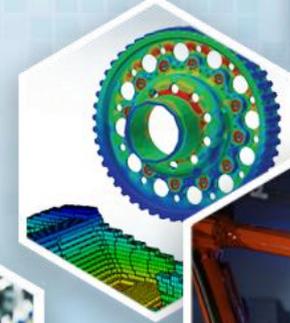


IACMI Vision 2025

Dale Brosius, Chief Commercialization Officer
Dr. Uday Vaidya, Chief Technology Officer

October 7, 2020



Some historical perspective



- ◆ DOE: RFI process 2013, FOA issued February 2014 – IACMI team of core partners formed
- ◆ Initial Vision for IACMI driven by “How do we catch Germany and the UK?”
 - ◆ Fraunhofer Institutes – Pioneer in high volume composites processing for 20 years
 - ◆ National Composites Centre UK created 2009, facility operational 2011 – early focus on aerospace, more recent emphasis on automotive
- ◆ IACMI announced January 2105, launched June 2015

Five years later...

- World class capabilities for composites manufacturing and testing established



Five years later...



- ◆ **140+ member consortium** spanning the national supply chain for composites comprising ~120 leading OEMs, Tier 1 suppliers, and small and medium sized companies
 - ◆ 10 member meetings to date across five states plus 1 virtual
 - ◆ Robust **roadmap** with regular updates informed by the composites community
- ◆ Strong workforce development model – **Elevate™ by IACMI**
 - ◆ Over **100 IACMI interns**
 - ◆ Franchising Composites Technician program of Davis Tech

Five years later...



- ◆ **50+ technical projects** launched involving the entire supply chain, national labs and universities
- ◆ More than **15 new products** commercialized to date
- ◆ Demonstrated attainment of **DOE goals**:
 - ◆ >25% cost reduction of CFRP structures
 - ◆ >50% reduction in embodied energy
 - ◆ >80% recyclability of composites materials and structures

Internationally Recognized and Active



- ◆ Connected to management of similar consortia and R&D institutes in multiple countries around the world
- ◆ Collaborative project in machining of composites with Composites United (Germany)
- ◆ Seven project collaborations with UK entities under Innovate UK funding – recycling, textile CF, NDE, automation
- ◆ MOU signed this morning with Composites United (Germany), KCTECH (Korea), JEC Group (France) to explore future collaboration potential



“Anyone looking for a solution should know that IACMI is the place to go”

- IACMI Premium Member

Seeking Answers?

We're a small company with a great product/process. I'd like to get it in front of the big Tier 1 suppliers and OEMs. How do I get an introduction to the right people?



Seeking Answers?



We have a new product and need to generate properties for a data sheet. Who has the testing capabilities that we can trust?

Seeking Answers?

We're a small company needing to do some modeling and simulation but cannot afford the software licenses and we don't have the right talent to run the programs. Is there a place we can get this work done?



Seeking Answers?



We have a chance to get into a new application but don't have the right equipment, and we don't want to make the investment until we have the order. Where can we make the prototypes the customer needs for validation?

Seeking Answers?

I would like to hire college graduates with some understanding of composites. Where can I find them?



Connecting the Composites Industry

Professional Societies

SOCIETY OF PLASTICS ENGINEERS
sampe
North America

Trade Associations

American Chemistry Council
ACMA
AMERICAN COMPOSITES MANUFACTURERS ASSOCIATION

Federal and state partners

U.S. DEPARTMENT OF ENERGY
Indiana
A State that Works
COLORADO
Office of Economic Development
PURE MICHIGAN
Michigan Economic Development Corporation
Economic & Community Development
JobsOhio

International Consortia

CU
COMPOSITES UNITED
NATIONAL COMPOSITES CENTRE
Innovate UK

Communications Partners

CW
CompositesWorld
JEC GROUP

Workforce Partners and Community Colleges

ABARIS
DAVISTECH
DAVIS TECHNICAL COLLEGE
Composites One - MVP
RTM North Technologies
ClosedMold Alliance
RCBI
ROBERT C. DYKO INSTITUTE

THE UNIVERSITY OF TENNESSEE KNOXVILLE
OAK RIDGE National Laboratory
VANDERBILT UNIVERSITY
MICHIGAN STATE UNIVERSITY
NREL
NATIONAL RENEWABLE ENERGY LABORATORY
PURDUE UNIVERSITY
CTR
COMPOSITE RECYCLING TECHNOLOGY CENTER
iacmi
THE COMPOSITES INSTITUTE
University of Dayton Research Institute
uammi
U.S. AIR FORCE RESEARCH & DEVELOPMENT CENTER FOR MATERIALS TECHNOLOGY

