THE MISSION

Innovation – or bringing “mind to market” – is only possible if we have the talent to put that new idea or new technology to work in our economy. So LIFT’s vision, to be the world leader in lightweight materials manufacturing, can only be realized if we develop the educated and skilled workforce necessary to use new lightweighting technologies and processes.

Our plan to develop that educated and skilled workforce is comprehensive and spans both the continuum of jobs in manufacturing where the nation is now experiencing a “skills gap,” and the continuum of education and training that must be available in communities and states seeking to sustain, grow, and attract manufacturing jobs in their economy.

The underlying principles of our work plan are:

First, be “demand” and data-driven. We will educate and train to the knowledge, skills and abilities in demand by manufacturers. Our first priority is to conduct regular demand-supply-and gap analyses on workforce needs in the 5 states directly related to the jobs in our impact sectors.

Second, be transformational for sustainable results in producing workers with the right skills. You can find thousands of “random acts of excellence” in workforce development with little or no impacts on the talent supply chain.

Third, drive from the bottom up. Recognize that all the systems we need to engage and use – education, economic development, and the workforce investment system – are highly devolved to state and local authorities. A top-down strategy will not work.

Fourth, strategically focus on opportunities, for example, target populations such as separating military personnel and “gaps” in the talent supply chain where there are clear disconnects between the demand for skills and the supply of skills.

Finally, link and leverage the assets available. Capture the initiatives to build educational pathways and link them via stackable credentials and articulation agreements across the education continuum. Align strategies to gubernatorial initiatives to increase educational attainment and put people back to work. Ride the wave of bipartisan support for restoring U.S. leadership in manufacturing globally.

PROCESS FOR IMPACTFUL INVESTMENTS

- Analyze the demand-supply-and gap data to identify where investments and strategies need to be focused. Publish bi-monthly demand-supply-gap analyses for each of the five LIFT states.
- Establish a high level Workforce & Education Working Group for the region, representing national expertise and the 5 states’ education, workforce development, economic development, and industry sectors. Charge that working group with supporting the state teams that will be designing and implementing solutions that are demand-driven, results-oriented, replicable and scalable. The Workforce & Education Working Group was launched on September 23, 2014, and set the broad agenda for our work.
• Build five state core teams that will design and implement solutions appropriate to their state assets, demand/supply analysis, and roadmap to an educated and skilled manufacturing workforce. These solutions will fill “leaks” in their pipelines delivering talent to manufacturers. The 5 State LIFT Teams have been launched, involving over 135 top officials in education, workforce development, economic development, and labor.

• Align solutions to the 11 strategic focus areas identified by the high level working group.

- Understanding workforce demand-supply gaps
- Reconnecting disconnected youth to high quality, middle skills jobs
- Teaching the teachers
- Expanding work and learn opportunities for students
- Creating enhancements to engineering curriculum using lightweighting
- Offering on-the-job training solutions for our industry partners
- Attracting students and workers to educational pathways to careers
- Connecting separating military personnel and veterans to fast track skills development and manufacturing careers
- Deploying pathways from K-12 through community colleges to university four-year degree programs, with more on and off ramps
- Ensuring students gain STEM foundational skills for success in manufacturing careers
- Linking and leveraging resources and related initiatives on the ground today

• Identify appropriate metrics and capture data as necessary to assess success.
INVESTMENTS AS OF MAY 2016

K-12
- Right Skills Now
- Apprenticeships
- Community Colleges
- Graduate Programs

Universities

Returning Military Personnel and Veterans

LIFT Learning HUB
Across the talent continuum with an early emphasis at university level

Industrial Technology Maintenance Standards/Credentials/Instructor Training
Community & Technical Colleges; Incumbent Workers

Tennessee’s New ASM Bootcamps for Teachers
Community & Technical Colleges for Adult Workers and Incumbent Workers

Kentucky’s FAME 2.0 Initiative
Community & Technical Colleges for Adult Workers and Incumbent Workers

Tennessee’s Student Engagement Strategy/Video Contest
STEM Education/K-12/CTE Community & Technical Colleges

National ASM-LIFT Materials Science Bootcamps for Teachers
Community & Technical Colleges for Adult Workers and Incumbent Workers

Learning Blade: Mission
LIFT interactive web-based curriculum (K-12)

Indiana Vincennes University Right Skills NOW: Machinist training for veterans
Veterans and Right Skills NOW

Kentucky’s Externships
K-12 Teachers & Community College Instructors

Virtual Reality Lightweight Vehicle Manufacturing System:
Virtual reality technology to teach lightweighting principles
Across the talent continuum

Ohio Manufacturing Careers Council:
Industry-led council to inspire future manufacturing talent
Across the talent continuum

