



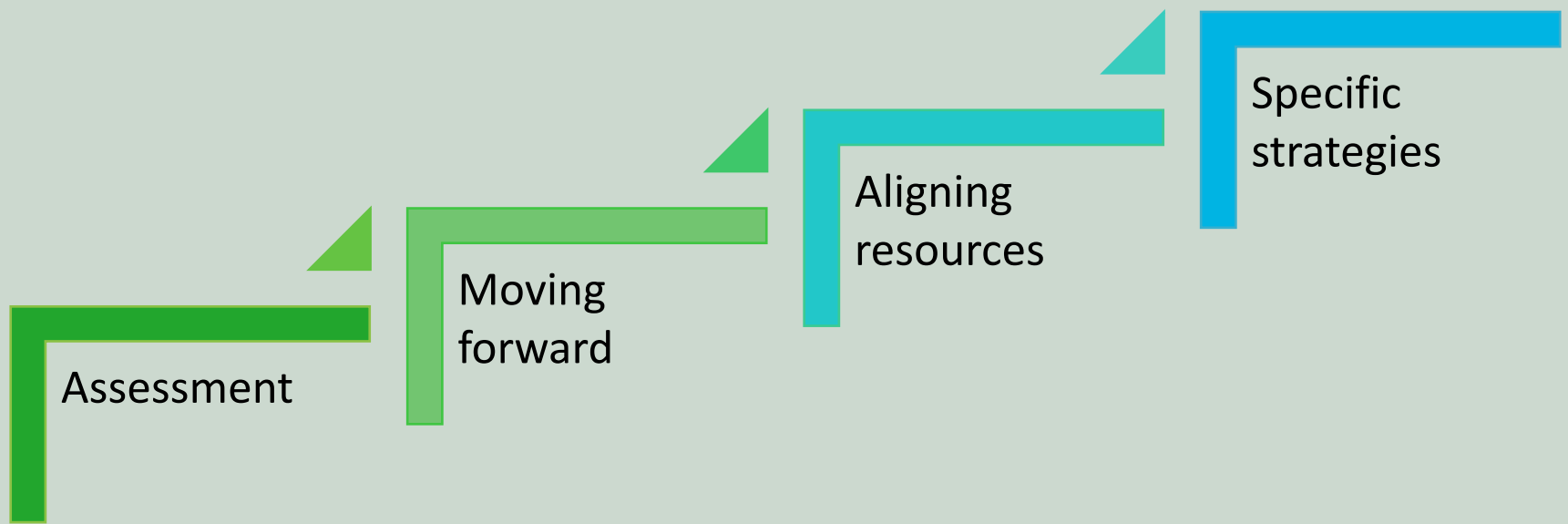
Vision for Growing Composites

Tom Dobbins CAE, President & CEO

American Composites Manufacturers Association



An industry that **works together** to
significantly grow the use of
composites across all market
segments



Where are we today?



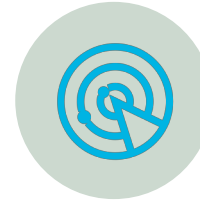
1-2% OF THE
MATERIALS
MARKET



VERY LABOR
INTENSIVE



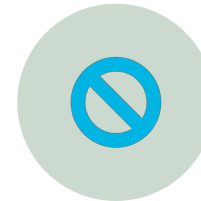
AT TIMES
MATERIAL OF
LAST RESORT



OFF THE RADAR OF
MANY ENGINEERING
STUDENTS



MORE EXPENSIVE WHEN
NOT ENGINEERED PROPERLY



LIMITED RECYCLING
OPTIONS

What do our customers need?



THE MATERIAL TO **MEET**
THEIR PRODUCT
DEMANDS IN THE
21ST CENTURY



RELIABLY CONSISTENT
PRODUCT WITHOUT REWORK
OR NEED FOR INSPECTION



NON-DESTRUCTIVE TESTING &
EVALUATION METHODS FOR
PROCESS MONITORING



REDUCED
CYCLE TIMES



MEET POTENTIAL MARKET
DEMAND IN AUTOMOTIVE,
COMMERCIAL AEROSPACE,
INFRASTRUCTURE &
CONSTRUCTION



THE **BEST**
VALUE FOR
EACH
APPLICATION



BETTER EDUCATION FOR
DESIGNERS AND ASSET
OWNERS TO **OBTAIN**
THE FULL VALUE OF
COMPOSITES



THE MOST
SUSTAINABLE
SOLUTION

How do we get there?



INCREASE THE PRODUCTIVITY OF COMPOSITE MANUFACTURING-AUTOMATION



ADVANCE DESIGN TEMPLATES



DEVELOP STANDARD APPLICATIONS MODELS -EASILY ACCESSIBLE TO DESIGN ENGINEERS



COMPOSITES IN THE EDUCATION OF ALL ENGINEERING STUDENTS

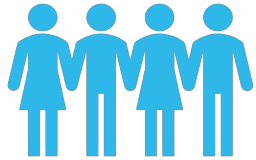


EDUCATE ASSET OWNERS AND INVESTORS



CONTINUE R&D IN RECYCLING & BUILD A SUPPLY CHAIN

How do we do all that?



Use our
resources
effectively



Coordinate our
efforts

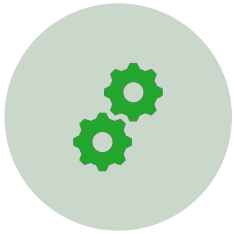


Share best
practices &
learnings



Tell the
world!

