Colorado
Office of Economic Development and International Trade

Digital Manufacturing Fact Sheet

Digital Lab for Manufacturing (Digital Lab)

What:	A consortium of stakeholders led by Chicago-based **UI LABS** was awarded $70 million from the U.S. Department of Defense to fund the Digital Lab for Manufacturing (**Digital Lab**). Most of such funding will be dispersed to partner states and organizations in a hub and spoke model. Digital manufacturing is the use of an integrated, computer-based system comprised of simulation, three- dimensional (3D) visualization, analytics and various collaboration tools to create product and manufacturing process definitions simultaneously. The $70 million cooperative agreement from the U.S. Department of Defense (DoD) will be leveraged by commitments of $250 million from industry, academia, government and community partners, forming a $320 million Institute. This investment is part of President Obama's vision to re-invigorate U.S. Manufacturing, creating new jobs and economic development, and spurring future innovation.
Who:	The **Digital Lab** is an applied research institute that will both develop and demonstrate digital manufacturing technologies and deploy and commercialize these technologies across key manufacturing industries. The lead organization, UI LABS, is a Chicago-based research and commercialization collaborative, bringing together industry + universities + government to shape tomorrow's most important business, economic, and cultural challenges. The **Digital Lab** is composed of 40 industry partners, and 30+ academia, government, and community partners, and an additional 500+ supporting companies and organizations. Leading industry partners include General Electric, Rolls-Royce, Procter & Gamble, Dow, Lockheed Martin, and Siemens. University and government partners are regionally anchored in the Midwest, spanning Illinois, Indiana, Iowa, Wisconsin, Kentucky, Michigan, Minnesota, Missouri, and Nebraska, and extending to **Colorado**, New York, Oregon and Texas, to leverage the best research and technology in the country and deploy solutions on a broad scale.
Colorado Role:	**University of Colorado - Boulder** will serve as the research lead for the state of Colorado and, in particular, will establish a research center on cyber physical systems (CPS) enabling a radical new way to manufacture advanced products through the synthesis of embedded sensing, data analytics, numerical simulation, and control. The state of Colorado will create centers throughout the state so that our small and medium sized manufacturers can access this technology and receive the necessary training and education to lead the nation in this area. No longer will advanced technologies be locked in research institutions or utilized only by large corporations but our robust supply chain in Colorado will lead the nation in efficiently and effectively creating, building and exporting products that will make our state and our nation globally competitive.
Colorado Funding:	The **Colorado Office of Economic Development and International Trade (OEDIT)** is providing $1M per year for the next five years towards each of these institutes, which will be matched at least 1:1 by the federal government. Such funding will be provided as an Infrastructure grant pursuant to the Advanced Industries Accelerator program and will be targeted at putting the **Digital Lab** to work for Colorado businesses. **University of Colorado - Boulder** will provide in-kind research and team up with Colorado companies to propose the development of innovative and industry relevant

	solutions which will receive additional funding from the federal government. **OEDIT** will oversee the funding and management of Colorado's role in the **Digital Lab**.
Colorado Benefits	Involvement with the **Digital Lab** will: • Leverage our existing efforts in innovation and technology through the Colorado Innovation Network and the Advanced Industries Initiative putting Colorado at the forefront of advanced manufacturing by integrating the current strength of our research universities, federal labs and private sector partnerships; • Provide new opportunities to retain and expand small and medium sized businesses across the state providing the capability for companies to be more competitive globally by increasing productivity, developing new products and strengthening and attracting companies in our supply chain; • Elevate Colorado as a global leader in training the workforce with the skills to compete in advanced manufacturing both now and in the future; • Create more startups in Colorado by providing access to technology and increasing the speed at which research can be commercialized in the marketplace; • Increase our capacity to build more things in Colorado which will result in an increase in exports and bring in fresh dollars to the state. • Elevate Colorado's brand as an innovative and technology leader.
Why:	The **Digital Lab** will be the nation's flagship research institute for Digital Manufacturing and Design Innovation, applying cutting-edge technologies to reduce the time and cost of manufacturing, strengthen the capabilities of the U.S. supply chain, and reduce acquisition costs for DoD.
Where:	The **Digital Lab** will be a hub and spoke model with the hub being Chicago and spokes consisting of a network of manufacturing partner and research sites across the United States, including Colorado.
When:	The grant will be formally awarded on Tuesday, February 25, 2014, at a White House ceremony.

