

Background material on Advanced Manufacturing in the Central Virginia Region – 1-16-20

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1. Strategic Directions: Advanced Manufacturing

At the PDC meeting on November 21 we agreed to focus on Advanced Manufacturing as an area to move our region forward.

We are justifiably proud of the number of engineers in various fields that we have here in the region, the extensive wireless communications component of our economy, the significant manufacturing processes that many of our producers use, and our strong tradition of fine machining and precision manufacturing here.

Manufacturing remains a significant part of our economy and pays significantly better than most other jobs. It makes sense for us to focus on this part of our economy.

Throughout the briefing paper I'm using Manufacturing and Advanced Manufacturing interchangeably. All current and future manufacturing needs to have technology integrated throughout the manufacturing process. In effect, all manufacturing becomes advanced manufacturing.

2. Overview:

In Lynchburg Metro area manufacturing contributes significantly to our economy

Manufacturing is 13.7% of the total jobs (14,884 manufacturing jobs out of 108,397 total jobs) in the Lynchburg region.

Healthcare – 16.4%
Manufacturing – 13.7%
Retail – 12.3%

There was a big decline in the number of manufacturing jobs in the region from 2000 to 2009. Since then the number of manufacturing jobs has held steady adding 125 jobs (0.2%) over the past 5 years.

The number of manufacturing establishments/businesses has dropped by 11% to 297 from 2008-2018 although the number of jobs has remained mostly constant. The number of manufacturing firms have fallen, but as one closes, others have hired the manufacturing talent so that the number of jobs has remained constant.

Total manufacturing jobs in Lynchburg are forecasted to drop by only 1.3% (187 jobs) over the next year.

Annual hiring demand for manufacturing jobs is 1,360, mostly due to retirements and turnover. We have about 66% more manufacturing jobs than one would expect to find when compared to other regions nationally.

It is by far the largest part of our gross domestic product in 2018.

\$10.1 Billion Gross Domestic Product in the Lynchburg Region

- 27.3% - manufacturing (\$2.8 Billion)
- 12.4% - healthcare
- 10.3% - real estate, rental, leasing
- 7.0% - retail
- 5.9% - professional, scientific, technical

And manufacturing's 27% share of the region's GDP has been a stable for the past five years

Manufacturers will purchase \$1 billion or 25% of their supplies from Central Virginia businesses in 2019.

Manufacturing jobs pay better than other jobs in the Lynchburg region

\$62,918 avg wage per worker for manufacturing jobs, up 2.5% over last 10 years. The average wage among all of Lynchburg's jobs is \$41,955.

(Source: Manufacturing Region 2000/Central VA (WDA 7) Industry Spotlight, 2019 JobsEQ, Chmura Economics and Analytics)

3. Manufacturing Nationally

As technology becomes integrated into the manufacturing process, we know nationally there is a skills mismatch...that manufacturing jobs have shifted from lower-skill to higher-skilled workers and that manufacturing workers are more likely to need post high school education. Nationally manufacturing job openings have increased from 1.8% in 2001 to 3.1% in 2017. From antidotal experience we can say that we experience the same the trend of having more demand than supply of skilled manufacturing workers here in Lynchburg.

The nation and Lynchburg faces the need to replace retirees as well as meet the need for new growth jobs. The report stated that nationally 2.7 million (manufacturing) employees are likely to be needed as a result of retirements of existing workforce while 700,000 are likely due to natural business growth.

There has also been a decline in people being willing to move for jobs (cross regional migration).

Technology is an inherent part of our manufacturing economy. U.S. Factories produce twice as much as they did in the mid-1980s. We produce those goods with one-third fewer workers. U.S. continues to produce close to 20% of all of the products worldwide.

Manufacturing is more important to the rural economy than it is to the urban economy because manufacturing traditionally is a higher percentage of the jobs available and provide a higher wage (USDA, Economic Research Service, Bulletin 177, August 2017).

Manufacturing opportunities continue, but it is competitive

As the manufacturing sector continues to evolve, the shift to higher value advanced industries is increasing the competitiveness of more developed places. A 2016 Deloitte report concludes that talent, cost competitiveness, productivity and supplier networks are the most important factors, in that order.

International Economic Development Council has highlighted what it believes places need to prioritize to support new manufacturing:

- Building a quality workforce
- Cultivating innovation capacity
- Supporting manufacturing entrepreneurship
- Forging global networks
- Going green as major manufactures aggressively pursue energy and waste reductions...”)

