



Green Manufacturing Industrial Consortium

Western Michigan University

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WESTERN MICHIGAN UNIVERSITY

College of Engineering and Applied Sciences
Manufacturing Research Center



What is the consortium?

- A mechanism to catalyze partnerships among industry, academe, and government for the purpose of greening the manufacturing supply chain.
- Based on the National Science Foundation's Industry/University Collaborative Research Center (I/UCRC) model
 - I/UCRC program began nearly 35 years ago
 - Currently there are 55 consortiums operating around the U.S.
 - As of 2009:
 - 700 industrial partners
 - 100 member universities
 - nearly \$90 million in research funding FY'09



Where it got its start

WMU getting \$1 million for green project

WMU is slated to receive \$1 million in federal funding to support its Green Manufacturing project, which will assist businesses throughout West Michigan in creating more energy efficient and sustainable processes and products.

U.S. Rep. Fred Upton, who sponsored the funding in the House, made the announcement Oct. 19 at the College of Engineering and Applied Sciences campus. He was joined by President John M. Dunn and John Patten, chair of manufacturing engineering and director of the WMU Center for Manufacturing Research.

Green Manufacturing

WMU's Green Manufacturing project draws upon existing research and development centers at the University. Faculty researchers and students will collaborate with area manufacturers, especially smaller businesses, to help them build greater energy efficiency into manufacturing processes and promote recycling of



Speaking at the green project announcement were, from left, Rep. Fred Upton, WMU faculty member John Patten and WMU President John Dunn, right. (Photo by Laura Decker)



Vision

- The Green Manufacturing Industrial Consortium (GMIC) is a university-industry based research collaborative comprised of Western Michigan University (WMU) faculty, students, and staff, and **10-30** industry partner companies.
- WMU will work with GMIC partners to **improve (i.e. reduce) the environmental and energy impact of their designs, materials, processes, and facilities**, including end use of their products through the end of the product lifecycle.
- Projects accomplished through leveraging the industrial partners **experience and resources** and the university's **technical expertise and research facilities**.



