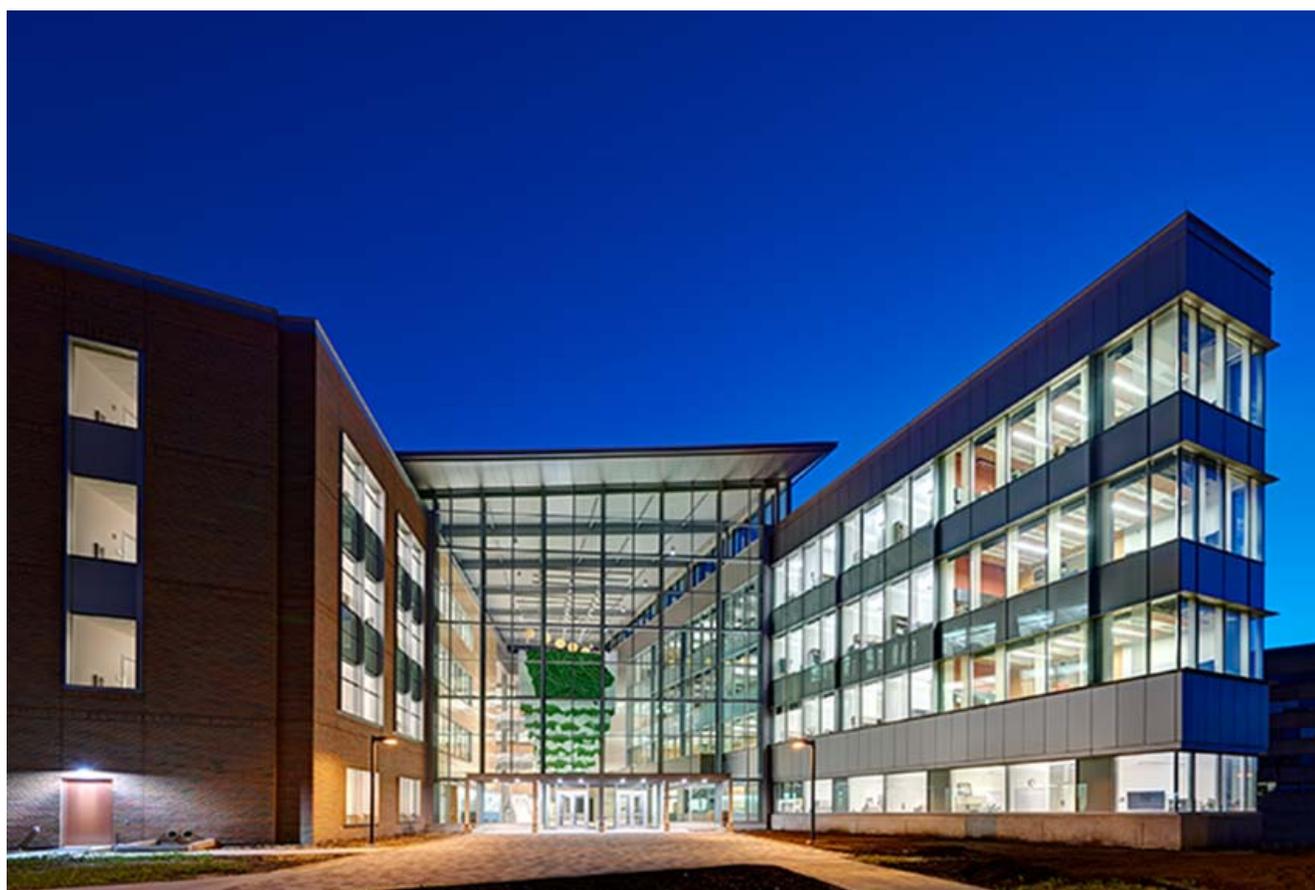




Board of Regents Meeting June 4, 2015

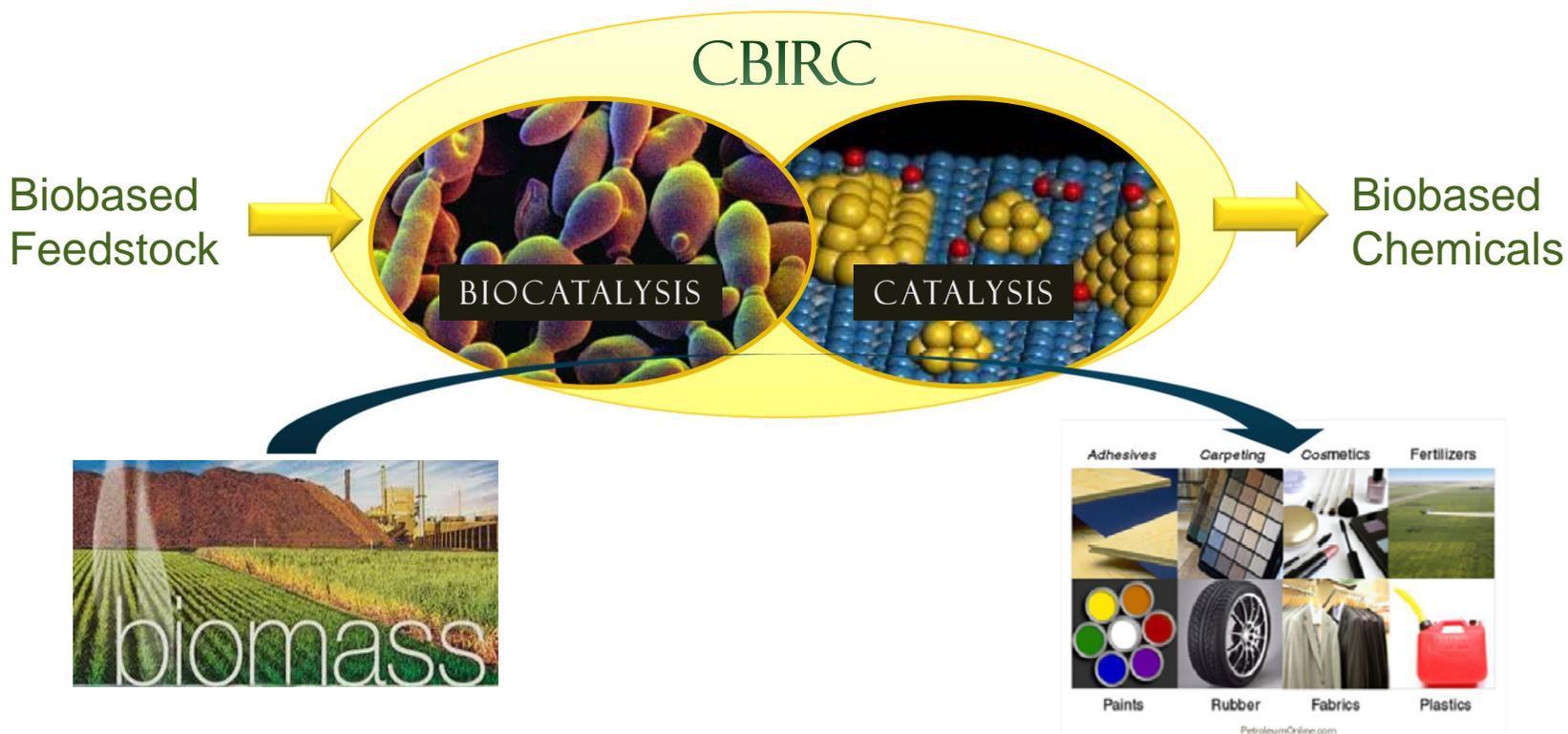


CENTER FOR BIORENEWABLE CHEMICALS





CBiRC Vision





Participating Institutions

IOWA STATE UNIVERSITY



Abo Akademi University (Finland)

Fritz Haber Institute (Germany)

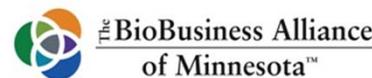
Technical University of Denmark

Technische Universiteit (Netherlands)





