

# **Ohio Manufacturing As An Innovation Platform**

**Building The Ohio Innovation Economy  
Cleveland  
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## Roadmap:

1. The remarkable economic activity driven by Ohio manufacturing: industrial depth to support innovation.
2. The surprising variety of products that Ohio leads the nation in the manufacture of: industrial breadth to support innovation.
3. The necessary condition for innovation: low-cost operating environment.
4. Under development in Ohio: an open innovation test bed designed to link manufacturers, universities, federal labs...



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# Ohio Manufacturing's Economic Activity

- Manufacturing accounts for **18% of Ohio's Gross Domestic Product** –
- Nearly double the contribution of the next largest private-industry sector (real estate, rental and leasing at 9.9%).



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Ohio's **total annual manufacturing output of \$84.1 billion** in 2008 ranked third nationally –

and was **\$37 billion higher than the next largest non-government sector** of the state's economy.



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More than 600,000 Ohioans –  
or about **14 percent of all Ohio workers** –  
are employed in manufacturing,  
which makes manufacturing Ohio's **number-one source of  
non-government jobs**.



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**Total manufacturing payroll in Ohio exceeded \$38 billion in 2008,**

the highest total annual wages of any economic sector, public or private.

Government = \$33 billion

Health care and social assistance = \$27 billion

Retail trade = \$14 billion



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In 2009, Ohio was the **seventh-largest exporting state** in the nation,  
exporting more than \$34 billion in goods  
to 213 countries and territories.



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# The Economic Point

- Ohio has the economic depth in its manufacturing base necessary to support innovation broadly.
- That base includes its knowledge, skills and experience, most importantly.



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# The Breadth of Ohio's Industrial Capacities

Ohio ranks **first, second or third** among U.S. manufacturers in 84 different North American Industry Classification System (NAICS) categories of manufacturing.



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## #1 in:

Wood products

Adhesives

Plastic bottles

Refractory goods

Rolling and drawing steel

Nonaluminum foundries

Paint and coatings

Resins

Rubber products

Pressed and blown glass

Ferrous metal foundries

Custom roll forming



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## And also #1 in:

Hand tool and saw blade

Bearings

Plastic and rubber machinery

Rolling mill machinery

Wood kitchen cabinets

Heat treating

Ordnance

Machine tools

Heavy duty trucks

Brooms, brushes and mops



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## And, #2 or #3 in:

Dog and cat food

Cookies, crackers and pasta

Fabric coating mills

Paperboard container

Asphalt shingles

Inorganic chemicals

Laminated plastic sheets

China and pottery

Frozen food

Seasonings and dressings

Wood containers

Coated paper

Synthetic dye

Un-laminated plastic sheets

Plastics products

Ceramic tile



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## #2 or #3 more:

Structural clay products

Iron and steel mills

Nonferrous metal foundries

Metal stamping

Architectural metal work

Metal cans

Springs and wire products

Precision turned products

Lime

Iron and steel pipe

Forgings

Cutlery, pots and pans

Metal tanks

Hardware

Machine shops

Valves and fittings



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## #2 or #3 more:

Small arms ammunition

Lawn and garden equipment

Industrial molds

Cutting tools

Mechanical power transmission

Fluid power equipment

Fluid meters

Gasoline engines and parts

Fabricated metal products

Ventilation equipment

Special tools, dies and jigs

Metalworking machinery

Packaging machinery

General purpose machinery

Industrial controls

Steering and suspension systems



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## #2 or #3 continued:

Brake systems

Seating and interior trim

Vehicle air-conditioning

Architectural millwork

Dolls, toys and games

Transmissions and power trains

Vehicle stampings

Vehicle parts

Laboratory apparatuses

Burial caskets



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# The Industrial Point

- Ohio has a great breadth of product, and process, capabilities to nurture innovation.



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# The Necessary Condition: Low-Cost Environment

Manufacturing locates where “all-in” costs are lowest

And, government has leverage with lots of cost drivers.



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## **Labor**

A skilled workforce is key to manufacturing productivity and competitiveness.

Government is largely responsible for providing education - from pre-school through high school and a range of postsecondary, technical and career training options.



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## Technology and business practices

Government plays an important role in determining technology and business practice costs by the extent to which it:

- supports research,
- protects intellectual property and
- creates an environment that facilitates technology commercialization.



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# Equipment

Manufacturers' equipment costs are affected by the cost and availability of capital, which in turn are determined by how government regulates the flow of credit.



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## Location

Government establishes zoning, regulatory and environmental rules that affect manufacturing investments.

Local and state government incentives also impact a location's desirability.