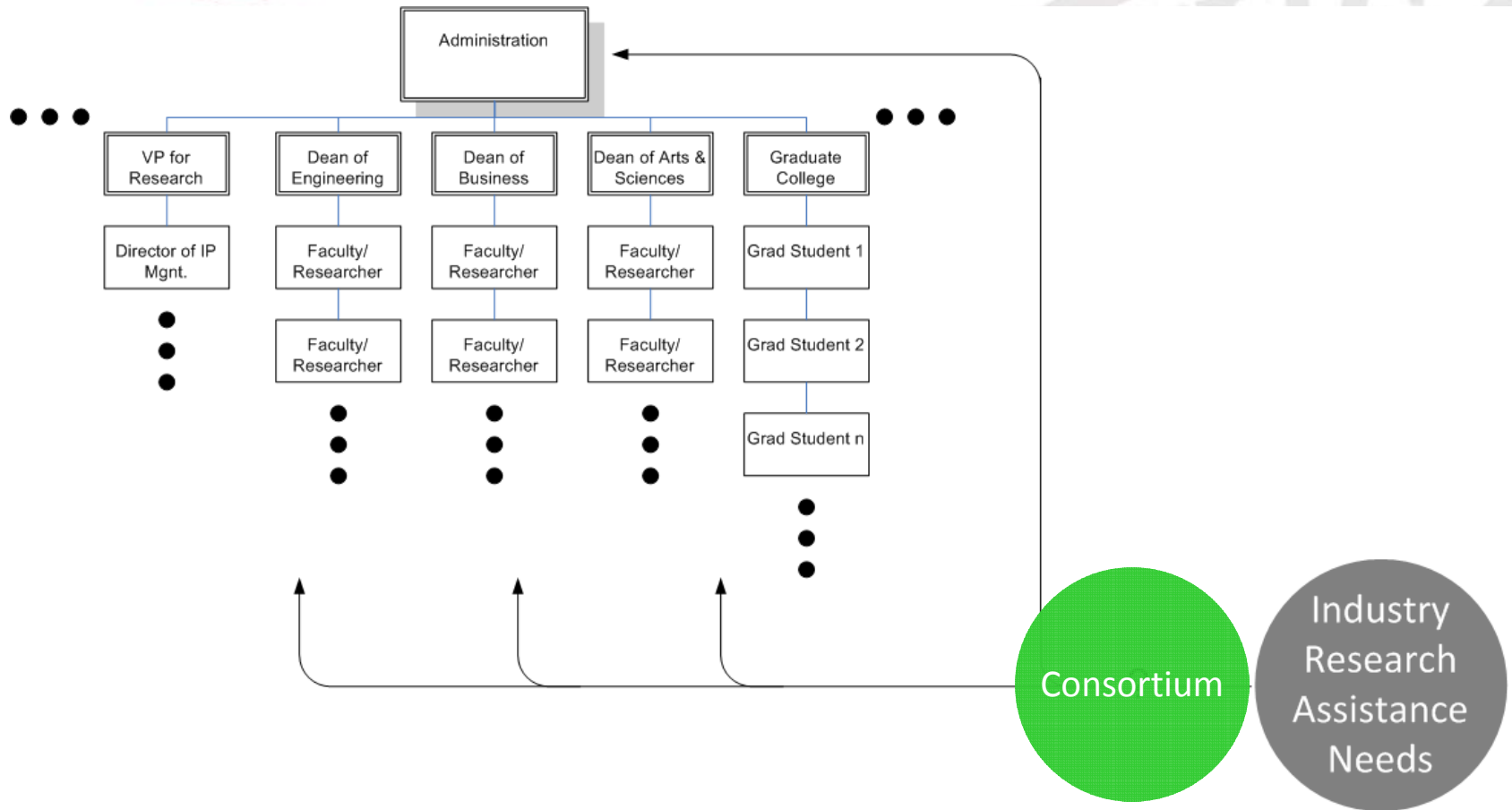
Mission

- The Green Manufacturing Industrial Consortium (GMIC) has two focuses:
 1. To support advancement in manufacturing practice through the creation of more energy efficient and environmentally benign processes and products while enhancing productivity and sustaining or increasing output.
 2. To provide a forum for manufacturers to coordinate research and share results, while leveraging R & D funding, at the pre-competitive stage.

Pursuing Environmental, Energy, and Economic opportunities in partnership with industry



