

PLASTICS & COMPOSITES

THE FUTURE OF AUTOMOTIVE

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Plastics Division Auto Members



BASF
The Chemical Company



Braskem



**Chevron
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TOTAL



**The
Vinyl
Institute**

Plastics:

- **Creating New Material Technologies**
- **Enabling Future Automotive Innovations**
- **Sustainable Solutions**

Advanced Plastics



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Weight savings,
parts consolidation

Improved safety helps
protect occupants

Unique, flexible
vehicle designs



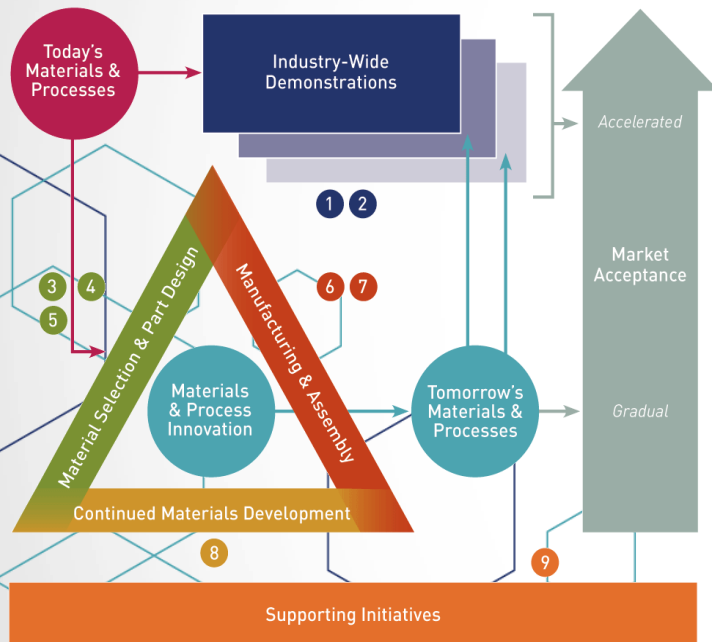
Plastics and Polymer Composites
TECHNOLOGY ROADMAP
for Automotive Markets

March 2014

VISION:

By 2030, the automotive industry and society will recognize plastics and polymer composites as preferred material solutions

Roadmap Priority Actions



- 1 Technology Development Center
- 2 Generic Cost Models
- 3 Material Properties Database
- 4 Design Guidelines
- 5 Material and Component Models
- 6 High-Speed Manufacturing Center
- 7 Joining Techniques
- 8 Engineered Materials with Improved Properties
- 9 Education and Training

Technology Solutions



Needs:

- Pre-competitive tech center

Solutions:

- Institute for Advanced Composites Manufacturing Innovation (IACMI)
 - Technology, Tooling and Training



Manufacturing, Tooling & Assembly



*Automotive glazing
injection molding
machine.
Courtesy of Bayer*

Needs:

- Advance High Speed Manufacturing
- Reduce / Eliminate Retooling

Solutions:

- IACMI
- Fiber Orientation Detection Tool - ORNL
- Design Without Retooling
- 3D Printing for Tooling



Education and Training



*Lightweight seating foam.
Courtesy of BASF*

Needs:

- Training classes
- Degree programs at universities

Solutions:

- CCS
- Kettering
- New degree programs
- Benchmarking globally, e.g. BMW

The Future Is Now: Electric Powertrains





The Future Is Now: 3-D Printing





The Future Is Now: Autonomous Vehicles



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Thank you!



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