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# Transportation

Much of the transportation infrastructure is publicly held – and all of it, private and public, is regulated by government.



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# Energy

Government drives energy markets and prices by regulating access to energy resources, by regulating energy facility siting, by regulating energy prices, by energy taxation policies ...



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# Environmental Regulations

Government drives costs of manufacturing through increasingly tighter regulation of environmental emissions and requirements for more and more costly environmental controls.



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## Access to markets

Government plays a number of roles in facilitating access to markets through negotiating and enforcing trade agreements, promoting exports and preventing imports from unfairly competing in domestic markets.



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## Taxation

Government taxation is a major cost driver for manufacturers. Imbalance with competing nations' policies creates competitive disadvantage for U.S. manufacturers.



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# Innovation Job #1 for Government:

Use the levers to drive down “all-in” costs!

Freeing up capacity for innovation.



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## A Quick Preview:

The “Ohio Manufacturing Network of Innovation”

A prototype platform to enable greater collaboration and engagement between Ohio’s businesses, research universities, and technology-based economic development organizations

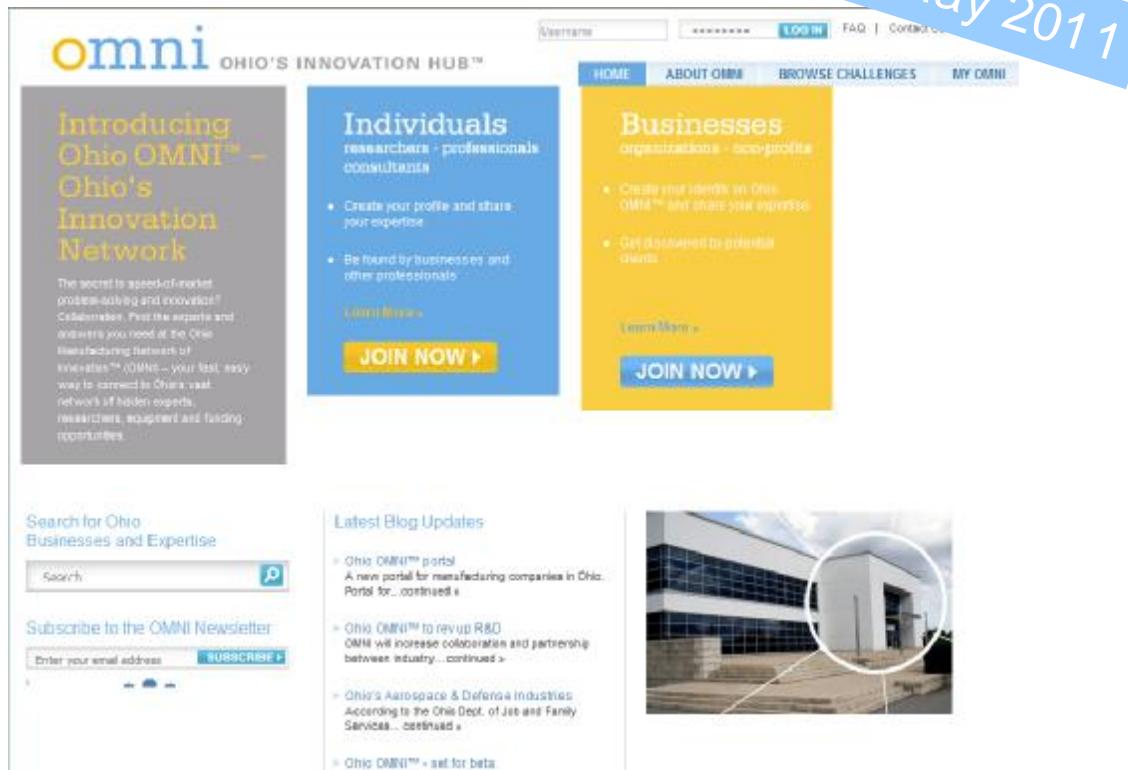


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Introducing Ohio's Newest Innovation Tool.. Ohio OMNI  
An on-line resource that connects you to thousands of fellow  
innovators...

Launching May 2011



The screenshot shows the homepage of the Ohio OMNI website. At the top, there is a navigation bar with 'Username' and 'PASSWORD' fields, a 'LOG IN' button, and links for 'FAQ | Contact Us'. Below the navigation bar, there are four main sections: 'HOME', 'ABOUT OMNI', 'BROWSE CHALLENGES', and 'MY OMNI'. The 'HOME' section features a large image of a modern building with a circular inset showing a close-up of the entrance. The 'ABOUT OMNI' section has a blue background and text about the network. The 'BROWSE CHALLENGES' section has a yellow background and text about businesses. The 'MY OMNI' section has a grey background and text about individuals. Each section has a 'JOIN NOW' button. At the bottom of the page, there are sections for 'Search for Ohio Businesses and Expertise' with a search bar, 'Subscribe to the OMNI Newsletter' with a subscribe button, and 'Latest Blog Updates' with a list of four recent posts.