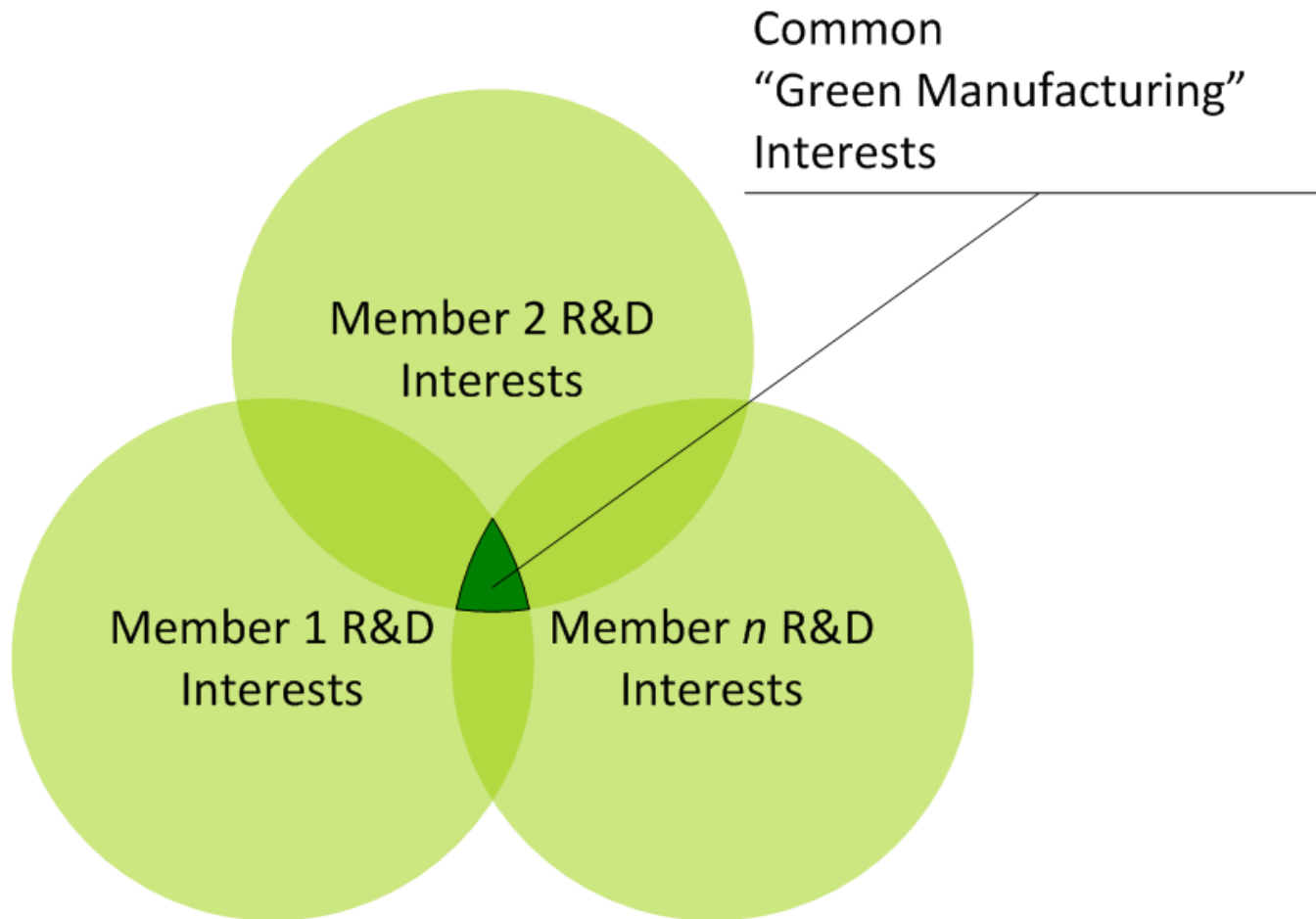
What problem is the consortium trying to solve?