Aligning Resources with Needs



ADVANCEMENT OF
DESIGN AND
TECHNOLOGY
(INCLUDING
RECYCLING)- IACMI,
ACADEMIC
INSTITUTIONS



EDUCATION OF
STUDENTS/CONTINUING
EDUCATION- ENGINEERING
SOCIETIES- SAMPE, SPE,
ACADEMIC INSTITUTIONS



ADVANCEMENT OF
STANDARDS-
ACMA, NIST,
COORDINATION
WITH
ORGANIZATIONS IN
TARGET MARKETS



EDUCATION OF
CURRENT DESIGNERS
AND ASSET OWNERS-
ACMA, UNIVERSITIES

COMPOSITES SOLUTIONS FOR MOBILITY



Additional Resources

Federal
government

State and local
government

Economic
Development
Agencies

JEC

The
composites
industry supply
chain

IACMI – The
Composites
Institute

Technology



IACMI HAS THE
OPPORTUNITY TO
LEAD THE WAY-
INDUSTRY AND
ACADEMIC COMMUNITY



MOVE BEYOND LABOR
INTENSIVE, SLOW UNIT
OPERATIONS



RAPID
PROTOTYPING &
MOLD
DEVELOPMENT



MANUFACTURING PROCESSES
NEED TO BE MORE FLEXIBLE
AND FASTER. A
COMBINATION OF CHEMISTRY
AND MECHANICAL PROCESSES



NEED INLINE INSPECTION
AND QUALITY CONTROL
TIED TO AN APP



SOLUTIONS NEED TO BE
AFFORDABLE FOR SMALL
BUSINESSES



NEEDS TO IMPROVE
WORKER SAFETY AND
ENVIRONMENTAL ISSUES

Education of Engineering Students



NEED A
GOAL



SOCIETIES/LEADING
ACADEMICIANS DEVELOP
CURRICULA



50% OF ENGINEERING PROGRAMS
HAVE AT LEAST ONE SEMESTER OF
TRAINING BY 2025



INDUSTRY SEED FUNDING
NEEDED TO INCENTIVIZE
GOVERNMENT SUPPORT



CREATE MORE DEMAND
FOR STUDENTS TO STUDY
COMPOSITES

Opportunity for IACMI to lead in validation and development of standards in partnership with organizations like ACMA, NIST, and AASHTO. Key to giving designers tools to design with composites

This needs to be coordinated internationally with EuCIA and other trade associations.

ACMA has participated in directly or indirectly developed 2 dozen standards, along with design guides

Standards

Legislation to have more funded by NIST – grant opportunities for Universities and IACMI

NIST workshop on standards- many that need to be captured and organized

We need to characterize our industry materials from a durability and design perspective so that they can be more effectively integrated into standards

Design



100 years of design evolution with metals

- Taking cost out of steel bridges
- Building cars out of steel
- Almost 90 years of building airplanes out of aluminum



Need to accelerate the evolution of design with composites

- Design challenges
- Federally-funded design
- More work under IACMI umbrella
- Sharing of successful design and best practices



ACMA, IACMI and Societies have to work together



Tools for the engineer comparable to other materials

Education of asset owners and designers



ACMA IS
TAKING THE
LEAD



\$250K MARKETING
CAMPAIGN



EDUCATIONAL PROGRAMMING FOR
OEMS, INFRASTRUCTURE DESIGNERS,
AND ASSET OWNERS



WEBSITES



LEGISLATIVE INITIATIVES



AND....

Infrastructure and Construction

STRATEGY TO GROW COMPOSITES IN A **HIGHLY**
FRAGMENTED MARKET



INFRASTRUCTURE &
CONSTRUCTION
TECHNOLOGY DAYS

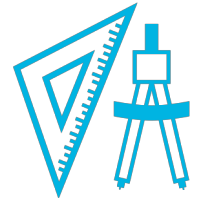
SERIES OF REGIONAL EVENTS TO
ENGAGE END-USERS AND
DECISION MAKERS



ADVOCACY TO
REDUCE
BARRIERS TO
ADOPTION



ACCELERATE
STANDARDS
DEVELOPMENT



MARKET INSIGHTS AND
COLLABORATION WITH
NATIONAL **END USER**
GROUPS



WORLD'S CLASS **INFRASTRUCTURE**
& CONSTRUCTION
CONFERENCES



Recycling/ Sustainability

Competitiveness
issue

Stewardship

It is a model for all
other industry efforts

International focus and
participation

Tell our story more effectively:

- Energy savings in use
- Longer life
- Environmentally inert materials

IACMI is leading the way,
with strong ACMA support

How do we achieve the vision?



- Demand more from associations & academic institutions
- Clear vision & deliverables
- Industry committed to growing markets
- United in asking government to help support our efforts

Conclusion



Key Initiatives

- Education of engineers
- Development of manufacturing technology
- Advancement of design and standards
- Continued work on recycling

We need all of the
industry's
resources

- IACMI and associations
- Support from all companies
- Support from other stakeholders

Better
coordination of
our efforts and
resources

- Domestically
- Internationally

**TODAY...
THERE'S A
BETTER WAY
TO MAKE THINGS.**

Thank You

Tom Dobbins

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DiscoverComposites.com