(2016 Global Manufacturing Competitiveness Index, Deloitte, Touche, Tohmatsu Limited)

4. Examples of what other regions are doing

A. Manufacturing Extension Partnership

The U.S. Department of Commerce’s National Institute of Standards and Technology (NIST) supports the Manufacturing Extension Partnership. In Virginia, the GENEDGE ALLIANCE out of Martinsville has a board appointed by the Governor and serves the entire state.

GENEDGE is a business consulting organization providing Virginia’s industrial and manufacturing sectors access to expert business solutions.

Bill Donohue, 276-666-8890 x 221, bdonohue@genedge.org, www.genedge.org

B. Manufacturing Technology Center of Southwest Virginia (since 1994), Wytheville
(www.Mtcofswva.org)

Providing technical business resources for manufacturers for 17 counties and 4 cities in Southwest Virginia

Services:

Consulting and education services for manufacturers

- [Continuous Improvement](#)
- [Industrial Engineering Services](#)
- [Lean Six Sigma Green Belt and Project Support Course](#)
- [Lean Six Sigma Yellow Belt Course](#)
- [Quality Management Systems](#)

Environmental Compliance and Pollution Prevention Assistance

- [Environmental and Energy](#)
- [Health and Safety Services](#)

Nelson Teed, MTC Executive Director, 276-223-4889, nteed@wcc.vccs.edu,
www.mtcofswva.org.

C. City of Lynchburg and Campbell County partnership with EWI to promote business expansion and innovation (October 2, 2019 Opportunity Lynchburg)

EWI is a non-profit advanced engineering service provider with applied research and development capabilities. EWI helps manufacturers overcome technical barriers and finds advanced solutions to make their products more quickly and efficiently.

- EWI is engaging with Lynchburg companies to determine their interest in partnering for business and economic development
- Will create a plan that focuses on financial sustainability and determining economic risk and reward factors
- May include locating a new applied R & D facility

D. Investing in Manufacturing Communities Partnership (IMCP) designation

Administered by the federal Economic Development Administration, IMCP designated 24 (12 in 2014, 12 in 2015) communities as a “Manufacturing Community” based on their capacity to create well paid jobs, spur innovation, and improve workforce development in the manufacturing sector.

- Worker training and placement
 - Improving training pathways, providing matching mechanism for worker placement
- Industry innovation and competitiveness
 - Sector based strategies/incentives
- Connecting smaller businesses with resources
 - Coordinating regional supply chains
 - Access to capital for small and medium sized businesses

Eleven participating government agencies, led by the Federal Department of Commerce’s Economic Development Administration, distributed a request for proposals inviting locals and regions to band together to envision a regional industrial development strategy.

Communities designated by the “Investing In Manufacturing Communities Partnership” include:

- Washington Puget Sound/Spokane – Aerospace
- Pacific Northwest Advance Materials/Advanced Wood Products Cross Laminated Timber
- Central Valley California (28 counties) – AFB (military base)
- Southern California – Aerospace and Defense
- Utah Salt Lake City & Provo – Advanced Composites
- South Central Idaho – AFB
- Alamo/San Antonio – Aerospace, Motor Vehicles, Vehicle Parts, Industrial Vehicles
- South Kansas/Wichita – Aerospace
- Peoria – Heavy Equipment Original Equipment Manufacturers, Electrical Equipment Machining
- Minneapolis – Medical Device
- Madison – AFB
- Milwaukee – Water, Midwest Energy Research Consortium, Food and Beverage
- Chicago – Metal Manufacturing
- SE Michigan/Detroit – Autos
- Southwest Ohio – Aerospace, Supply Chain
- Mid South/Memphis – Medical Device
- Louisiana – Chemical Manufacturing, Energy Related Projects
- Southwest Alabama – Ship Building, Aerospace
- Northwest Georgia – Carpets, Textiles

- Tennessee Valley – Alut and Auto Supply Chain
- Greater Pittsburgh – Metals Manufacturing
- Connecticut – Aerospace, Ship Building
- Greater Portland – Food and Beverage, Seafood
- New York Finger Lakes/Rochester – Optics, Precision Machining, Photonics Imaging

This Federal program was not reauthorized since 2016. A bipartisan bill has been introduced in both the Senate and the house to re-authorize but has not been acted upon.