- Long-Term
- Mission Driven
- Multi Disciplinary
- Team Based



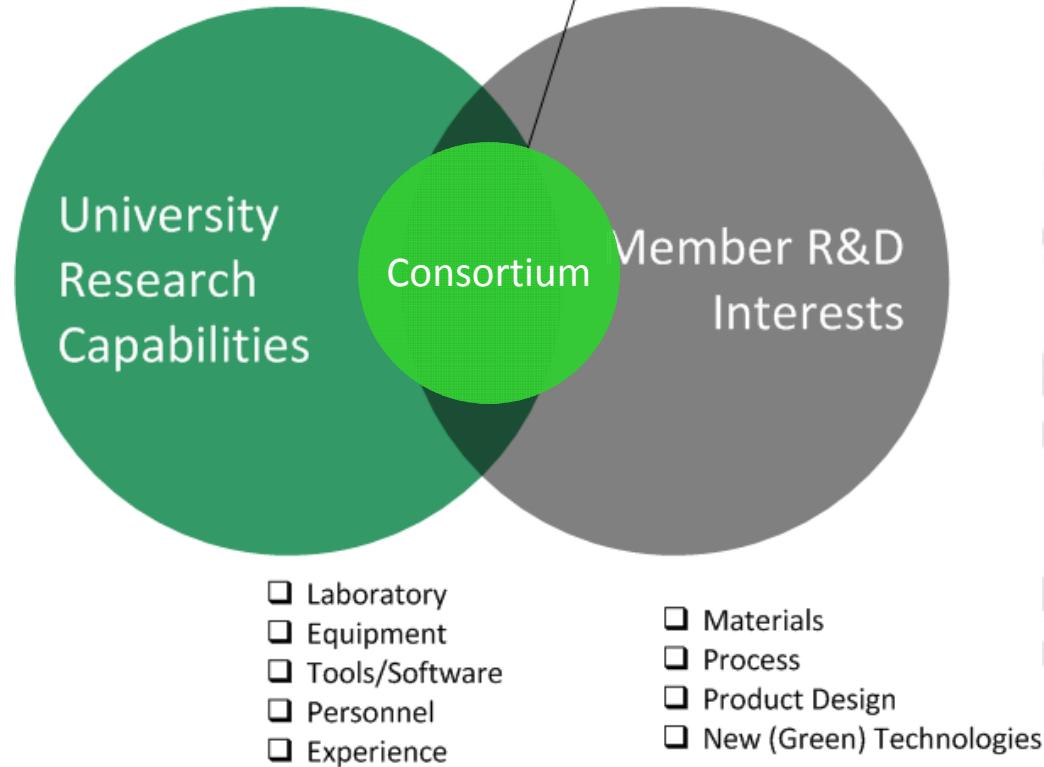
Existing industry efforts and/or needs





GMIC sweet spot

Opportunity Area for Consortium

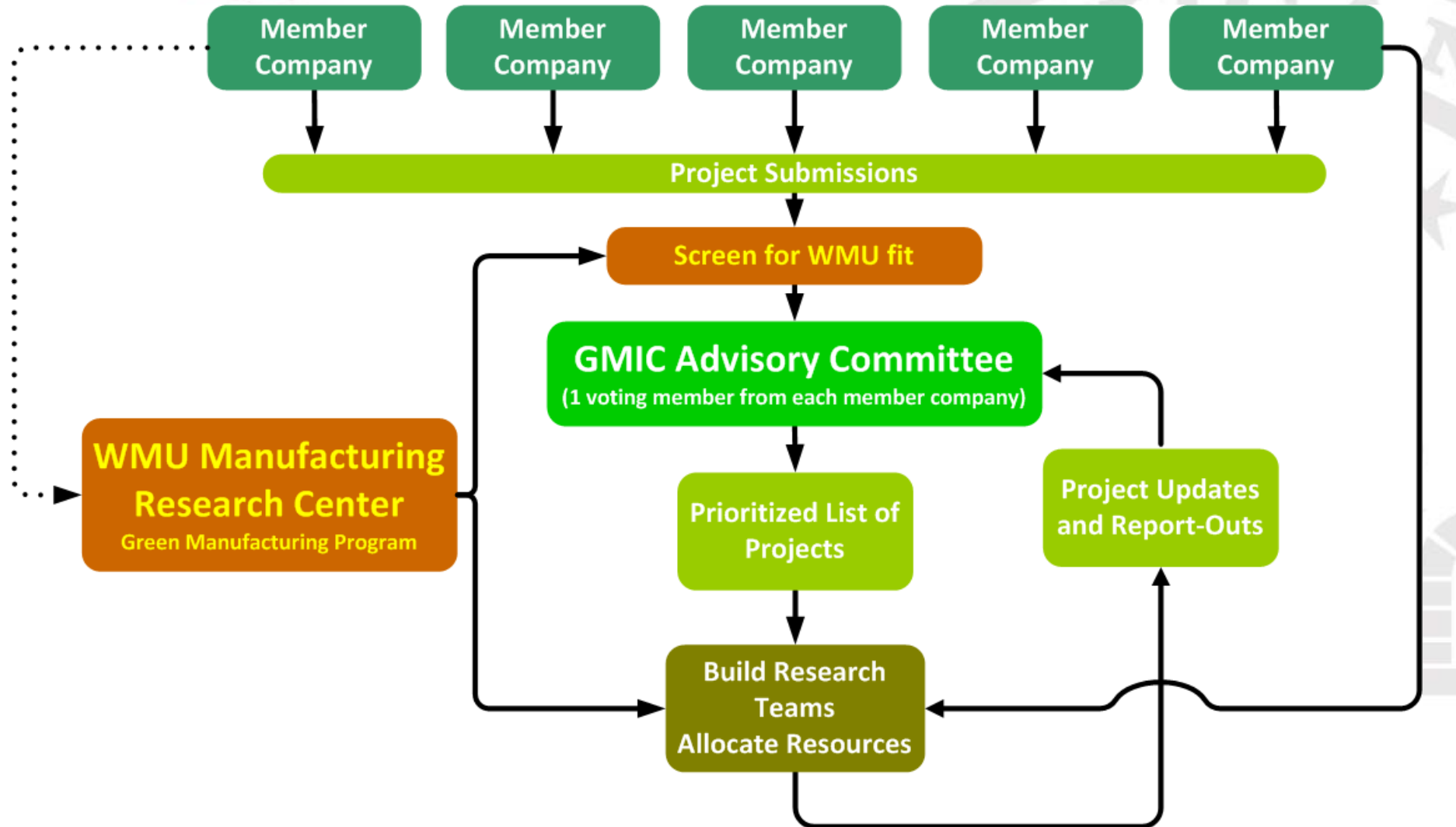


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Consortium Management Process



