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# INTRODUCTION

# MICHIGAN: THE NATION'S LEADER IN HIGH-TECH R&D

## Overall, R&D is a major industry in Michigan.

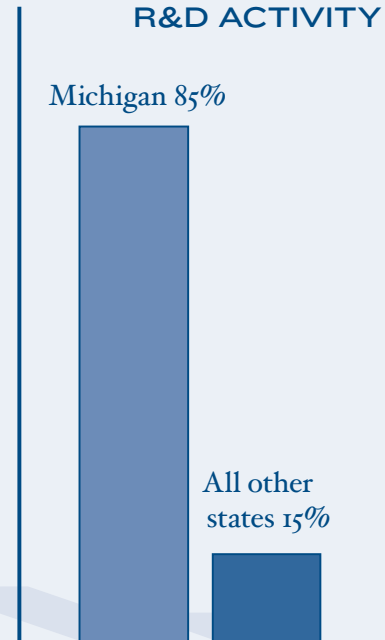
- #1 state for vehicle-related R&D activity, spending \$13.5 billion and employing 65,000<sup>1</sup>
- #1 state in industrial R&D intensity: ratio of R&D dollars to Gross State Product<sup>1</sup>
- #1 state in per capita R&D investment<sup>2</sup>
- The University of Michigan #1 public university for R&D spending 1991–2000.<sup>1</sup>
- #4 overall in high-tech employment, more than 531,000<sup>3</sup>
- #2 State for total R&D investment—\$18.8 billion in 2000<sup>1</sup>

1. In 2000, the most recent year for which full information is available (National Science Foundation)

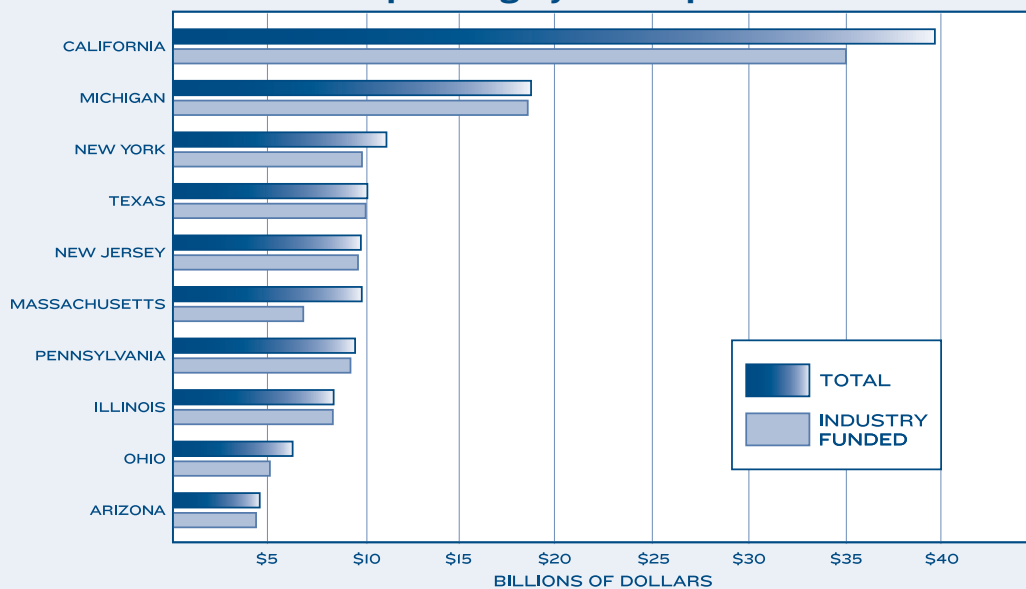
2. U.S. Census Bureau, *Statistical Abstract of the US*, 1999

3. Altarum Institute, Center for Automotive Research, 2002

### VEHICLE-RELATED R&D ACTIVITY



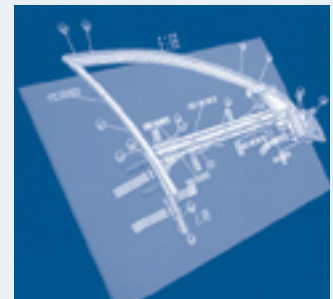
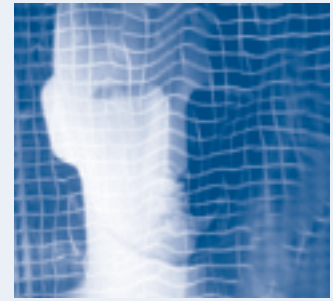
### Total R&D Spending by the Top Ten States in 1999