Innovation Ecosystem





Education Program

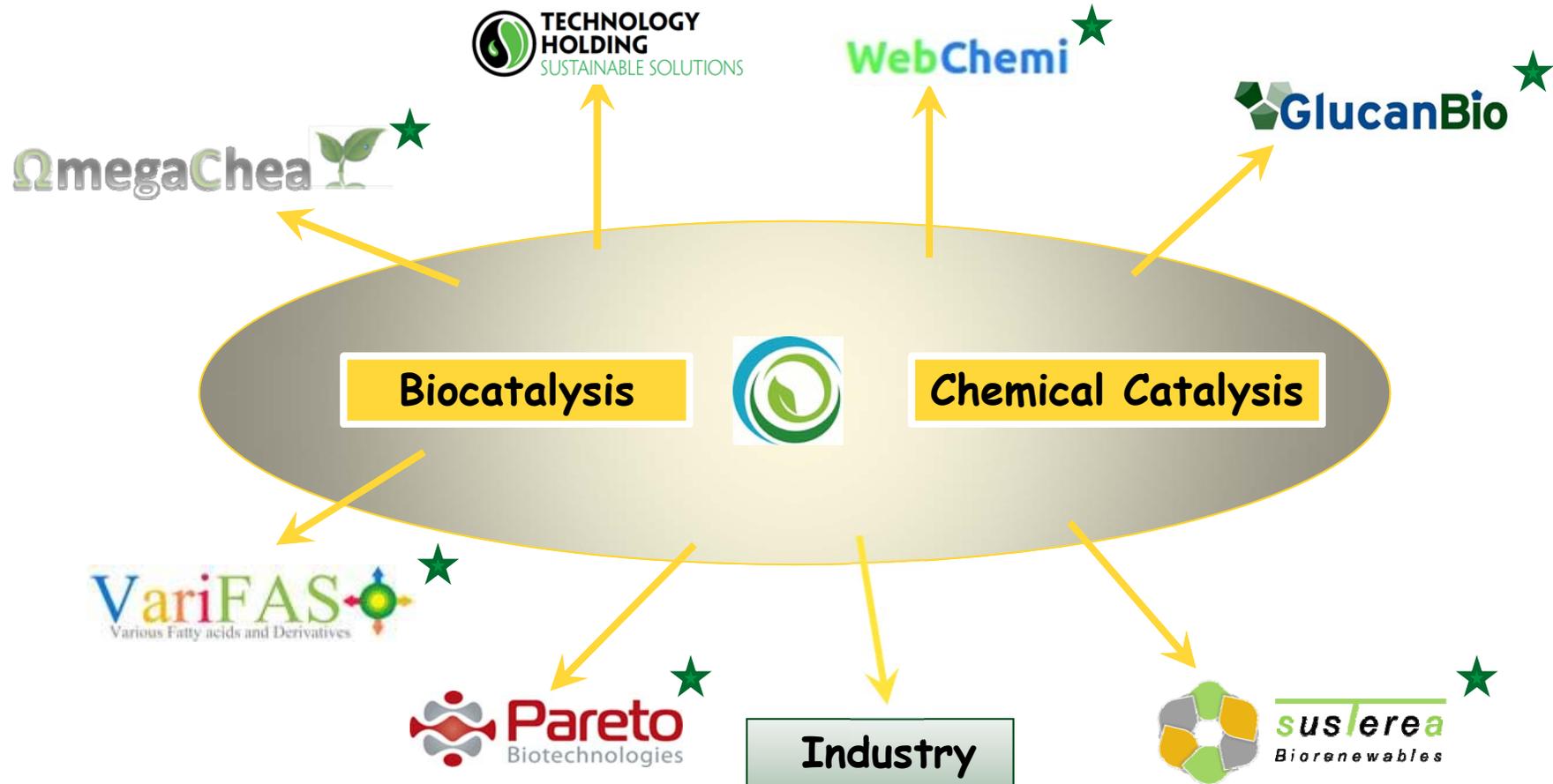
- Biobased Foundry
 - Technology-led entrepreneurship course
 - Entrepreneurship mentoring
- Student-led research grants
- Undergraduate curriculum
- REU
 - Mentoring training
- STEM Summer Institute (K-12)
 - RET
 - Middle School Teachers
 - Elementary School Teachers
 - STEM course materials
(*>2500 students/yr*)
- *Symbi* GK-12
 - 43 DMPS classrooms