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Year 1 – Get Rolling

Based on “target member” survey results

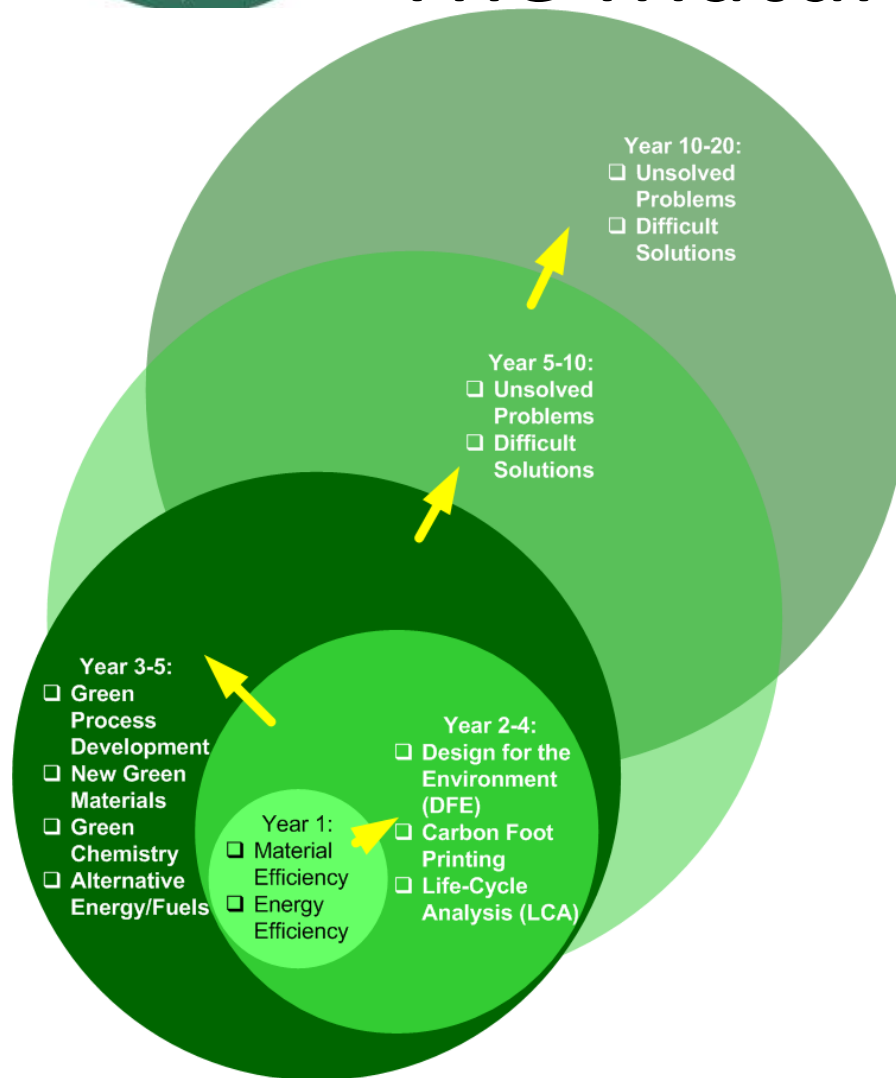
“Quick return” focus – low hanging fruit

- Target Areas: *(Environmental Focus)*
 1. Material Intensity/Efficiency (recycling is an indication of inefficient material use)
 2. Energy Efficiency (membership fee could easily be saved through low/no-cost improvements in energy use)
- Activity:
 1. Site assessments to identify a list of \$ savings opportunities in focus areas
 2. Completion of one applied research project chosen from list – goal: ROI on membership fee

One cost savings project per company leveraging the collective knowledge and experience of the consortium member companies



The Maturing Consortium



Members steer the future direction of the research based on their collective needs



What is the “value” to you

1. Marketing Material – “founding member in the GMIC”
2. Identification of “green” cost savings opportunities through a standardized process
3. Completion of an internal project – ROI
4. Access to research of emerging technologies
5. Sharing of information/knowledge/experience among peer group – the “brain trust”
6. Continuous learning going forward



Win-Win-Win

Source: Gray, D. O., and Lindbald, M.