# Crossover R&D

Industry-related R&D starts with the search for product improvement. But it does not end there. Innovations in the automotive manufacturing process are crossing over into other industries. Those solutions morph into new processes, in turn migrating to other sectors with unforeseen and often surprising results. There are no limits to potential applications.

- Consider the 3-D CAT scan technology developed by Ford Motor scientists for nondestructive evaluation of auto parts. It has evolved into the scanners now used in diagnosis by hospitals.
- CAD, CAM and CAE introduced new efficiencies into the engineering of auto components and systems. They have become indispensable tools for all manner of design and modeling disciplines, among them architectural design and molecular research.
- Just-in-time inventory control, logistics and quality management all started as solutions to specific auto-assembly problems. They have evolved to become the science of logistics and supply-chain management, with applications in every industry and in every country.
- QQC is a small Dearborn-based company specializing in lasers. It has licensed laser technology to auto supply giant Visteon for diamond-hardening applications. The same technology is being used by Boeing for aircraft tools, and has been adapted for use in arthroscopy surgical instrument equipment by Linvatec and in ophthalmology by Alcon Laboratories.
- Or take POM Group, the Auburn Hills-based prototyper for the automakers. Its direct metal deposition process is a major advance in metalworking with applications in aerospace and defense, electronics, consumer products and health care.



# Directory of R&D Facilities in Michigan

This is the first directory of vehicle-related R&D facilities published in Michigan, and in fact the only one of its kind in the nation. It lists 135 companies that have facilities located in the state devoted to basic or applied vehicle-related research, engineering, testing and/or product development. They range from multi-national, multi-industry conglomerates to one-shop, homegrown enterprises.

