

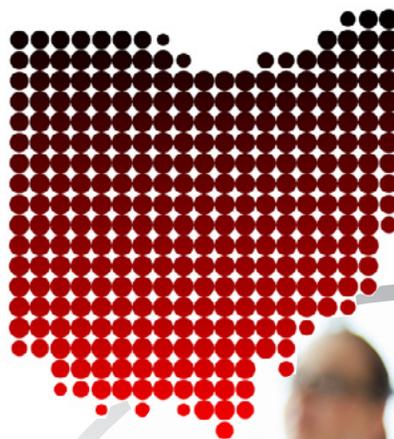
The Power of the Cluster: ARE YOU LEVERAGING THE ADVANTAGES?

Finding and sustaining a competitive advantage is vital for growth and sustainability in a global economy. Companies fortunate enough to be part of a cluster—an area with a concentration of businesses, suppliers and educational institutions all focused on one core industry—have a leg up on those who aren't.

Between the cutting-edge academic research being conducted at academic institutions, the steady stream of (local) qualified job applicants graduating from those institutions, and the proximity to organizations throughout the supply chain, companies located within a cluster have extensive advantages—if they take advantage of them.

This is not a new idea. In 1990, Michael Porter's *"The Competitive Advantage of Nations,"* established that geographic proximity of companies provides a significant competitive advantage. His work was so well received that it resulted in public policy focusing on creating and nurturing industry "clusters" as a path to economic growth.

This paper is intended to help you understand the value of clusters so that you may understand how to better leverage the competitive advantage you have as part of Ohio's Polymer cluster.



ACCORDING TO RESEARCH CONDUCTED BY THE INSTITUTE FOR STRATEGY AND COMPETITIVENESS AT HARVARD BUSINESS SCHOOL "AREAS WITH STRONG CLUSTERS PRODUCE MORE ECONOMIC GROWTH, MORE JOBS, STRONGER WAGE GROWTH, INCREASED ENTREPRENEURIAL ACTIVITY, AND MORE INTELLECTUAL PROPERTY—SUCH AS PATENTS—THAN OTHER AREAS."⁵

A STEP BACK...

The Importance of the Cluster

THE FIRST STEP TO LEVERAGING THE COMPETITIVE ADVANTAGE YOU HAVE AS PART OF A CLUSTER IS TO UNDERSTAND IT.

CLUSTERS NOT ONLY POSITIVELY IMPACT THE ECONOMIC GROWTH OF A REGION BY HELPING TO SHAPE FEDERAL, STATE AND LOCAL POLICIES AND LEAD REFORM, THEY PROVIDE INDIVIDUAL COMPANIES WITH COMPETITIVE ADVANTAGES IN THREE GENERAL CATEGORIES:

PRODUCTIVITY

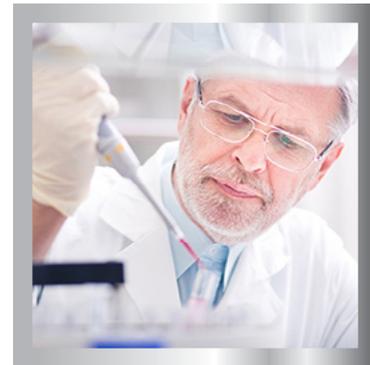
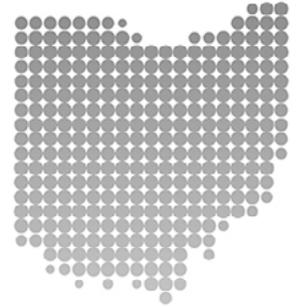
As part of a cluster, companies have ready access to necessary “inputs” such as raw materials and labor. They also have better access to information, technology and support. These factors, combined with proximity-driven collaboration, help to streamline the supply chain and enhance productivity.

PACE OF INNOVATION

According to National Research Council (US) Committee on Comparative National Innovation Policies, “Clusters foster the collaboration needed to develop new ideas and bring them to market.”⁴ Access to technical resources and enhanced productivity plays a vital role in innovation. With research, suppliers and demanding customers in close proximity, the entire supply chain has a better view of needs and opportunities and can react accordingly.

FORMATION AND ATTRACTION OF BUSINESSES

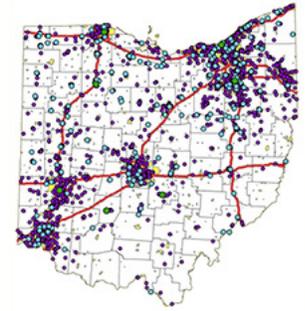
Because investment risk is mitigated when there is a concentration of customers, suppliers, labor and other resources in one geographic area, new companies tend to gravitate towards the region and new businesses spring out of old as industry players see opportunity in perceived gaps in the value chain. While this increases local competition, it also incents growth. It is important to note that competition and cooperation coexist within a cluster. As stated in the Harvard Business Review’s **Clusters and the New Economics of Competition**, “Rivals compete intensely to win and retain customers. Without vigorous competition, a cluster will fail. Yet there is also cooperation, much of it vertical, involving companies in related industries and local institutions. Competition can coexist with cooperation because they occur on different dimensions and among different players.”