- **Industry:**
 - Leveraging of research investment (potentially 20:1 in 2010-2011)
 - Recruitment of talented students
 - Achieving high levels of technology transfer resulting in technical advances or development
 - Average industry-university collaborative research center produces at least one disclosure and patent per year
- **Faculty:**
 - Research support \$\$
 - Opportunity to work on industrially relevant research
 - Higher levels of interaction with other faculty
 - High rate of publication
- **Students:**
 - Rate their educational experience higher
 - Receive more job offers than their peers



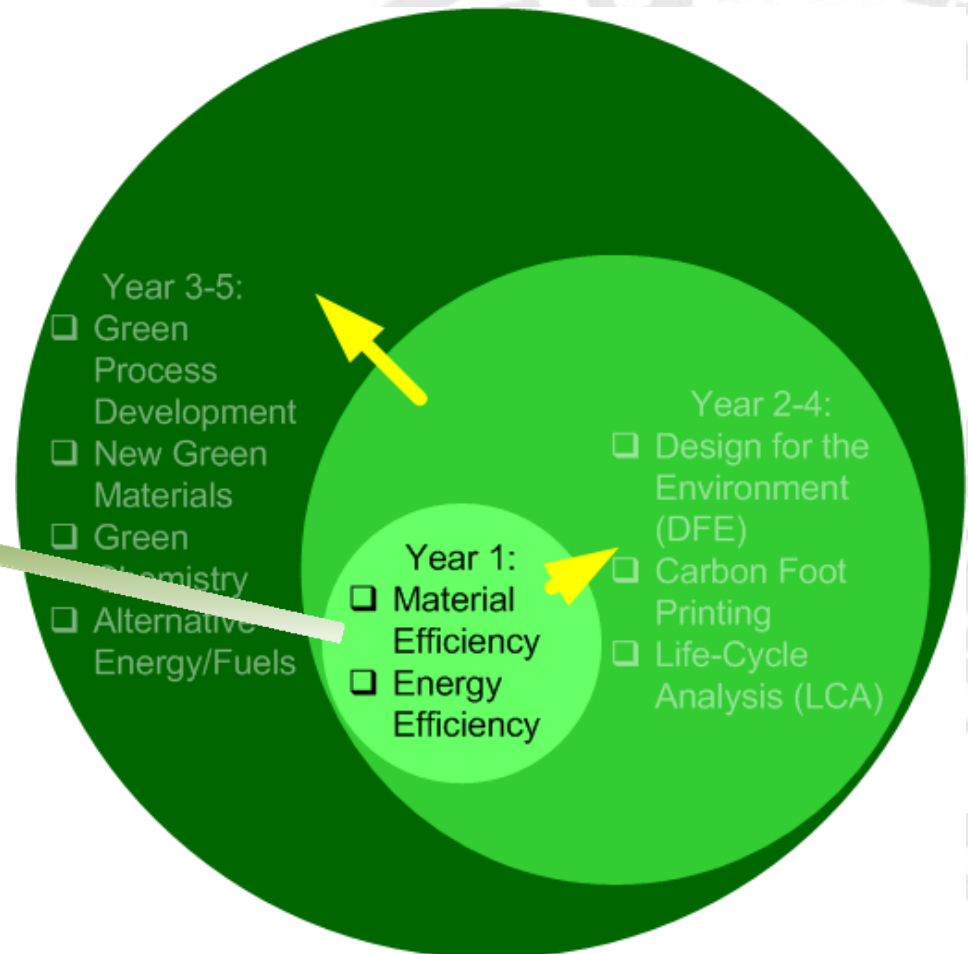
Membership

- 5-Year “commitment” (non-binding)
- \$25,000 annual membership dues (payment schedule negotiable)
- Individual company or group of companies
- Signed Memorandum of Understanding (MOU)
 - Operation (by-laws) of the consortium
 - Project selection procedures
 - New member induction process
 - Ownership and management of Intellectual Property



