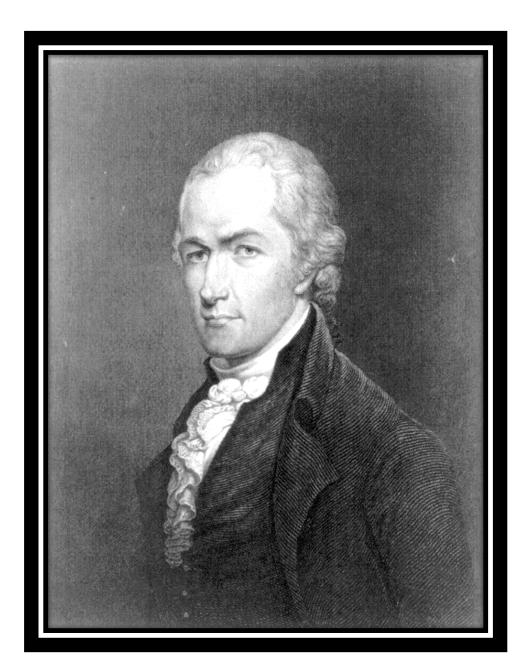
Industry Perspectives on Manufacturing USA

The National Academies Innovation Policy Forum

Washington, DC 23 May 2017



Jeff Wilcox Vice President, Corporate Engineering & Program Operations





U.S. Treasury dept.

63D CONGRESS } { DOCUMENT No. 172 SENATE REPORT ON MANUFACTURES 1754 .HZ 1913 COMMUNICATION TO THE HOUSE OF REPRESENTATIVES DECEMBER 5, 1791 ALEXANDER HAMILTON SECRETARY OF THE TREASURY ON THE SUBJECT OF MANUFACTURES PRESENTED BY MR. SMOOT August 30, 1913.-Ordered to be printed WASHINGTON

Lockheed Martin by the Numbers





97,000 Employees



49,000Scientists and Engineers



400+
Facilities
Worldwide



Operating in over 58 Countries
With 7,100+
Employees

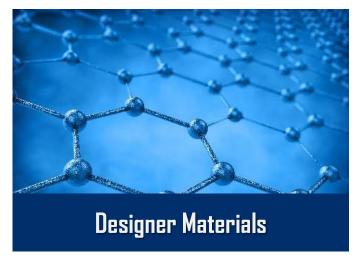








Emerging Capabilities at LM







Lockheed Martin Investment in MfgUSA





America Makes















Materials & Manufacturing Benefits





- Technical projects have significantly advanced the field of thin-wall castings
- Members may access free online training classes for experienced professionals, such as advanced welding and inspection



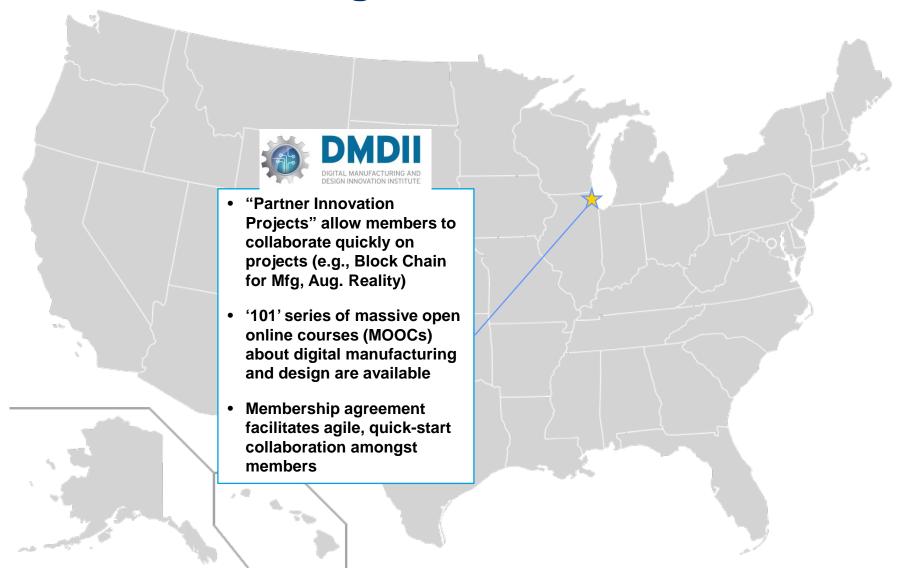
- 5-year institute goal of 25% lower cost of carbon fiber composites will benefit industry supply chains and increase US competitiveness
- Joint LIFT/IACMI research center with \$47M of equipment for member use



- Pooled resources to develop material properties databases for AM materials (e.g., ULTEM 9085)
- Ability to participate in standards committees focused on certification and qualification of AM materials
- Access to hands-on industry training and practicum for AM

Digital Manufacturing Benefits





Advanced Electronics Benefits





- Pilot production and prototyping facility developed for flexible hybrid electronics manufacturing, open to all members
- Ability to participate in Technology Roadmapping and Industry Working Groups
- Community College-focused work force program feeds industrial talent base



- Industry-led 10-year roadmaps developed to advance SiC and GaN in the U.S
- Established open-source domestic SiC foundry to support fabless SiC power device companies
- Professional development courses available for WBG Power



- Industry developing the next generation of Engineering talent through AIM Academy
- AIM Leadership and Institute Partners engaged in regular dialogue to shape the Integrated Photonics technical roadmap
- AIM Photonics partners to participate in 2017 Summer Academy at MIT

Overall Value and Benefits of MfgUSA



- Demonstrated ability to collaborate with non-traditional partners, large and small
- Realized significant project ROI when leveraging resources from industry, academia, and the Institutes
- Industry-driven research projects ensures industry relevance and facilitates tech transition/commercialization
- Education and training programs provide opportunities for member companies' workforce development
- Access to advanced manufacturing equipment at institute facilities and partner sites

Manufacturing USA: Partnerships through Embedding MEP Center Staff at Institutes







Current MEP/MFG USA Embedding Projects

MEP / Institute Embedding Pilot



California Manufacturing Technology Center	NextFlex, Flexible Hybrid Electronics
Illinois Manufacturing Excellence Center	Clean Energy Smart Manufacturing Innovation Institute
	Digital Manufacturing and Design Innovation Institute (DMDII)
New York State Department of Economic Development	American Institute for Manufacturing Integrated Photonics (AIM Photonics)
North Carolina State University	Power America
The University of Tennessee (Center for Industrial Services)	Institute for Advanced Composites Manufacturing Innovation (IACMI)
Massachusetts MEP	Advanced Functional Fabrics of America (AFFOA)
Pennsylvania MEP	America Makes
Michigan Manufacturing Technology Center	Lightweight Innovations for Tomorrow (LIFT)



Objectives of Manufacturing USA



- Initiated as recommendation from April 2011 PCAST Report
- Envisioned a National Network for Manufacturing Innovation
 - Up to 15 Manufacturing Innovation Hubs
 - Focused on maturing technologies from TRL 4 7
 - Education and Workforce Development is key tenet for each Institute
- Architected as a Public-Private partnership bringing together Government, Industry, and Academia
- Intended to foster pre-competitive collaboration
- Grow the US economy (i.e., more jobs)
- Increase US competitiveness in Manufacturing





2012	2013	2014	2015	2016	2017	
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		POWERAMERICA				
	THE COMPOSITES INSTITUTE					
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				SMART MANUFACTURING		
				RAPID Transforming Process Industries		
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