Manufacturing Extension Partnership (MEP), Manufacturing USA (MUSA) initiative, should focus on four areas:

1. Attracting more workers to seek careers in manufacturing.
2. Improving the skills of people in manufacturing today to prepare them for the future.
3. Adoption of advanced automation tools and solutions to improve productivity.
4. Supporting further integration of SMEs into our modern connected supply chains.

First, the CHIPS legislation, although a great step towards codifying industrial policy, will fall short of its ambition unless we build and cultivate the workforce necessary to succeed. The largest generation in U.S. history, baby boomers, is aging out of the workforce, hitting the manufacturing sector particularly hard. The shortage of manufacturing workers is not only demographic but cultural as well. The new MEP authorities must show, and convince, young Americans that manufacturing jobs are high-tech, clean, safe, and offer family-sustaining wages, to help increase the number of workers seeking careers in manufacturing. The National Association of Manufacturers estimates that the approximately 800,000 unfilled manufacturing positions could increase to nearly 2.1 million by 2030. These are solid, high-paying careers, but there is a perception that manufacturing, and factory jobs are low-skilled, low-paying, menial, and hazardous. That couldn't be further from the truth in today's high-tech manufacturing.

Second, the Department of Commerce should implement new regulations promoting the upskilling of our current workers as well as upskilling new employees entering the workforce. This means leveling up our manufacturing workers and ensuring they have the skills they need for tomorrow's manufacturing. Upskilling means adopting a model of life-long learning to meet the needs of employers as well as take advantage of the latest technology. Upskilling not only increases worker salaries, but it also arms them with versatile skills that will ensure future job security as consumer demands change, and create rewarding, lifelong careers.

To tackle the critical skills shortage in the fast-evolving manufacturing sector, in 2017 Rockwell and ManpowerGroup developed the Academy of Advanced Manufacturing (AAM) – a joint initiative to provide U.S. military veterans with the upskilling they need to succeed in advanced manufacturing roles. The 12-week training program combines instructor-led classroom learning with hands-on technical laboratory experience. More than 300 veterans have gone through the training and become certified, resulting in more than 85 percent of graduates securing a job

paying on average between $60,000-$75,000 annually after completing the program. Programs such as this could be replicated and scaled in high-need areas to address the skills gap.

Third, MEP and MUSA should increase the productivity of each worker by adoption of advanced automation tools and solutions. These are the automation tools and solutions we see developed every day in the 16 Manufacturing USA institutes. The U.S. has a remarkable workforce and equipping them with advanced automation tools -- like artificial intelligence or machine learning, augmented reality, robots, and cloud-based software – will give these workers the superpowers needed to remain globally competitive and will continue to increase employment.

Fourth, we need to ensure that SMEs remain an integral factor in today's modern and inter-connected supply chains. We are seeing gaps emerge in manufacturing between the best manufacturers and the rest. Leading manufacturers are deploying advanced technologies such as Augmented Reality/Virtual Reality, Artificial Intelligence/Machine Learning, Digital Twins, cloud, additive manufacturing, wireless networking, and advanced robotics to drive unprecedented productivity, resiliency and flexibility required to be competitive in today's global markets, and then securing it with robust implementation of cybersecurity strategies. But most manufacturers are unable to do these things at this time – especially SMEs. Cloud solutions are particularly important because they democratize automation and reduce large capital investments which can be a barrier to SME adoption.

We need to ensure all U.S. manufacturers can adopt these solutions so they can keep pace with the larger players in the industry. The MEP program and technology and innovation hubs can be that bridge and can help enable SMEs to adopt advanced manufacturing solutions.

Beyond revitalizing the manufacturing of today, the MUSA program is critical to accelerating the manufacturing growth needed for tomorrow's innovations. Rockwell has been a member of four out of the 16 American manufacturing institutes, including CESMII, MxD, REMADE, ARMI/BioFabUSA, and collaborated with NIIMBL. Each institute focuses on critical technical gaps in specific areas of manufacturing with the goal of resolving these critical gaps and delivering these solutions to U.S. manufacturers. Typically, these projects are jointly conducted with suppliers, academics, and manufacturers to demonstrate the real-life applications of these technologies. It goes beyond writing an article, and applies the technology on a manufacturing line, factoring in all the required real-world constraints.

Manufacturing USA provides solutions to these deep technical gaps, needed to develop cutting-edge technologies and innovations, and we must continue to fund these and new institutes to tackle America's emerging needs.

Let me give you an example of a project we worked on at the Manufacturing USA ARMI/BioFabUSA Institute where research scientists were able to demonstrate remarkable regenerative medical solutions. In a laboratory environment, they were able to regenerate a person's own cells, tissues and parts of some organs, a medical miracle that eliminated the possibility for rejection and the need for immune suppression medication in patients. But it is a large step from a lab experiment to producing these regenerative medical solutions at the

quantity, quality, cost, and location where they are needed. That is where Rockwell comes in – we worked with the research scientists at ARMI/BioFabUSA to develop a scalable, modular, closed loop system that isn't much larger than a desktop. This type of manufacturing suite is quite typical in manufacturing processes but revolutionary in regenerative medicine. It allows cells and tissues to be produced at volume and with controlled quality.

Rockwell applauds the spotlight the CHIPS and Science Act has put on American manufacturing industry. After decades of offshoring jobs and overreliance on foreign supply chains, federal investments supporting American industries will revitalize our truly world class manufacturing ecosystem; support our workers; and ensure future supply chain resiliency through local sourcing. But beyond legislation adoption, we must ensure proper implementation, cultivate a reliable skilled workforce here at home, and expand the MEP's role through the creation of regional tech hubs so SMEs can keep up with the latest innovations and ensure the success of manufacturing in the U.S. for current and future generations.

Rockwell appreciates the Subcommittee's continued leadership and support, and we welcome the opportunity to testify at this critical hearing. We look forward to continued collaboration with you and your staffs to ensure that America can maintain and enhance our global leadership in advanced manufacturing for years to come.

Acronyms

AAM	Academy of Advanced Manufacturing
ARMI/BioFabUSA	Advanced Regenerative Manufacturing Institute
CESMII	Clean Energy Smart Manufacturing Innovation Institute
CHIPS	Creating Helpful Incentives to Produce Semiconductors
MEP	Manufacturing Extension Partnership
MUSA	Manufacturing USA
MxD	Manufacturing times Digital
NIIMBL	National Institute for Innovation in Manufacturing Biopharmaceuticals
NIST	National Institute of Science and Technology
REMADE	Reducing EMbodied-energy And Decreasing Emissions
SME	Small and Medium-sized Enterprise