STEM Summer Institute 2014



Technology Transfer



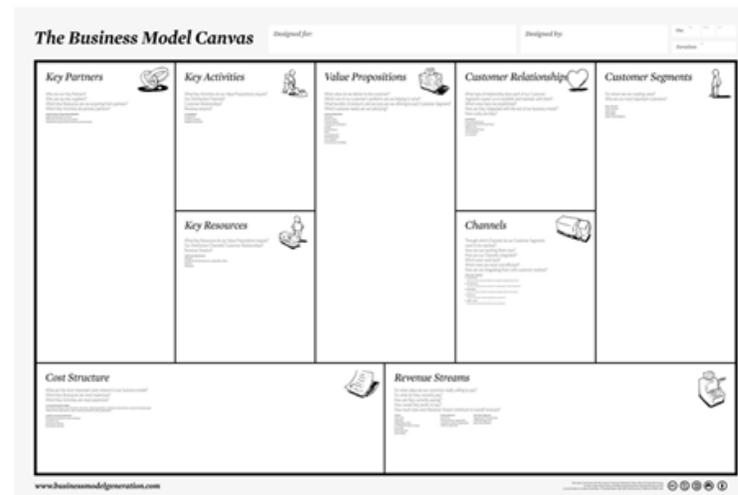
★ **CBiRC Startup Companies**



Biobased Foundry

BIOBASED FOUNDRY

- **Entrepreneurship Course**
 - Stimulating Innovations
 - Only graduate students
 - Spring semester (15 students)
- **Mentoring Program**
 - Organizing Innovations
 - Business savvy mentor
 - Match technology to customer need



Startups fail because they don't talk to customers until they have a product.



Need to focus on Business Model Canvas instead of writing Business Plans.





Startups in Biobased Foundry

Company	Date & Contact	Funding	Impact
GlucanBio	2011 - David Alonzo	\$2.0m	Partnering and Pilot scale.
OmegaChea	2012 - Shivani Garg	\$0.4m	Technology development.
GrossWen	2012 - Martin Gross	\$0.5m	Technology development.
SusTerea	2013 - Jenny Lee	\$0.2m	Technology development.
AccuGrain	2013 - Ryan Augustine	\$0.2m	Technology development.
VariFAS	2013 - Fuyuan Jing	\$1.0m*	Technology development.
Phasica	2013 - William Lohry	\$0.1m	Technology development.
WebChemi	2013 - Michael Nolan	\$0.2m	Consulting and First Sales.
ARTIchar	2013 - Berni DelCampo	\$1.0m*	Consulting and First Sales.

