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Marshall University's Robert C. Byrd Institute

West Virginia's Manufacturing Accelerator

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Robert C. Byrd Institute

Charlotte Weber serves as Director and Chief Executive Officer of the Robert C. Byrd Institute (RCBI) and Vice President for Federal Programs at Marshall University. At RCBI, she oversees a $21 million Advanced Manufacturing Technology System that delivers local access to a network of state-of-the-art manufacturing equipment. At Marshall, Weber coordinates the university's economic development, technology and research activities.

Helping industry adapt to marketplace changes is the foundation upon which Marshall University's Robert C. Byrd Institute (RCBI) was built. Thirty years ago, RCBI embarked on a journey to help West Virginia manufacturers produce new products and expand their markets.

It was one of eight "Just-in-Time Manufacturing Centers" established across the country with the goal of helping build a strong, capable supplier base to support the Department of Defense and commercial primes.

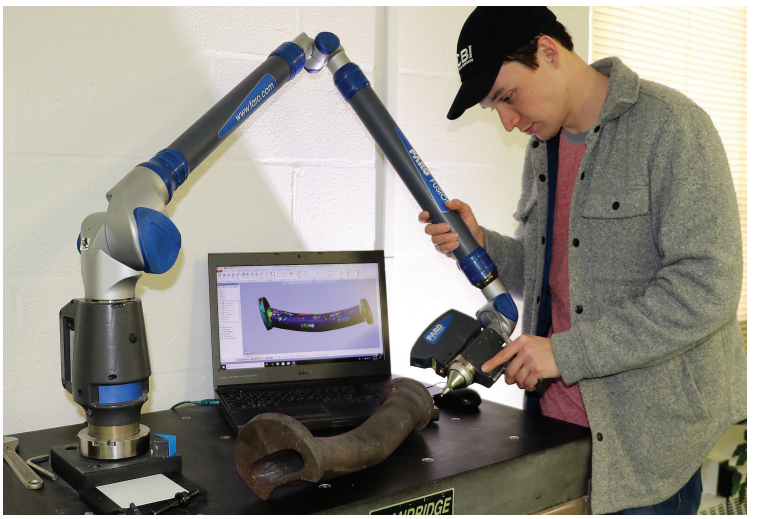
Of the eight national centers created that year, RCBI is the only one still operating. We credit this achievement to our continued commitment to exploring what is next for our clients and our state's economy. RCBI truly has become a national manufacturing accelerator – creating and supporting a hub of productivity and innovation for public and private companies as well as entrepreneurs and startups.

RCBI is a valuable resource for manufacturers (whether individual entrepreneurs or Fortune 500 corporations) to explore new opportunities and innovate. Offering leased use of more than $21 million in manufacturing equipment – including the latest in additive manufacturing (better known as 3D printing) and robotics technologies – coupled with our design engineering and prototyping expertise, RCBI delivers resources and solutions that expand business opportunities and create jobs.

RCBI's innovation focus extends well beyond traditional manufacturing to agriculture and its farm-to-table food supply chain, the composites sector, downstream manufacturing opportunities that arise from shale gas production as well as 3D printing's expansion into the arts, medicine, consumer goods and aerospace sectors. As a result, there's a growing demand for skilled workers in each of these sectors.

The aerospace industry, for example, projects that over the next 20 years it will require nearly 800,000 new civil aviation pilots, more than

Photo Caption 1 *An operator and technician assess a 3D-printed item that was produced in the Fortus 900mc 3D printer at RCBI. The versatile technology offers both rapid prototyping and end-use production, which are especially beneficial to the aerospace, automotive, composites, medical and consumer sectors of the manufacturing industry.*



750,000 maintenance technicians and nearly 900,000 cabin crew members to fly and maintain the world's fleet.

To prepare a skilled workforce to meet this need, RCBI, Marshall University and Mountwest Community & Technical College have signed an agreement to offer a joint associate in applied sciences degree for the education of aviation maintenance technicians. The cross-institutional degree is believed to be the first of its kind in West Virginia. Through this effort, coupled with the enormous aerospace development in the north central region, West Virginia has the opportunity to attract new investments in the aviation industry.

There's also a critical need for machinists and welders in this sector because of retiring Baby Boomers and the growth of aerospace manufacturing. Our nationally recognized Machinist Technology/CNC Program – the first in the nation to offer students the opportunity to earn national certifications and a college degree – and its certified Welding Technology Program have been producing highly skilled workers for more than 20 years.

To meet growing industry demand, we have expanded our Machinist Technology/CNC Program to Williamson and Welch in southern West Virginia. We also engage aerospace companies to assess their particular needs and then tailor our programs to develop those specific, in-demand skill sets.

As West Virginia's most comprehensive national manufacturing accelerator, we must support and advance workforce skills training. Workforces attract companies that in turn build economic stability. We are a committed partner with the state's colleges and universities, community and technical colleges, and K-12 school system to assist in preparing people for in-demand jobs.

RCBI has delivered training to nearly 30,000 individuals throughout the United States, preparing them for a variety of jobs, and we've worked with nearly 7,000 businesses, helping them adapt to the changing technological landscape. Here at home, RCBI's machinist graduates, both men and women, don't have trouble finding jobs. They earn national certifications as well as career-enhancing associate degrees from a partner community and technical college.

Helping grow the economy also includes supporting West Virginia's startups and entrepreneurs. RCBI is home to one of the first early stage investment programs, which began in 2010. In partnership with the U.S. Economic Development Administration, Appalachian Regional Commission, U.S. Department of Agriculture, and the Claude Worthington Benedum Foundation, we empower startups and entrepreneurs, helping take their ideas from concept to reality. Putting the vast resources of our manufacturing accelerator behind every inventive idea, RCBI has worked with nearly 170 startups, leading to the creation of more than 300 new jobs and spurring $66 million in sales.

We must continue to leverage our strengths in new and innovative ways. We must continue to work hard, form collaborations, develop a highly skilled workforce and focus all efforts on retaining and attracting industry. We must continue to innovate, West Virginia.

The future is now. Let's get to work!

Photo Caption 2 (Left) *Manufacturing clients, shown in one of RCBI's Design Works labs, use state-of-the-art CAD (computer-aided design) software to create the technical drawings of a new product that are required to manufacture a quality component.*

Photo Caption 3 (Right) *A design engineer at RCBI uses a FARO arm to take measurements from a customized part to verify it matches the manufacturing drawings. The technology, used in conjunction with 3D printing processes at RCBI, assures that manufacturers and entrepreneurs can produce more complex products, often resulting in new market opportunities.*