



28-29 June 2010

Lyon, Rhône-Alpes (France)

Event **Towards a common European and Regional strategy for plastics clusters**

Experience of Cluster Development in the United States

Joseph A. Jacomet, President
PolymerOhio



A European Project supported within the Seventh Framework Programme for Research and Technological Development

28-29 June 2010

Lyon, Rhône-Alpes (France)

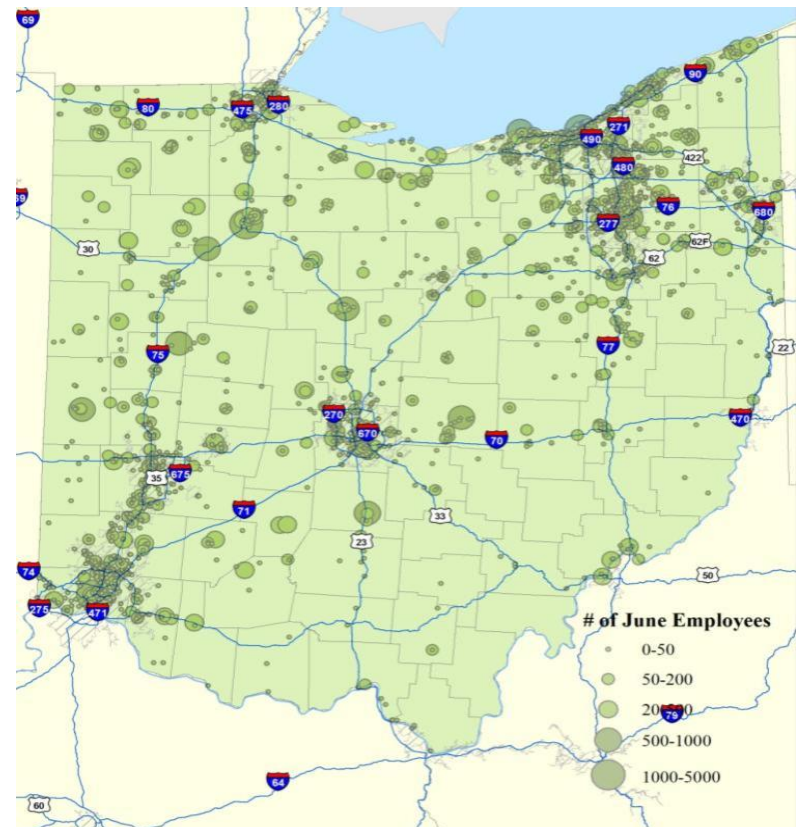
Event **Towards a common European and Regional strategy for plastics clusters**

Success in Cluster Development!

Ohio is the major polymer manufacturing state in USA with revenues of ~\$49B

Total polymer companies-2800

- Polymer processors ~ 1600
- Compounders ~ 60
- Mold Builders ~200
- Composites manufacturers ~180
- World class material suppliers
e.g. PolyOne, Kraton, Solvay
Ashland, Hexion, Owens Corning



15 years ago, Ohio's Polymer Cluster was not recognized

- Neither the industry nor Ohio recognized the importance of the polymer industry, the #1 manufacturing industry in the State
- Companies, research organizations, and universities did not collaborate in technology or product development.
- No unifying organization existed

Disjointed Community to Recognized Cluster: How?

Steps to Transition!

- 1) Emergence of a Cluster Champion***
- 2) Definition and Branding of the Polymer Cluster***
- 3) Polymer Cluster Advocacy to the State of Ohio***
- 4) Collaboration of Industry, Research Organizations, and Universities***
- 5) Cluster Growth, Emerging Technologies and Markets***

Emergence of a Cluster Champion

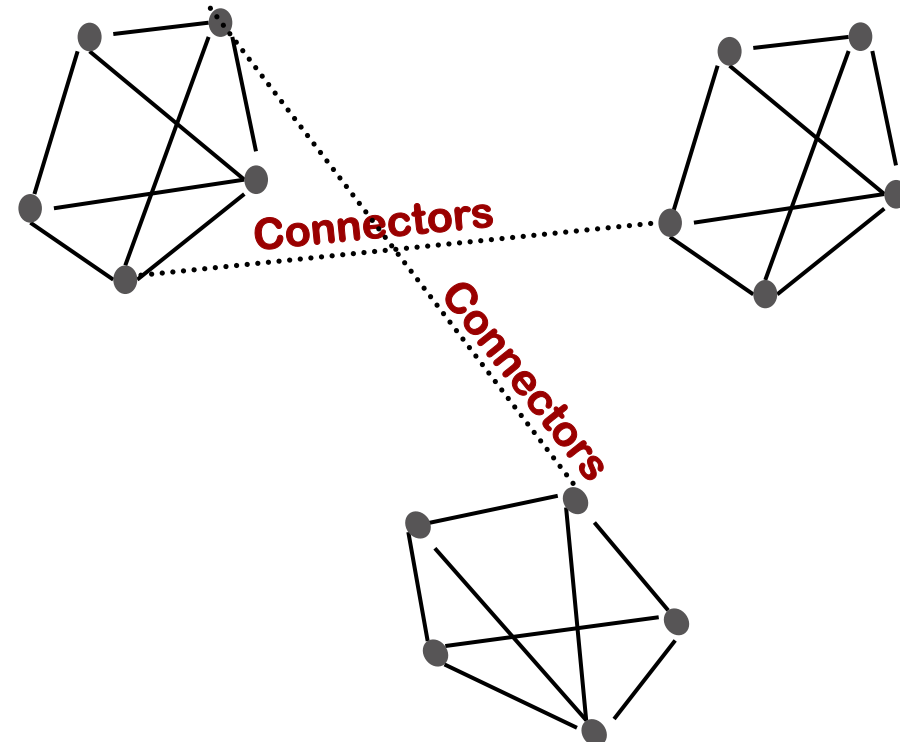
- 15 years ago, the Plastics Processors Association (PPA) became active:
 - educating and advocating to the State
 - hosting the Governor's Plastics Summit every two years
- 9 years ago, PolymerOhio succeeded PPA
 - a need to be more inclusive
- 3 years ago, PolymerOhio was designated a State of Ohio Edison Technology Center
 - increased State funding