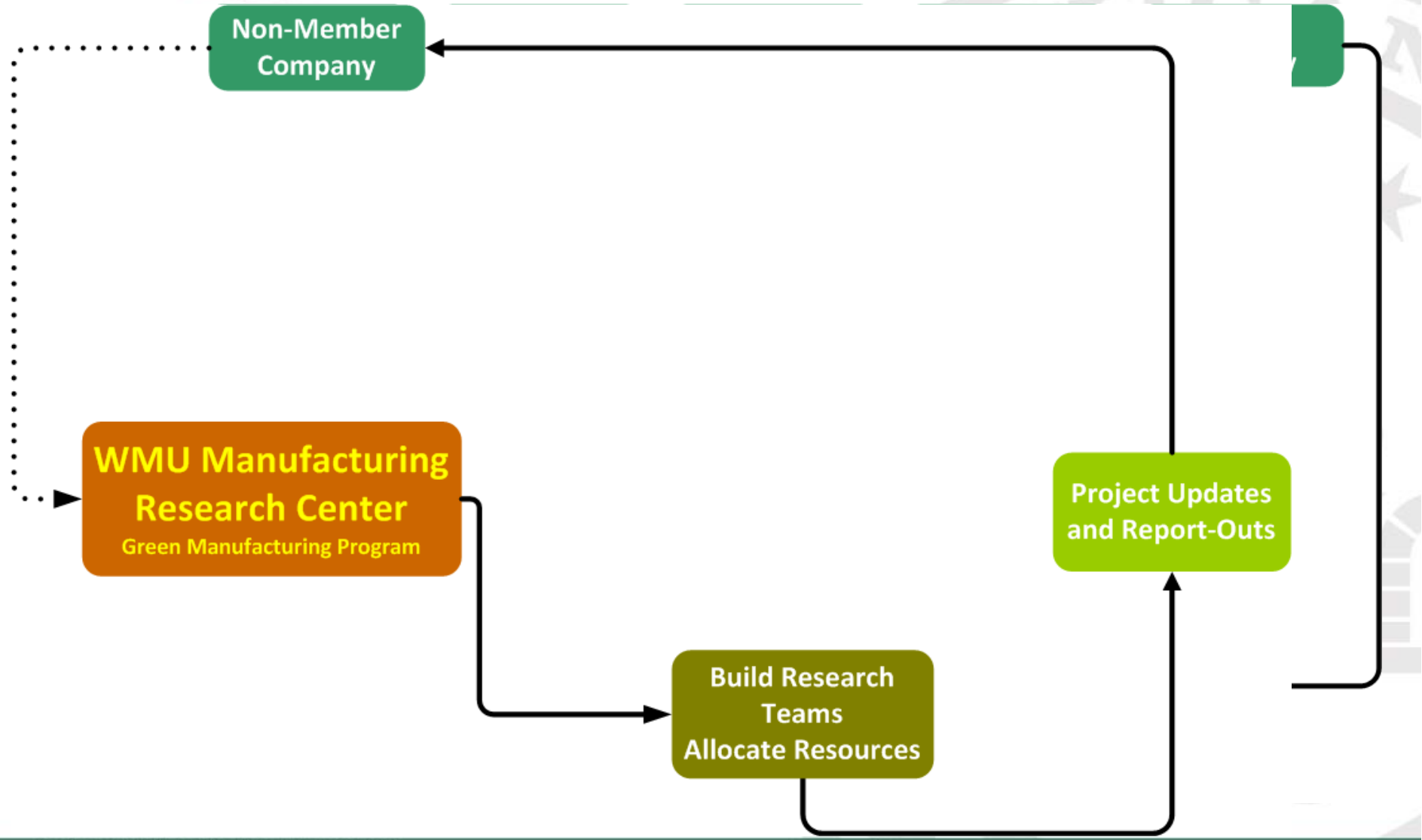
Year 1 Bonus

\$1 for \$1 match on membership fee to support research on “big challenges” identified through the opportunity identification phase





Target Project Option





- GMI/GMIC Questions?