IACMI 2.0: What Stays the Same



- ◆ **CONVENING** entity to serve US R&D needs in composites
 - ◆ Member meetings and other events
 - ◆ Access to thought leaders and decision makers
- ◆ **CONNECTING** the Composites Ecosystem
 - ◆ Supply chain based frameworks for decision making
 - ◆ Priority access to core partner assets
- ◆ **CATALYZING** U.S. Global Competitiveness
 - ◆ Production relevant environments for innovation and workforce training
 - ◆ Awareness/focal point for co-funding from state and federal sources

Moving Composites R&D Forward



- ◆ **Leading the way in advanced composites R&D**
 - ◆ Access to co-funding and consortium resource pool
 - ◆ Working groups provide opportunity to focus R&D efforts
- ◆ **Industry led governance model**
 - ◆ New member tiers and fees
- ◆ **New, focused events and activities to serve industry**
 - ◆ Technical, workforce, consulting
 - ◆ New markets - aerospace, infrastructure/construction, etc.

Consortium member tiers and Fees



Member Type	Annual Fees
Premium Member	\$50,000+
Large Company (>500 employees)	\$15,000
Small Company (51-500 employees)	\$5,000
Small Company (11-50 employees)	\$2,500
Small Company (1-10 employees)	\$1,500
Academic Partner	\$5,000
Community College/Workforce Partner	\$500

- Incremental annual membership upgrade fee – Each \$50,000 increment provides additional representation and governance (4 seats maximum)
- Creation of Resource Pool for investment by consortium in selected projects and activities

An integrated strategy for the next five years



Low energy carbon fiber
Fast processing chemistries
Bioderived composites
New products enabled by greater performance/price ratios

Efficient design
Technoeconomic assessment
Functional optimization
Digital twin
AI driven process control

Digitalization

Design, modeling, simulation
In-line Diagnostics
Digital Twin-Industry 4.0
Life cycle analysis

Materials
Textile carbon fiber
Alternate precursors
Recycling

Process & Automation
High rate
Repeatable
Optimized design
Digital Integration
Waste minimization

Validation
High rate, large scale demonstrations

Sustainability

Recycling
Waste minimization
Life cycle costing

High rate handling of fiber forms
Multi-process connectivity
Large scale manufacturing
Improved consistency in fabrication
Multi-material/multi-format manufacturing

Reduction in energy and costs
Viability for reuse & repurpose
Reduction of waste and landfill
Demonstrated resiliency
Lower lifetime carbon footprint

Novel wind blades
Horizontal drilling tools
Low cost airframes
Bonding and repair

Multi-material structures
Low cost, rapid tooling
Large-scale resilient structures
Long-life bridges

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Analytics
Industry 4.0
Data analysis

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Deployment and Implementation



Transportation

Infrastructure

Ground



Turbines



Aerospace



Roads & Bridges



Buildings



Marine



Waterways

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IACMI - A Broad Value Offering to Members



Networking

Projects

Co-funding

Training

Interns

Convene

Connect

Catalyze

Facilities

Expertise

Influence

Consulting

Education

Aspiration 2025



- ◆ Growing IACMI to **250+ members** over the next three to five years
 - ◆ Representing a broad range of industries
 - ◆ With an annual resource pool of \$500K to over \$1M for funding innovation
- ◆ IACMI funded/co-funded **projects**
- ◆ Technology **demonstrations**
- ◆ Privately funded projects leveraging assets/talent of core partners
- ◆ Conduit to federally and state funded **opportunities**
- ◆ **Bringing lower cost, longer lasting, more energy efficient and sustainable composite solutions to the market**

Key activities in 2021



- ◆ Winter members meeting – virtual (February)
- ◆ Summer members meeting – Detroit (July)
- ◆ Monthly webinars – technical and workforce
- ◆ Presence at major events – JEC, SAMPE, CAMX, ACCE
- ◆ Promote and support federal and state funding opportunities
- ◆ Active working groups focused on key markets/technologies
- ◆ Elevate™ by IACMI

SAVE THE DATE



WINTER 2021 MEMBERS MEETING

**Virtual Meeting &
Working Group Meetings**

February 16TH – 18TH, 2021

More Details Soon!



Questions?

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