SBIR/STTR

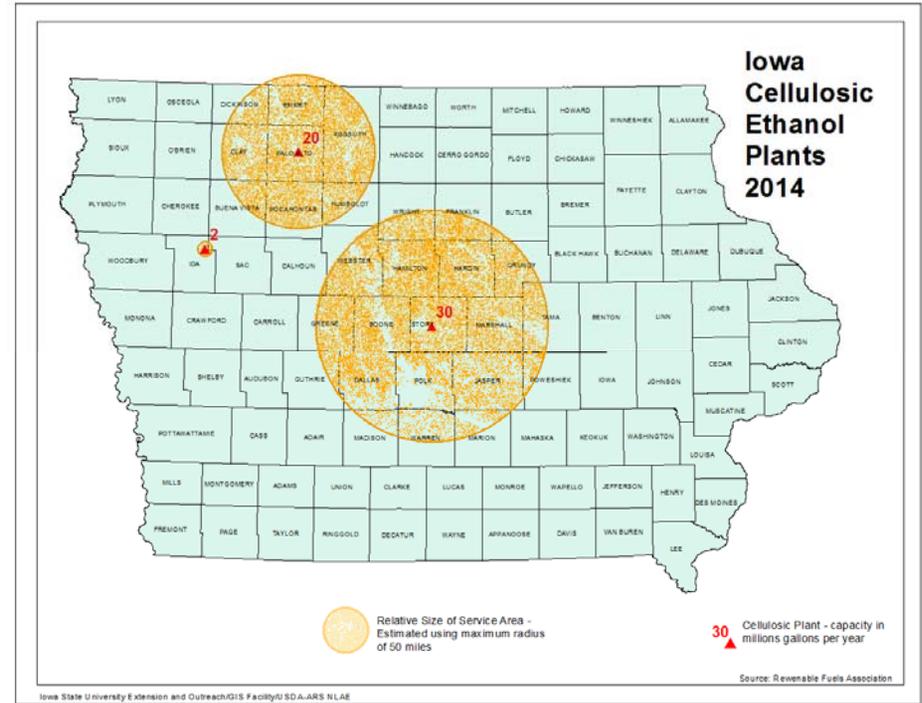
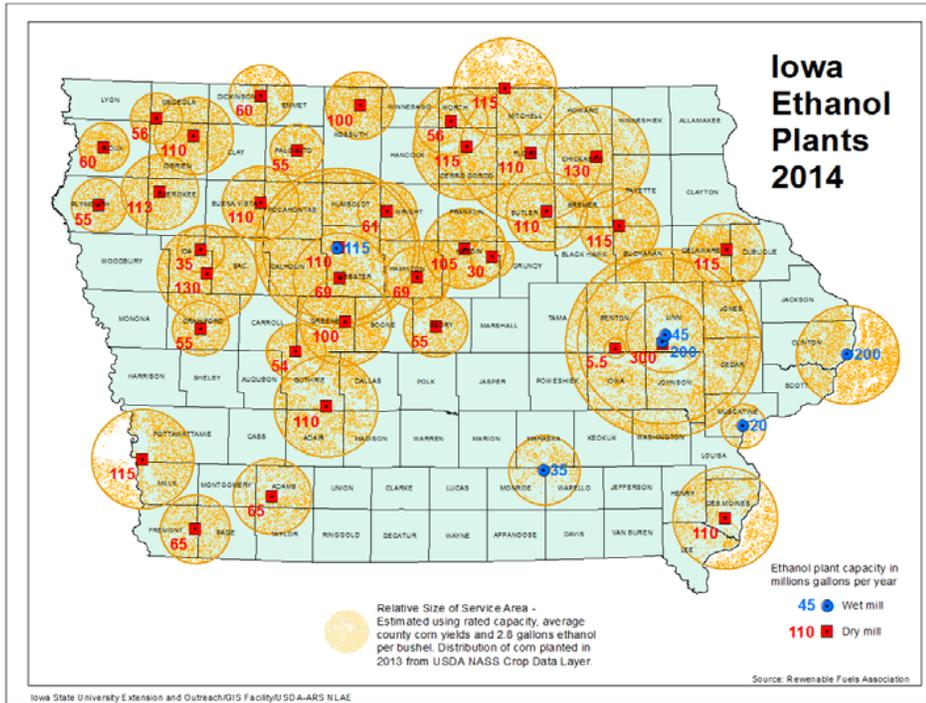