CLOSER TO HOME:

The Importance of Ohio's Polymer Cluster

Ohio is the home to the most significant Polymer industry cluster in America. Data from U.S. Cluster Mapping² confirms Ohio's cluster strength through several parameters including employment data. In the industry's three major segments, Ohio leads the nation in employment in rubber and coating and is edged out slightly by Texas in plastics. JobsOhio refers to Ohio as a "Polymer Powerhouse." Here are a few reasons why:



#1

With 2,400 polymer related companies, Ohio ranks 1st in the U.S. for polymers



Ohio is home to seven world headquarters of Fortune 1,000 polymer operations



Ohio polymer companies generate \$5 billion dollars' worth of annual production



Ohio companies make up over 8% of all U.S. polymer industry jobs

In addition, Ohio's university system offers several polymer related programs and produces top-notch talent. In particular, the University of Akron's College of Polymer Science and Polymer Engineering is recognized globally and ranked in the top-five U.S. graduate programs. Ohio's programs include:

- Bowling Green State University Center for Photochemical Sciences
- Case Western Reserve University Department of Macromolecular Science and Engineering
- Kent State Liquid Crystal Institute & Chemical Physics & Interdisciplinary Program
- Shawnee State Plastics Engineering Technology
- The Ohio State University Center for Advanced Polymer and Composite Engineering
- University of Dayton Research Institute
- University of Toledo Polymer Institute
- University of Akron College of Polymer Science and Polymer Engineering

"OHIO'S POLYMER INDUSTRY IS SUPPORTED BY A WORLD-CLASS SUPPLY CHAIN OF ACADEMIC AND TECHNICAL INSTITUTIONS, DESIGNERS AND MATERIALS SUPPLIERS, MOLD BUILDERS, RESIN SUPPLIERS AND COMPOUNDERS, PLASTIC AND POLYMER PROCESSORS, INDUSTRY ASSOCIATIONS AND ECONOMIC DEVELOPMENT GROUPS."³ -JOBSoHIO

HOW DO YOU BENEFIT from belonging to Ohio's polymer cluster?

Ohio's concentration of specialized resources including universities for research and talent, supply chain proximity, close access to sources of innovation and technology and support from government and public sector programs leads to increased productivity, innovation and global competitive advantage.

NETWORKING

Close proximity strengthens social connections, which help move ideas through the cluster, thus increasing the level of local expertise. Clusters create the perfect environment to learn from and cooperate with other companies in the cluster. The most effective avenue to leverage this powerful network is to engage in local meetings and events, especially those that have a cross section of polymer industry participants—from industry segments of plastics to coating to elastomers - and in scale ranging from Fortune 500 companies to entrepreneurs. While national or international events may draw a larger audience, local events cement relationships with more diverse and potentially more valuable collaborators to accelerate your growth.

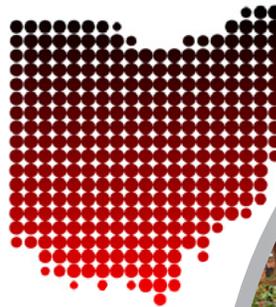
KNOWLEDGE

In today's knowledge economy, access to ideas and talent provides a significant competitive advantage. For example, the largest university-based polymer research effort is right here in Ohio at the University of Akron. The National Polymer Innovation Center on campus takes new polymers created in labs across campus and studies how to use them in real world manufacturing. In addition, the center gives companies the opportunity to test new product production processes before entering into full-scale production.

While there may be an abundance of resources and innovation within the academic system, finding the path to those opportunities is not easy, particularly for small and medium sized companies. In Ohio, the Edison Centers were created in 1980 to aid in the introduction of technology and support collaborative efforts between industry and the academic world. PolymerOhio is the Edison center for Polymers and Advanced Material in Ohio with a mission to accelerate growth, competitiveness and innovation of the polymer industry.

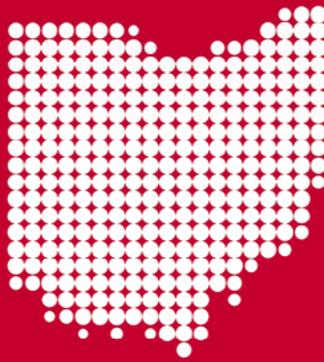
CAPITAL AND GOVERNMENT SUPPORT

Clusters also lead to the development of an infrastructure of professional, legal, financial and other services that serve the industry which allows tasks such as financing, permitting, and environmental compliance to be accomplished more efficiently. As the cluster grows, funding and support become more plentiful and easier to access from private investment firms and the state of Ohio. JobsOhio recognizes petrochemicals and plastics as key growth segments for the state providing resources throughout the economic development infrastructure. Through state technology acceleration grants, PolymerOhio has access to funding that supports innovation and growth in the industry.



SUMMARY

The Ohio polymer cluster offers members close proximity to suppliers and buyers, a shared labor pool, and access to technologies that enhance innovation. By working together, companies can speed up the movement of ideas and information throughout the cluster and improve the overall economic health of the cluster.



Top Ohio Polymer Companies³

Goodyear
Parker Hannifin
Sherwin-Williams
PolyOne
Schulman
Momentive Specialty Chemicals
Cooper Tire & Rubber
Owens-Corning
Potash Corp Harrison
Ashland

ABOUT POLYMEROHIO

PolymerOhio's mission is to accelerate growth, competitiveness and innovation in Ohio's polymer industry. We serve as a network hub for a broad range of industry participants beyond manufacturers and suppliers, including universities, technical institutions, government agencies and economic development organizations. We are a resource, connector, innovation champion and collaboration builder for Ohio's polymer industry.

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EXTENSION PARTNERSHIP
NATIONAL INSTITUTE OF
STANDARDS AND TECHNOLOGY

References:

- ¹Clusters and the New Economics of Competition – M Porter HBR Nov-Dec 1998
²<http://clustermapping.us>
³<http://jobs-ohio.com/polymers/>
⁴<http://www.ncbi.nlm.nih.gov/books/NBK100322/>
⁵http://www.isc.hbs.edu/Documents/pdf/DPS_Clusters_Performance_2011-0311.pdf

(Endnotes)

- 1 <https://hbr.org/1998/11/clusters-and-the-new-economics-of-competition>