Industrial Technology Maintenance Credential: National Institute for Metal Working Skills new credential program
Veterans, apprenticeships, community colleges

Work & Learn in Indiana: Career Exploration in Lightweight Metals Manufacturing
Apprenticeships, Jobs Training Partners, Community Colleges, Universities

High School evGrandPrix: Engaging High School Students in STEM Education for Manufacturing (HSevGP)
K-12, Universities, Job Training Partners, Graduate Programs

Pathways to Jobs in Detroit: Connecting Disconnected Youth & Adults to Manufacturing Careers
K-12, Jobs Training Partners, Community Colleges, Universities

Growing a Skilled Manufacturing Workforce: Work-Based Learning in Ohio
K-12, Jobs Training Partners, Community Colleges, Universities, Apprenticeships

Foundations for Manufacturing Careers: Worker Readiness in Ohio
K-12, Jobs Training Partners, Community Colleges

Ohio Means Internships & Co-ops 2.5 Program
Community Colleges, Universities, Graduate Programs

Manufacturing Technology: High School Career Pathways
K-12, Jobs Training Partners, Community Colleges, Universities

Work and Learn in Kentucky:
Computerized Machine Training at Bluegrass Community & Technical College
Community Colleges, Universities, Graduate Programs

Adult Education: Pathways to Manufacturing Careers in Kentucky
Community Colleges, Universities, Job Training Partners, Apprenticeships

Adult Education: Pathways to Manufacturing Careers in Kentucky
Community Colleges, Universities, Job Training Partners, Apprenticeships
INTRODUCTION

Lightweight Innovations for Tomorrow (LIFT) is a public-private partnership that will develop and deploy advanced lightweight materials-manufacturing technologies, and implement education and training programs to prepare the workforce. Lightweight materials are increasingly important to the competitiveness of transportation manufacturing sectors, including suppliers in the automobile, aircraft, heavy truck, ship, rail, and defense manufacturing industries. Lighter vehicles for the military, industry, and consumers alike, have better performance and use less fuel. They can carry larger loads and travel the same distances at lower cost and with fewer carbon emissions. From welding to skilled metal work, to logistics and mechanical and chemical engineering, to industrial design and manufacturing management, lightweighting-related jobs are found in nearly every manufacturing sector. A talented workforce is critical to the future of manufacturing, especially a workforce trained in lightweight materials.

FINDINGS

2.65 million workers

Over 2.65 million individuals are employed in lightweighting-related occupations in the 5-state LIFT region.* These jobs represent 14.9% of all workers in the 5-state area, up from 13.7% in 2014.

428,500 jobs added

Like nearly every occupation, lightweighting-related jobs were lost during the 2009 recession. But, the recovery has been strong, with 428,484 jobs added since 2009 (a 19.3% employment increase) and more to come.

A competitive edge

This 5-state region has a competitive edge when it comes to lightweighting talent. The LIFT region states contain 17.8% of the nation’s lightweighting-related jobs with a national employment location quotient of 1.64. This means that the region has 1.64 times the employment concentration in lightweighting-related jobs compared to the rest of the United States. The concentration increased from 2014, when the location quotient was 1.44.

* The LIFT region includes 5 states: Michigan, Ohio, Indiana, Kentucky and Tennessee.
While employment is high, more workers will be needed soon. Between September 2014 and August 2015, employers in the LIFT region posted 339,227 jobs related to lightweighting. Right now, there are not enough graduates who have completed certificate and degree programs to fill all of these positions.

**Only 103,000 grads**

In 2014, only 102,574 individuals completed lightweighting-related education programs. Completions have increased since 2013, when only 100,032 individuals completed related degrees. Despite progress, the number is not nearly enough to fill the nearly 340,000 jobs posted by employers.

**21% set to retire soon**

Lightweighting-related workers are aging, 21.3% of workers in the field are over the age of 55 and are likely to retire in the coming decade. In 2014, the share was 19.7% over age 55. Who will fill the jobs left behind?

**Opportunity for growth**

New and growing employer demand coupled with coming retirements means even more lightweighting job growth in the future. The 5-state LIFT region has a unique opportunity through LIFT to grow employment and increase economic prosperity for workers and families.

**What counts as lightweighting?**

Over 140 individual occupations are related to lightweighting and can be organized into 3 main occupational groups and 10 sub-groups. (1) Skilled trades jobs include machinists, assembly and operations workers, and skilled materials workers. (2) Administration jobs include procurement and purchasing workers, human safety workers, and logistics workers. (3) Engineering & design jobs include electrical and mechanical engineers, chemical engineers & metallurgy workers, designers and drafters, and process engineers and testers.

For more information, visit lift.technology