First Sales





Biomanufacturing in Iowa



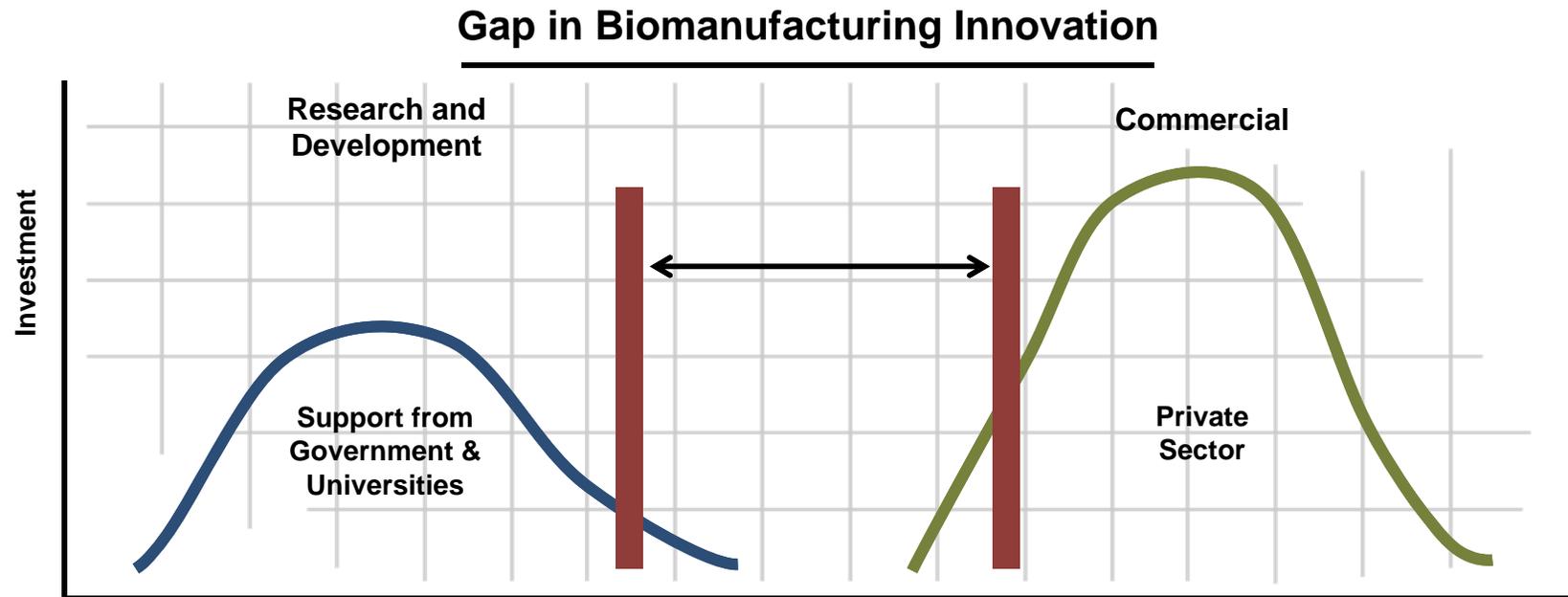
2013 Reality: 13B\$+ annually



What's Next Iowa?

http://www.iowaeconomicdevelopment.com/userdocs/documents/ieda/Biorenewables_FS_092013.pdf