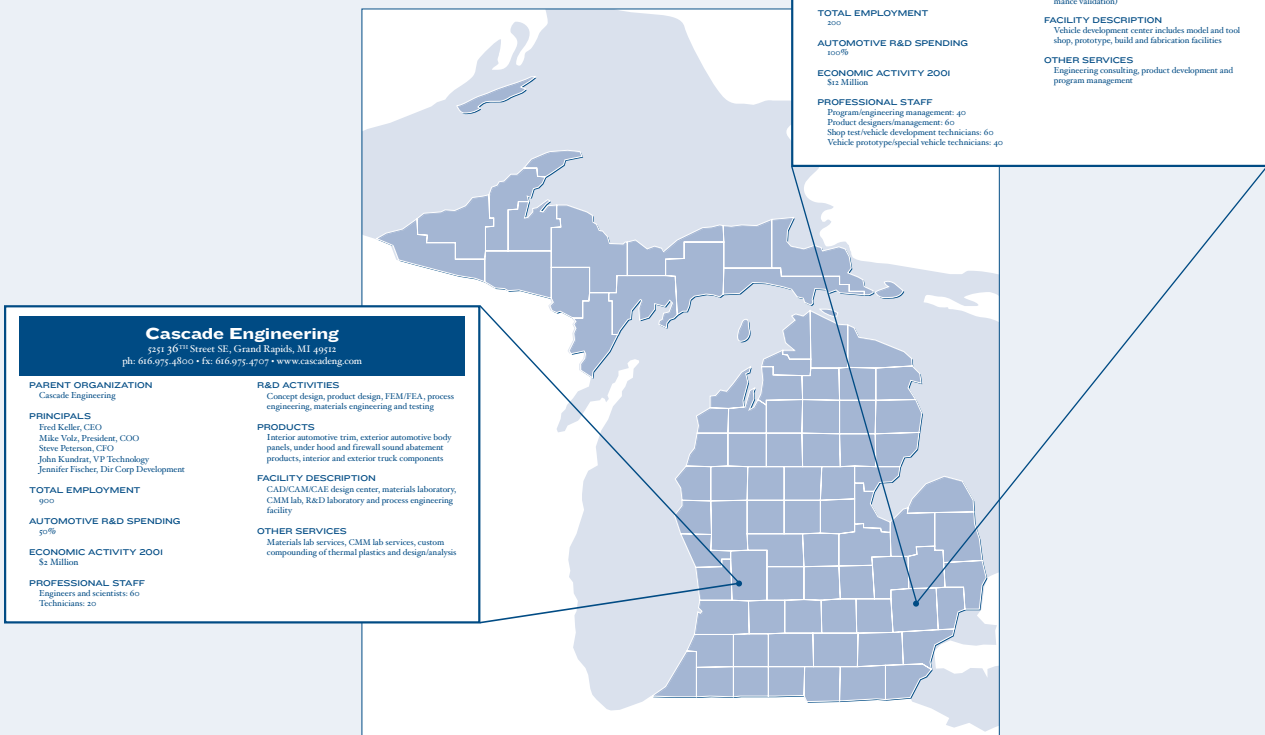
## How to Use This Directory

This directory is available in an online version at MEDC and CAR Web sites. The online version is searchable by category and will be updated frequently.

Following the alphabetic company information section in this directory are a number of indexes. The indexes are grouped by: company location, vehicle components/specialities, company activities and special services. After finding a company name in one of these indexes, turn to the main alphabetic section for further information regarding that company.

Information in the listings include:

- Name, address, phone numbers and Web site of research facilities
- Parent organization
- Principal executives at the facility
- Employment and make-up by degree and specialty
- Description of R&D activities
- Description of the facility
- Services offered by the facility



**Cascade Engineering**  
 2531 36<sup>th</sup> Street SE, Grand Rapids, MI 49512  
 ph: 616.975.4800 • fx: 616.975.4707 • www.cascadeeng.com

<b>PARENT ORGANIZATION</b> Cascade Engineering	<b>R&amp;D ACTIVITIES</b> Concept design, product design, FEM/FEA, process engineering, materials engineering and testing
<b>PRINCIPALS</b> Fred Keller, CEO Mike Velez, President, COO Steve Peterson, CFO John Kundrat, VP Technology Jennifer Fischer, Dir Corp Development	<b>PRODUCTS</b> Interior automotive trim, exterior automotive body panels, under hood and firewall sound abatement products, interior and exterior truck components
<b>TOTAL EMPLOYMENT</b> 900	<b>FACILITY DESCRIPTION</b> CAD/CAM/CAE design center, materials laboratory, CMM lab, R&D laboratory and process engineering facility
<b>AUTOMOTIVE R&amp;D SPENDING</b> 30%	<b>OTHER SERVICES</b> Materials lab services, CMM lab services, custom compounding of thermal plastics and design/analysis
<b>ECONOMIC ACTIVITY 2001</b> 32 Million	
<b>PROFESSIONAL STAFF</b> Engineers and scientists: 60 Technicians: 20	

**MSX**  
**Vehicle Development and Engineering Center**  
 275 Rex Boulevard, Auburn Hills, MI 48316  
 ph: 248.299.1000 • www.msxi.com

<b>PARENT ORGANIZATION</b> MSX International, Inc	<b>R&amp;D ACTIVITIES</b> Full vehicle product development; concepts through prototype and validation
<b>PRINCIPALS</b> Mike Preiner, Sr VP Engineering Gerry Bryce, VP Product Engineering Mike Evans, Dir Shops, Vehicle Services	<b>PRODUCTS</b> Vehicle body and chassis development services (engineering, supporting system and vehicle performance validation)
<b>TOTAL EMPLOYMENT</b> 200	<b>FACILITY DESCRIPTION</b> Vehicle development center includes model and tool shop, prototype, build and fabrication facilities
<b>AUTOMOTIVE R&amp;D SPENDING</b> 100%	<b>OTHER SERVICES</b> Engineering consulting, product development and program management
<b>ECONOMIC ACTIVITY 2001</b> 522 Million	
<b>PROFESSIONAL STAFF</b> Program engineering management: 40 Product designers/management: 60 Shop test/vehicle development technicians: 60 Vehicle prototype/special vehicle technicians: 40	