Lightweight Modern Metals Manufacturing (LM3I)

What:	The **American Lightweight Materials Manufacturing Innovation Institute (ALMMII)** 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 of the future. **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. ALMMII was selected through a competitive process led by the **US Department of Defense (DoD)** under the **Lightweight and Modern Metals Manufacturing Innovation** (LM3I) solicitation issued by the U.S. Navy's Office of Naval Research. **ALMMII's mission** is to serve US manufacturing by supporting innovative manufacturing technologies, and enable cost effective lightweighting of components for the aerospace, automotive, defense, rail, and over- the-road truck industries. The institute's efforts will encompass the entire transportation supply chain, nurturing innovations from conception through design, development, and production. The DOD award for the Institute is **$70 million** in federal funding to be distributed over five years, matched by at least **$78 million** from the consortium partners themselves. Cost share commitments came from industry, state and local governments, universities, and non-profits. This investment is part of President Obama's vision to re-invigorate U.S. Manufacturing, creating new jobs and economic development, spurring future innovation and assisting US manufacturers employ leading-edge technology to become more competitive.
Who:	ALMMII is led by Ohio-based manufacturing technology non-profit **EWI, University of Michigan,** and **The Ohio State University.** Its main office will be in Canton, Michigan, with significant activities in Columbus, Ohio. In addition to ALMMII's three lead founders, more than **50 other companies, universities, non-profit research institutions, and workforce development intermediaries** from around the country will be involved in this public-private partnership. Again this model will be created in a hub and spoke model with the hub being in Michigan and the spokes being across the nation, including **Colorado.** **The ALMMII region** includes states located in Michigan, Ohio, Indiana, Kentucky, and Tennessee and integrates partners nationwide for research and workforce development, including those located in Illinois, **Colorado**, Texas, Massachusetts, and Pennsylvania.
Colorado Role:	**Colorado School of Mines** will serve as the research lead for the state of Colorado and, in particular, will establish a research center that will focus on "thermomechanical processing" which is a "heat and beat" process that produces lightweight materials that enable reduced weight of a product while maintaining performance, operational supportability, survivability and affordability. Such technology has broad application to military and defense (ships, tanks, etc), aerospace (rockets), bioscience (medical devices), energy (oil/gas pipes and transportation mediums), manufacturing (steel), transportation and logistics (rail). The state of Colorado proposes to partner with EWI to create a Colorado center that will assist our small and medium sized manufacturers access this technology and receive the necessary training and education to lead the nation in this area. No longer will advanced technologies be locked in research institutions and universities or utilized only by large corporations but our robust supply chain in Colorado will lead the nation in efficiently and effectively creating, building and exporting

	products that will make our state and our nation globally competitive.
Colorado Funding:	The **Colorado Office of Economic Development and International Trade (OEDIT)** is providing $1M per year for the next five years towards each of these institutes, which will be matched at least 1:1 by the federal government. Such funding will be provided as an Infrastructure grant pursuant to the Advanced Industries Accelerator program and will be targeted at putting the **ALMMII** to work for Colorado businesses. **Colorado School of Mines** will provide in-kind research and team up with Colorado companies to propose the development of innovative and industry relevant solutions. **OEDIT** will oversee the funding and management of Colorado's role in the **ALMMII.**
Colorado Benefits	Involvement with the **ALMMII** will: • Leverage our existing efforts in innovation and technology through the Colorado Innovation Network and the Advanced Industries Initiative putting Colorado at the forefront of advanced manufacturing by integrating the current strength of our research universities, federal labs and private sector partnerships; • Provide new opportunities to retain and expand small and medium sized businesses across the state providing the capability for companies to be more competitive globally by increasing productivity, developing new products and strengthening and attracting companies in our supply chain; • Elevate Colorado as a global leader in training the workforce with the skills to compete in advanced manufacturing both now and in the future; • Create more startups in Colorado by providing access to technology and increasing the speed at which research can be commercialized in the marketplace; • Increase our capacity to build more things in Colorado which will result in an increase in exports and bring in fresh dollars to the state. • Elevate Colorado's brand as an innovative and technology leader.
Why:	The **ALMMII** will be the nation's flagship research institute for lightweight materials, applying cutting-edge technologies to reduce the time and cost of manufacturing, strengthen the capabilities of the U.S. supply chain, and reduce acquisition costs for DoD. ALMMII's scope will include: Contracting more than **$100 million in R&D projects** with partner organizations throughout the country to nurture innovations from concept through design, development, and production. Establishing science, technology, and engineering curricula for **programs to educate the next generation** of manufacturing operators and engineers. Enabling up to **10,000 new jobs** in metal stamping, metalworking, machining, and casting.
Where:	The **ALMMII** will be a hub and spoke model with the hub being in Detroit and spokes consisting of a network of manufacturing partner and research sites across the United States, including Colorado.
When:	The grant will be formally awarded on Tuesday, February 25, 2014, at a White House ceremony.