

Statement of
Ryan Myers, MBA
before the
House Subcommittee on Space, Science, and Technology
“Revitalizing American Leadership in Advanced Manufacturing”

Introduction

Chairwoman Stevens, Chairman Lamb, Committee members, it is an honor to be here today to speak before the House of Representatives’ Committee on Science Space and Technology’s Subcommittee on Research and Technology and Subcommittee on Energy about a topic so critical to the U.S. economy and national defense – advanced manufacturing.

I am Ryan Myers, Director of Business Development for DoD at Hexagon Manufacturing Intelligence, North America. We have an office in Wixom, Michigan, which sits in Michigan’s 11th Congressional District and our North American headquarters is in North Kingstown, Rhode Island which sits in the 2nd Congressional District. In addition, we have a total of 13 offices centered around manufacturing hubs through-out the country. We employ roughly 750 people in North America, and about 650 in the U.S. Our parent company, Hexagon AB, is out of Stockholm, Sweden. Globally, Hexagon AB generates about \$4.5 billion in revenue with over 20,000 employees. I have worked in this role for Hexagon for the past two and a half years. I also serve our nation as a Lieutenant Colonel in the United States Army Reserve.

Hexagon Manufacturing Intelligence is a global leader in digital solutions that create Autonomous Connected Ecosystems...where data is connected seamlessly, converging the physical and digital worlds, and building intelligence into all processes. We digitally transform the manufacturing process, by converging...design and engineering, production, and metrology solutions to make smart factories, while ensuring speed and accuracy in the production process. Our design and engineering solutions use computer-aided engineering techniques to simulate reality, so quality is embedded in design and manufacturability is guaranteed. Our production solutions include CNC simulation and computer aided manufacturing software that ensure design intent is maintained through the production process, improving throughput and delivering high quality components. Our metrology sensors capture real-world data very quickly and accurately for inspection, and our metrology software provides actionable information through advanced analytics and intuitive reporting.

We have memberships in three of the Manufacturing USA Institutes; America Makes, Lightweight Innovations For Tomorrow, LIFT, and Manufacturing times Digital MxD (formally DMDII). We came onboard with the Institutes, all about the same time, approximately three years ago. We have provided hardware and software to America Makes and LIFT, and software only to MxD. I personally have been most engaged with LIFT which is based in Detroit, Michigan, and focused on lightweight materials. To a lesser extent, I have also been involved with America Makes and MxD.

Benefits of Membership with Manufacturing USA Institutes

Our rationale for joining the Manufacturing USA Institutes was rooted in supporting the advancement of manufacturing and manufacturing technologies in the U.S. We immediately saw the value that it would bring to our DoD customers, but also to the broader manufacturing industry and national defense preparedness. This was coupled with the fact that I was hired for DoD business development for Hexagon, and these institutes are DoD funded, so it was a good strategic fit. While LIFT has been focused on important work in lightweight metals across the Defense and commercial transportation sectors, the Institute also is playing a leading role in developing and implementing smart manufacturing processes and systems. Together, Hexagon and the Manufacturing USA Institutes can advance manufacturing processes for other Institute members, Michigan manufacturers and advanced manufacturers across the nation. To support the research into those new processes, we have housed a Coordinate Measuring Machine (or CMM) at the LIFT Headquarters' Metrology Lab, which provides other members and partners accuracy, repeatability and automated dimensional inspection of manufactured parts.

Since Hexagon also has been aggressively pursuing a merger and acquisition strategy, going forward, and has done so over the past 20 years, membership in these institutes would help communicate our brand name recognition as we grow and acquire new capabilities. We have consigned metrology equipment to both America Makes and LIFT, and provided Design and Engineering software to America Makes, LIFT, and MxD as part of our membership cost-share agreements. Our economic benefits have been a purchase from LIFT for a Coordinate Measurement Machine (CMM) and the indirect influence through America Makes of a laser tracker purchase from Oak Ridge National Labs. Various software purchases have also stemmed from the Manufacturing Institute memberships. Other benefits are the networking opportunities provided by membership meetings with the large OEMs on relevant projects, both inside and outside, the scope of the Institutes. On the software side of our business we have supported collaborative projects to enhance digital file transfer between suppliers and OEMs in the Model-Based Enterprise.

Suggestions for Improvement

Though we have supported the cost share agreements and attended the Institute meetings and networking events, there is always room to improve. Since the larger companies can afford larger cost share they end up driving the Institute projects and activities, which is working exactly as the model is supposed to work. To further enhance small and mid-size business participation, perhaps a consistent stream of government funding could level out the playing field among the tiered membership, allowing the small and mid-sized businesses have a stronger voice in the Institutes activities.

Even though there is a Strategy for American Leadership in Advanced Manufacturing, by the Subcommittee on Advanced Manufacturing under the Committee on Technology of the National Science & Technology Council, October 2018, integration and alignments need to occur between the Manufacturing USA Institutes, the OSD Manufacturing Technology Programs (ManTech), and the Manufacturing Extension Partnerships (MEPs). To truly grow and strengthen America's posture in Advanced Manufacturing, we need to leverage this entire network to move forward. An example might be that the Institutes develop the new manufacturing technology, the ManTech program then develops the new manufacturing technology into a product, then the MEPs take over and train and scale the new product to small, medium, and large manufacturers. The Manufacturing USA Institutes are a step to help recreate innovation transition structure that was inherent in a robust manufacturing

ecosystem, which has since been lost. The pace of disruptive innovation in manufacturing has slowed in the U.S. Working the Institutes, ManTech, and MEPs together appears to be a way to revitalize and recreate US manufacturing robustness, on a local level and nationally.

Workforce Development

While we are advancing new technologies, processes, and systems, we also recognize the importance of developing the talent needed in advanced manufacturing. The most important activity to the successful implementation of the Digital Thread and Advanced Manufacturing Technologies is the need for employee skill development, specifically in the areas of in-process quality monitoring, and advanced inspection capability. These skills are expanding, but are not yet broadly available in the workforce. Consequently, training and skill development in specific topics will be necessary for acceptance and successful implementation of the Digital Thread on a large scale.

Education and commitment of manufacturing management will also be essential: first to understand and advocate for the recommended Digital Thread activities, and then to ensure early and continuous commitment of required resources. Increased use of computational modeling, the integration of process development and process-monitoring data, NDE results, automated data collection and analysis for feedback will necessitate investment in equipment, data bases, personnel, and software.

Collectively, a commitment to Advanced Manufacturing activities offers enormous potential for benefits in time, cost, and risk for Digital Thread development and implementation: but achieving these benefits will require that manufacturing management understand and support the infrastructure and workforce requirements.

More specifically, the Metrology Lab is also a key component of the LIFT Learning Lab, which will open later this summer. The LIFT Learning Lab is the only immersive learning venue to focus on building the pipeline of advanced manufacturing technicians with skills related to these Digital Thread emerging technologies. I believe this will help fill the future need for Hexagon's applications engineers needed to fulfill economic growth in this critical area.

Local Economic Benefits

Both the LIFT high-bay and LIFT Learning Lab are key assets in the Michigan regional economy and nationally, helping to strengthen our defense industrial base and our manufacturers' leadership in the global economy.

At Hexagon, we believe these institutes can only succeed and have the desired impact of repositioning the United States as the global leader in advanced manufacturing with continued commitment of both industry and government acting together in harmony and long term.

While the first institutes, including LIFT, are just now completing their initial start-up phase and initial contracts with the Department of Defense, they are poised to make even greater contributions to both our economic and national security.

Thank you.