PolymerOhio is Ohio's Polymer Cluster Champion

In Cluster Development, Connectors
are the Key. Connectors increase
the efficiency of a cluster network by
2.5-3x

- Connectors increase collaboration potential
- Key to technology adoption and application development

Source: Buchanan: "Small Worlds and the Groundbreaking Theory of Networks."

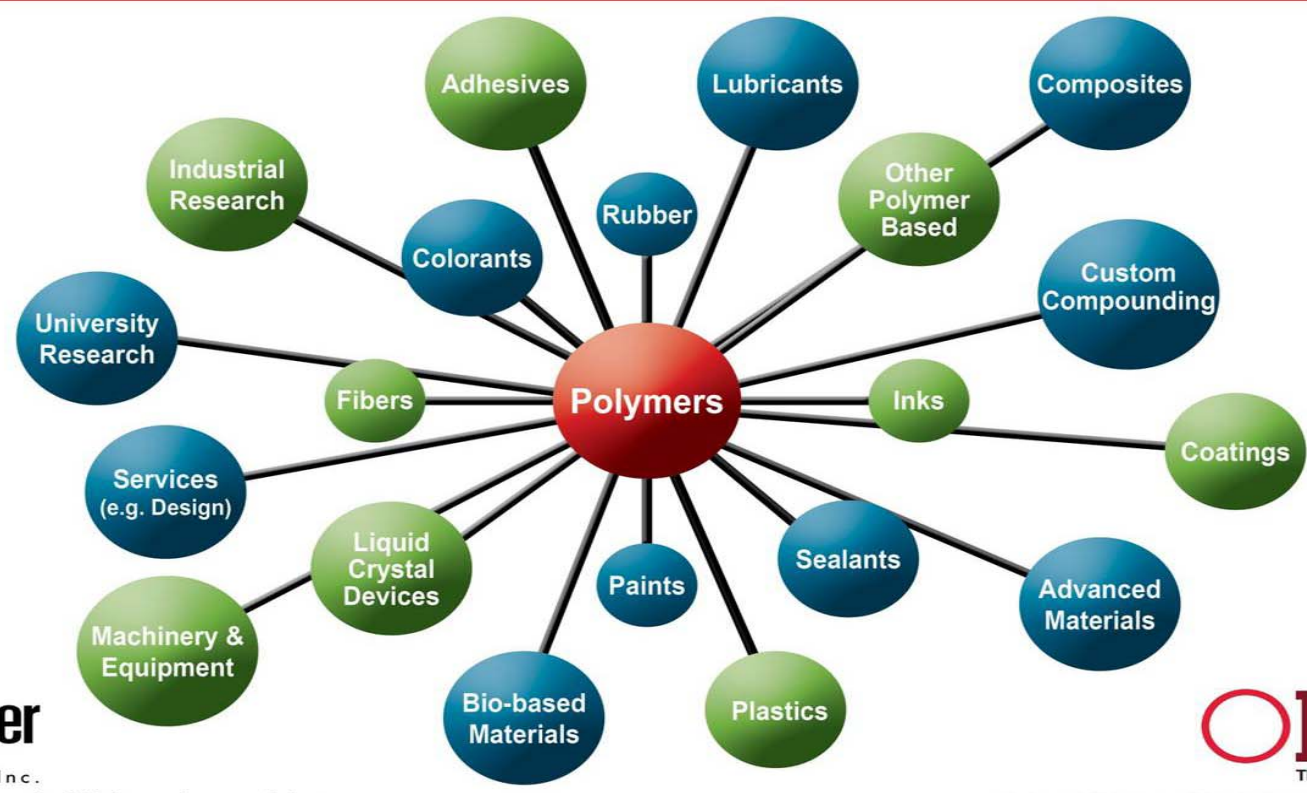


Event Towards a common European and Regional strategy for plastics clusters

Cluster Definition and Branding:

Broader than Plastics!