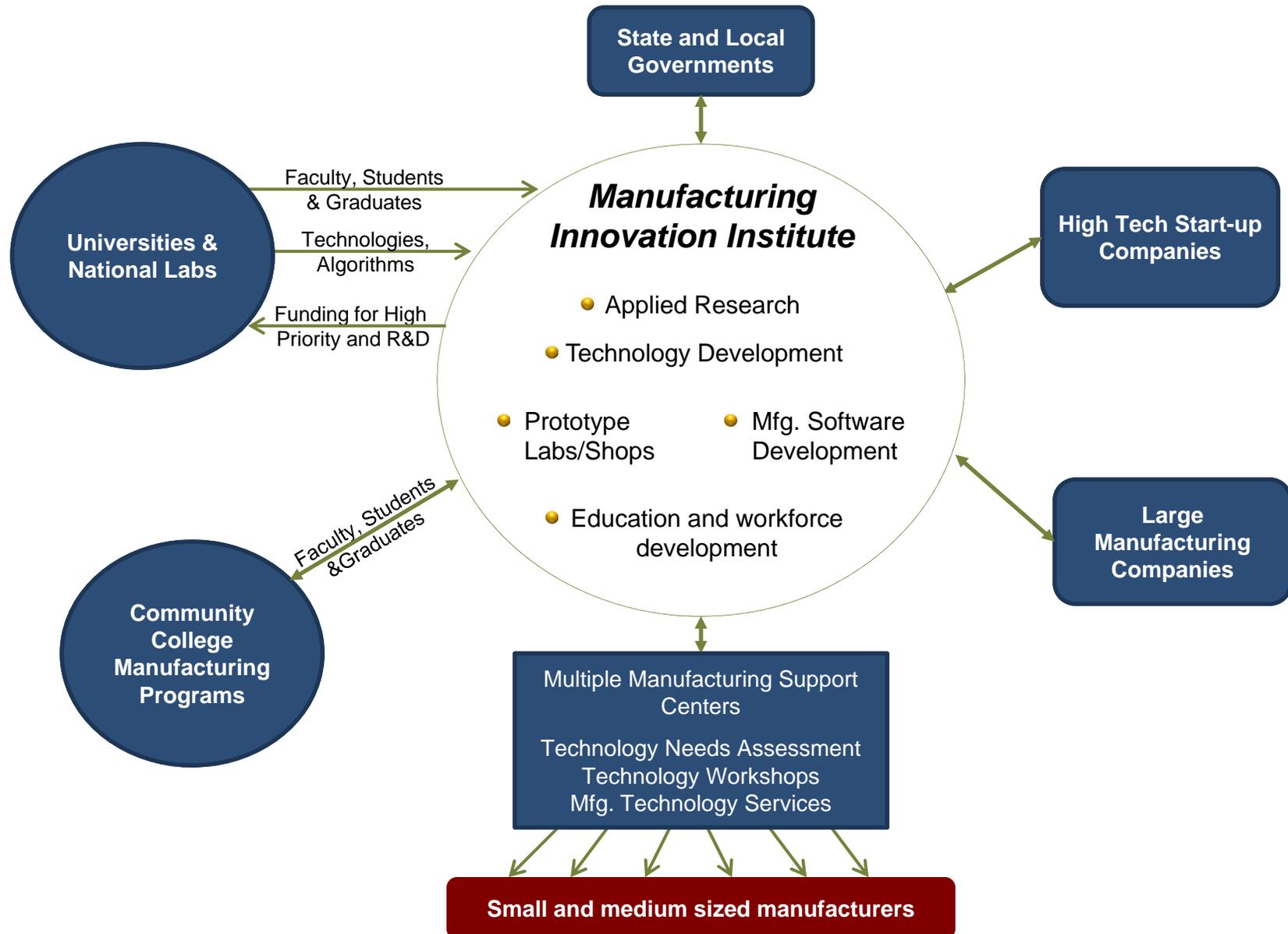
Goal: Bridge Gap between R&D and Commercial Success



The **GA** Pre-commercial Development Scale **P**

Accelerating and improving the scaling path requires multiple innovations to speed the advancement from lab to commercial.

Typical NNMI Structure



Several other Institutes have been successfully formed (2012-2015)

Lightweight Innovations for Tomorrow (LIFT) (Feb. 2014)

- Detroit, MI
- \$70M federal investment (DOD) and matched by non-federal partners
- 60 companies, universities, nonprofits and research labs in consortium.
- Focus: Lightweight technology

Digital Manufacturing and Design Innovation Institute (DMDII) (Feb. 2014)

- Chicago, IL
- \$70M federal investment (DOD) and matched by non-federal partners
- 73 companies, universities, nonprofits and research labs in consortium.
- Focus: Integrated digital design and manufacturing

Institute for Advanced Composites Manufacturing Innovation (IACMI) (Jan. 2015)

- Knoxville, Tennessee
- \$70M federal investment (DOE) and \$190M by non-federal partners
- 144 companies, nonprofits, universities and research laboratories in coalition with DOE to create a \$260 million institute.
- Focus: Advanced fiber-reinforced polymer composites

America Makes (Aug. 2012)

