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-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 technologies
- Offering on-the-job training solutions for our industry partners
- Attracting students and workers to educational pathways to careers in manufacturing
- 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 to employment
- 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 THROUGH AUGUST 2017

**K-12**
- Right Skills Now

**Apprenticeships**
- Apprenticeships

**Community Colleges**
- Job Training Partners

**Graduate Programs**
- Universities

**Returning Military Personnel and Veterans**

**K-12**
- 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
  * Reinvested in 2016

**Kentucky**
- 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
- 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

**Ohio**
- Foundations for Manufacturing Careers:
  Worker Readiness in Ohio
  K-12, Jobs Training Partners, Community Colleges
- OhioMeansInternships & Co-ops
  2.5 Program
  Community Colleges, Universities, Graduate Programs
- Manufacturing Technology: High School Career Pathways
  K-12, Jobs Training Partners, Community Colleges
- Adult Education: Pathways to Manufacturing Careers in Kentucky
  Community Colleges, Universities, Job Training Partners, Apprenticeships
- Leading a MakerMinded Vision
  K-12, Job Training Partners
- State Manufacturers Associations Collaboration Initiative
  Across the talent continuum
- The LIFT Prize in Robotic Blacksmithing
  K-12, Job Training Partners, Community Colleges, Universities
- On Track: Filling the Manufacturing Workforce Pipeline in Kentucky
  K-12, Job Training Partners, Community Colleges
Modern Manufacturing Work-Study Program
Job Training Partners, Community Partners

Expert Educator Team
Expanding Work and Learn, Understanding Workforce Demand-supply Gaps, Foundational Skills

Professional Certification in Lightweight Additive Manufacturing
Foundational Skills, Attracting Students

Teaching Factory
Foundational Skills, Attracting Students

Online Training for LIFT Members
On-the-job Training, Enhancing Engineering Curriculum

Lightweighting Open Source Curriculum
Attracting Students, Foundational Skills

A Resource for Career Counseling
Attracting Students, Foundational Skills

Operation Next
Preparing Veterans, Enhancing Engineering Curriculum

Heroes Alliance
Attracting Students, Foundational Skills

LIFT Learning Lab Internships
Expanding Work and Learn Opportunities, Enhancing Engineering Curriculum

PHASE 1
Convene the core team to achieve consensus among partnering organizations on the overall project goals and outcomes

PHASE 2
Develop the work plan to achieve those goals

PHASE 3
Identify & gather available materials/curricula that can be made available quickly to begin introducing lightweighting at multiple education levels

Engage subject matter experts to evaluate available materials and determine development needs

Develop new competencies, content, and curriculum as needed to support lightweighting advanced technologies and processes as they become available

Invite other NNMI Institutes to participate in the project team for development of their workforce-related materials

FINAL PRODUCT
Nationally relevant, open source, and scalable education materials repository created by the end of 2016

PROJECT PHASES
GEOGRAPHIC FOOTPRINT
This initiative will have nationwide impact, with nationally recognized organizations participating in the core team work. Open-sourced products will enhance educational programming across the country, and provide the opportunity for other institutes in the National Network of Manufacturing Innovation Institutes (NNMI) to participate.

EXPECTED OUTCOMES
Content and curriculum enhancements developed in this initiative will help align educational programming related to lightweighting jobs and occupations at all levels. With open-source access to content and materials, the knowledge, skills, and abilities necessary for workers to integrate new lightweight technologies and materials into design and production processes will be readily available to educators across the nation.

For more information about the education & workforce development initiative visit www.lift.technology

Deliverable
Sample/beta database with identified curricula loaded in and ready for testing by mid-2016

Deliverable
Protocols, Format, and First Aggregation of Readily Available Material developed by the end of 2015

LIGHTWEIGHT INNOVATIONS
Continued data gathering from universities and community colleges for already created curricula

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