Complete Supply Chain



OH! Polymer

PolymerOhio, Inc.

The number one resource for Ohio's number one industry

Ohio

The State of Perfect Balance

PolymerOhio is an Ohio Edison Center of Technology



Disjointed Community to Recognized Cluster: How?

- *Emergence of Cluster Champion*
- *Definition and Branding of Cluster*
- ***Cluster Advocacy to the State of Ohio***
- *Collaboration of Industry, Research Orgs, and Universities*
- *Cluster Growth, Emerging Technologies and Markets*

Advocacy

- Ohio Polymer Strategic Council (OPSC), comprised of high level industry executives and university presidents having good contacts with State Legislators
- OPSC led development of a strategic plan that served as a roadmap for the polymer cluster.
 - 2010 update in progress
- PolymerOhio has coordinated:
 - Biennial Ohio Polymer Summit
 - Annual Legislative Lunch

Advocacy has led to additional State Support!

- PolymerOhio named as Ohio Edison Center of Technology by Ohio Department of Development
- “Polymers” has been named a statewide targeted industry and a strategic technology by the Ohio Department of Development in its 2009 strategic plan
- State funding, especially The Third Frontier Program, has been provided for technology development and cluster expansion

Cluster Collaboration and Growth: Ohio's Third Frontier Program, A Major Tool

- Implemented in 2002, provides funding for technology development and commercialization has been a catalyst for cluster development!

“Ohio's \$1.6 billion Third Frontier initiative is a comprehensive, professionally run effort to build world-class research capacity, promote interaction between research and industry, and commercialize R&D.”

-National Governor's Association and Pew Center for the States

- 10:1 return resulted in Ohio voters extending program in 2010 for four years with \$700M of additional funding

Cluster Collaboration, Third Frontier Program

- ~\$300M in funded projects to polymer cluster (2002-2010) for emerging technology development and commercialization
- Projects are competitive and must involve major part of supply chain and have clear path to commercialization
- "Collaborating", formerly a rare occurrence, is now second nature to Ohio companies, organizations, and universities



28-29 June 2010

Lyon, Rhône-Alpes (France)

Event Towards a common European and Regional strategy for plastics clusters

<u>Ohio's Edison Technology Centers</u>	<u>Targeted Industries</u>
Edison Welding Institute	Advanced Energy and Environmental Technologies
TechSolve	Aerospace and Aviation
Center Innovative Food Technology	Agriculture and Food Processing
BioOhio	Biomedical
EMTEC	Instruments, Controls, and Electronics
MAGNET	Motor Vehicle and Parts Manufacturing
PolymerOhio	Polymers, Adv. Mats., & Bioproducts



28-29 June 2010

Lyon, Rhône-Alpes (France)

Event **Towards a common European and Regional strategy for plastics clusters**

<u><i>Research and Design Organizations</i></u>	<u><i>Universities</i></u>
Battelle	University of Akron
University of Dayton Research Inst.	Case Western Reserve University
Cornerstone Research	Kent State University
Nottingham - Spirk	University of Dayton
Priority Designs	Ohio State University
Plastic Technologies	University of Toledo
Industrial Research Labs	Shawnee State University

Cluster Growth: Ohio Wright Centers of Innovation, a Focus on Emerging Technologies and Markets

- **Center for Multifunctional Polymer Nanomaterials and Devices (CMPND)**
 - Funded with \$22M from State with \$44M from 60 collaborators.
 - For example, use of carbon nanotubes and boron nitride materials for expanded polymer product functionality and markets
- **Ohio Bioproducts Innovation Center (OBIC)**
 - Funded with \$11M from State with \$22M from approximately 30 collaborators.

Wright Centers have provided strong visibility for OHIO in Biobased Products and Nanomaterials!!

Cluster growth: Emerging technologies and markets call for re-examining the definition of the cluster

- **Biobased products has led to interaction with agricultural and microbiology organizations**
 - Ohio Farm Bureau
 - Ohio Soybean Council
 - Ohio Corn Growers
 - Ohio Department of Agriculture
 - Agriculture-based companies
 - Genetic engineering companies— renewables to chemicals and polymers

What is the definition of the “polymer cluster”?

Cluster Growth: Company Attraction

- **Third Frontier Grant, 3 years, to attract new polymer cluster companies to Ohio, fill gaps in emerging supply chains**
 - Domestic and international companies
- **PolymerOhio assists state and local trade organizations to attract polymer cluster companies.**
 - Ohio has won Site Selection Magazine's Governor's Cup last 6 of 8 years

Summary: The Ohio Experience in Cluster Development

- Ohio has transitioned to a recognized polymer cluster!
- Cluster development requires a champion, careful cluster definition, advocacy, and collaboration along the supply chain to achieve growth
- Regional or state government must recognize and nurture cluster growth with significant resources
- Clusters are organic, constantly changing, and must be adaptable to change as new technologies and markets emerge



28-29 June 2010

Lyon, Rhône-Alpes (France)

Event **Towards a common European and Regional strategy for plastics clusters**

Thank You!!