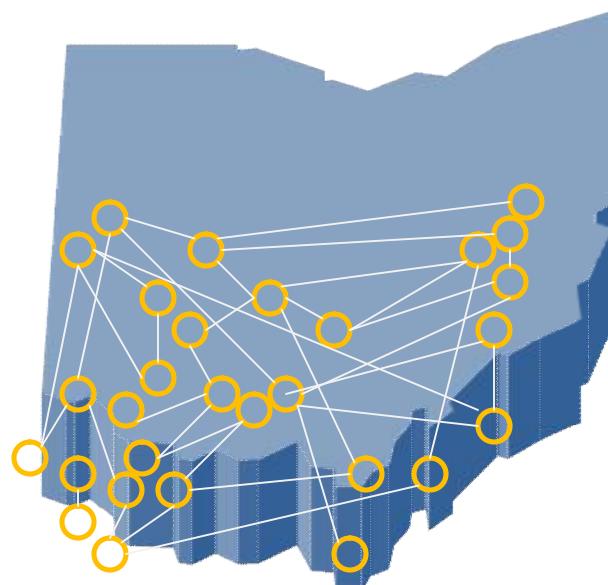
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Ohio OMNI is a fast, easy way to connect to Ohio's vast network of hidden experts, researchers, equipment, and funding opportunities.

*Ohio OMNI enables users to...*

- § Showcase your areas of expertise and interests
- § Quickly identify, qualify, and contact “best in class” technical experts most relevant to you
- § Find untapped resources to quickly resolve technical problems/“Challenges”
- § Create “spaces” to easily collaborate and share data
- § Find financial assistance programs and testing resources/labs



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## What makes Ohio OMNI unique?

§ Already have interest and support from many of Ohio's largest innovators and researchers including...

TechSolve



§ Ohio OMNI's search capabilities are superior to standard internet search functions. Ohio OMNI is built on a proprietary technology that was designed to make "best" connections.

§ Ohio OMNI can link with your Linked-In or facebook page for automatic updates in your areas of expertise and interests.



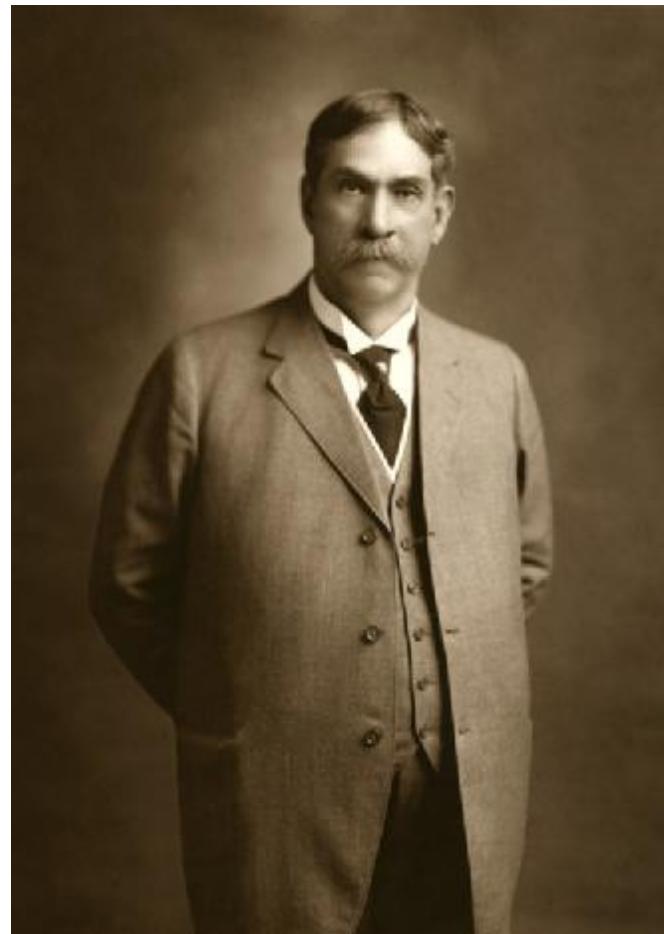
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OMA Founder, Col. John Gordon Battelle



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