Biggest outcome of the program is coordination and partnership development. A key goal of the program was to spur enhanced strategic coordination. The program offered some grant funding, but most communities noted the benefits of focus and coordination among groups.

It was noted that strengthening workforce development pipelines requires coordination in order to align priorities of education with needs of industry.

E. South Texas North American Advanced Manufacturing Research and Education Initiative (since the 1990s) www.naamrei.org

Focus on

- developing a manufacturing workforce capable of supporting the most advanced manufacturing activities. A world class talent workforce pool.
- creating a climate of innovation and entrepreneurship that will support technological innovation in manufacturing
- establishing itself as a center for advanced manufacturing by creating a talent pipeline that touches all aspects of the workforce, from students to engineers and executives

Businesses have access to talent and talent development through partner organizations:

- University centers (Texas A & M International, University of Texas-Pan American, University of Texas at Brownsville)
- Community Colleges (South Texas College, Laredo Community College, Texas State Technical College, Texas Southmost College)
- K-12 School districts (37 school districts and ten charter school system)
- Region One Education Service Center
 - T-STEM Learning Center services teachers, administrators and students of T-STEM Academics
 - Career cluster programs in K-12 systems
- Three Workforce boards
- Economic development organizations

Incubation Resources

Entrepreneurship Support

- Business planning services
- Economic incentive packages
- Educational programs and workshops
- Entrepreneurial education
- Grant development assistance

F. Advanced Manufacturing and Prototype Center of East Tennessee (AMP!)

AMP! has four strategic approaches:

- Promote growth for manufacturers in the 20-county region surrounding Oak Ridge and Knoxville
- Expand the use of newer technologies within existing manufacturers
- Connect resources like the Oak Ridge National Laboratory to manufacturers to encourage the collaboration and expansion of advanced manufacturing jobs
- To utilize Oak Ridge Lab's manufacturing Demonstration Facility
- Develop a workforce to drive innovation and entrepreneurship
- Innovate and improve manufacturing processes and technologies
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Partners:

- Oak Ridge National Laboratory
- Pellissippi State Community College
- University of Tennessee Center for Industrial Services

Established a new manufacturing network – the Regional Advanced Manufacturing Partnership (RAMP). RAMP encourages networking among the region's manufacturers, regardless of size. This network can lead to supply-chain opportunities and sharing of best practices.

RAMP connects manufacturers to key resources, especially resources available through the Oak Ridge Lab. RAMP partners broker agreements for smaller manufacturers and Oak Ridge.

“Companies often need assistance in finding and connecting to the right services, particularly when resources (such as national labs, universities) often do not present an obvious front door or public explanation of the services that they offer”.

“Creates a common regional narrative helping bring partners together and connect seemingly disparate efforts into a more coordinated effort (such as establishing a talent pipeline).”

“Awareness of how new technologies might be applied to a specific manufacturing process spreads incrementally.”

Through AMP! The Pellissippi State Technical Community College is able to offer a degree concentration that enables students and workers to earn a certificate in additive manufacturing. AMP! partners are involved in FIRST Robotics competitions for high school students.

G. New Mexico Small Business Assistance Program

The New Mexico Small Business Assistance Program (www.nmsbaprogram.org) provides a similar service providing technical assistance connecting small and medium-sized manufacturers to advance expertise and resources of universities and national labs.

H. Northwest Wisconsin's EporTech Initiative

A nine week program providing intensive counseling for companies that are either new to exporting, or looking to grow their international markets in more deliberate ways.

Partners Involved:

- University of Wisconsin-Stout Manufacturing Outreach Center
- U.S. Export Assistance Center
- Wisconsin Economic Development Corporation, local economic development organizations, and Chambers of Commerce
- Private sector volunteers and experts

I. SelectUSA

A program of the U.S. Department of Commerce, SelectUSA supports manufacturers who are working to attract foreign investments.

Attachments:

Manufacturing, Region 2000/Central VA (Workforce Development Area 7), 2019, JobsEQ, Chmura Economics and Analytics

Economic Overview, Region 2000/Central VA (Workforce Development Area 7), December 3, 2019, JobsEQ, Chmura Economics and Analytics

Manufacturing Competitive Indexes 2019, Virginia compared to other states