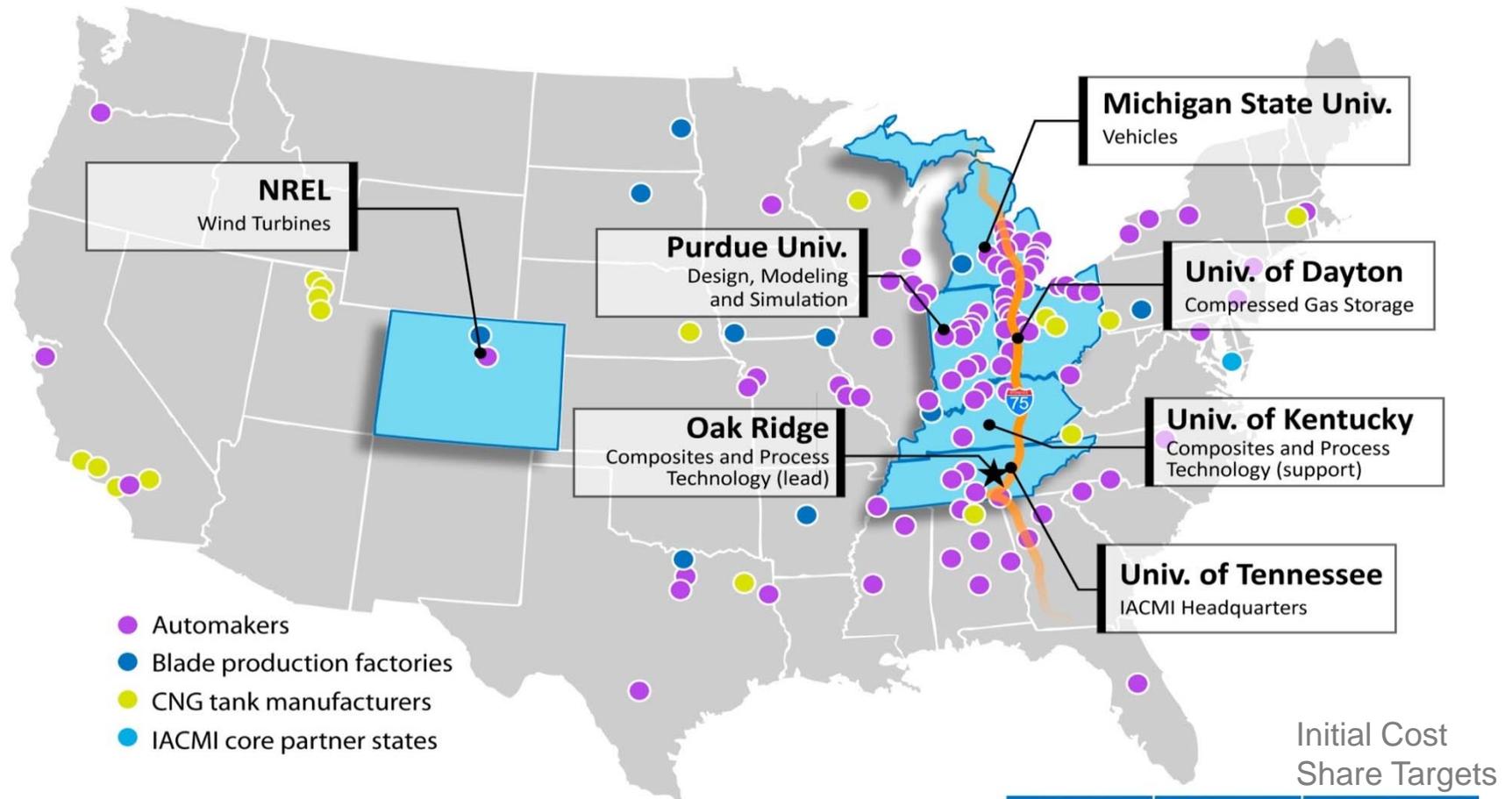
- Youngstown, OH
- \$30M federal investment for Pilot hub establishment
- 94 member consortium made of manufacturers, universities, community colleges and non-profit organizations
- Focus: 3D printing (Additive manufacturing)

Power America (Jan. 2014)

- Raleigh, NC
- 25 members who matched DOE investment of \$70 million
- Focus: Wide bandgap semiconductors

The process has been initiated for four more institutes...

Institute for Advanced Composites Manufacturing Innovation (IACMI)



Initial Cost Share Targets

Cost Share	CO Center	IACMI Total
Cash	\$10M	\$100M
In-kind	\$14M	\$95M
Total	\$24M	\$195M



Biomanufacturing Institute Status



1. Will be led from USDA NIFA office
2. Teaming agreement with the National Renewable Energy Laboratory (Colorado)
3. State (IEDA) commitment received.
4. Talking with key potential member companies.





Thank you