

CHAPTER 4

Innovation Resources: Research & Development

Innovation is a process of continuously generating and applying new ideas. Much of the value-added in the new economy is the result of technology innovation and the commercialization of these technology-based products, processes and services. States and regions that seek to build or enhance competitive businesses and workforce require resources that nurture innovation, especially technology innovation.

Overall, Michigan is strong in industry and university R&D, sponsored research at universities and state cooperative technology funding. However, there are a few areas where Michigan could improve and expand its innovation resources, including the consideration of a state R&D tax credit, and increasing university commercialization activity.

Michigan's universities are less aggressive in creating private spin-off companies to commercialize technology inventions. In 1999, only four university spin-offs were created, placing Michigan among the bottom three states

in the benchmarking group. This suggests that Michigan's universities could be more aggressive in creating private spin-off companies that would give them more control, and perhaps higher economic payoffs, on their technology innovations. Indeed, efforts in that direction have been revealed in the most recent data on university spin-off (from the Association of University Technology Managers), which indicates that university start-ups in Michigan doubled from 1999 to 2000.

Coupled with these weaknesses is the lack of seed stage venture capital in a state with such strong industry and university R&D. This is the classic chicken and egg scenario; the question is what comes first. If Michigan had more seed stage venture capital activity, would there be more technology commercialization; or if there were more commercialization activities, would there be more venture capital. Whatever the case, Michigan needs to increase the amount of technology commercialization.

RESEARCH & DEVELOPMENT

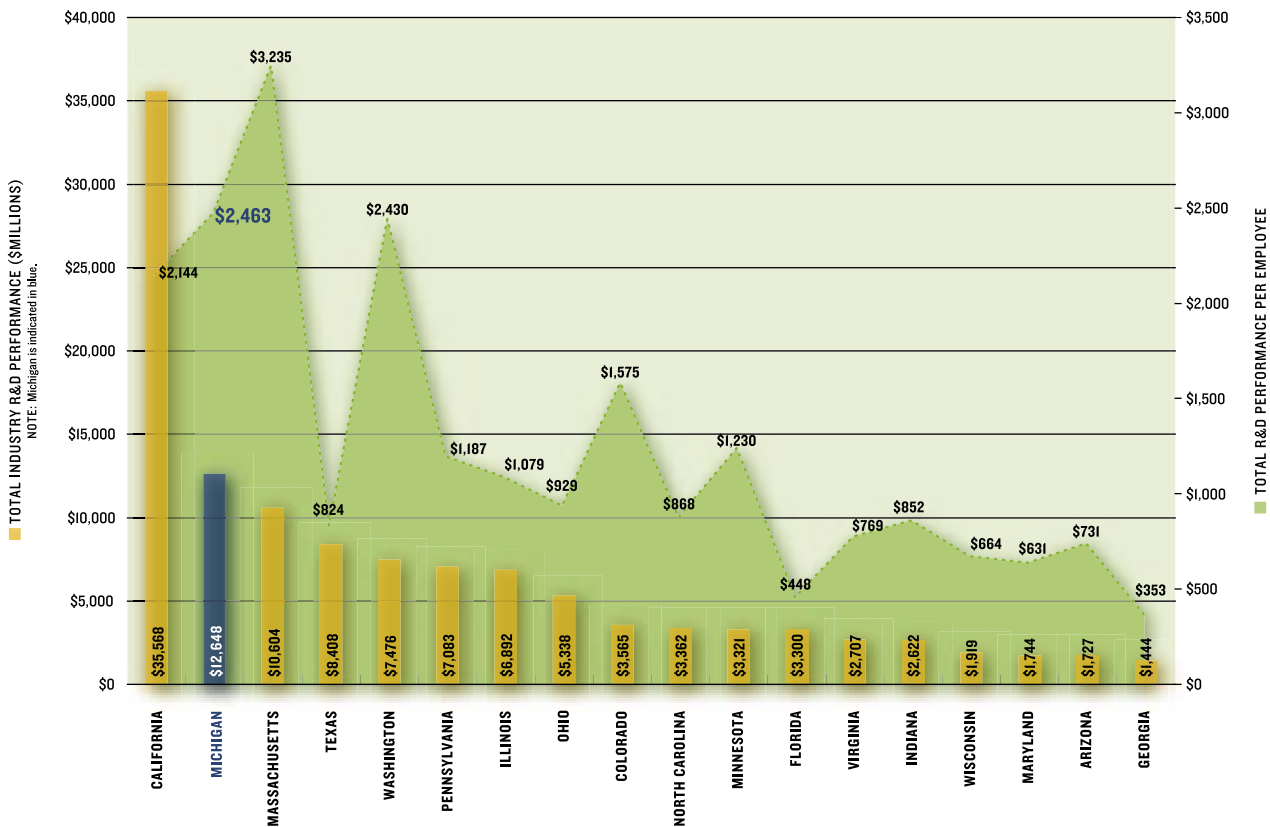
Michigan is highly competitive in industry R&D performance, with its industries spending \$12.6 billion on R&D in 1998, ranking behind only California. Michigan's superior industry R&D performance clearly indicates the confidence of its firms and their investment in their businesses' future. While much of this activity is concentrated in the automotive sector, the knowledge and innovation generated from this R&D investment should help Michigan firms gain and maintain leadership positions in their sectors well into the future.

While Michigan is strong in industry and university R&D, sponsored research at universities, and state cooperative technology funding, there are a few areas where Michigan could enhance innovation and R&D growth within the state.

An important finding in R&D support is that the majority (14) of Michigan's competitors offer some type of state R&D tax credits, while Michigan does not. Not surprisingly, California and Massachusetts incur the highest amount of foregone revenues on R&D tax credits, with the dominance of high-tech firms in those states.

TOTAL R&D PERFORMANCE IN INDUSTRY

1998



SOURCE: NATIONAL SCIENCE FOUNDATION

RECOMMENDATIONS

- Fund the Michigan Entrepreneurship Education Network (MEEN). This network will establish a permanent statewide network to develop and support entrepreneurial education.
 - The Network should focus on developing formal entrepreneurial curricula to support and encourage entrepreneurial education and awareness.
 - MEEN should also identify additional stakeholders and funding sources to assist in the development of the infrastructure needed to support entrepreneurial education, networking and collaboration.
- Continue to support the Business Accelerators at the Michigan SmartZonesSM in order to provide a comprehensive set of services designed to assist companies through the start-up phase of establishing a business presence in the relevant area.
- Encourage universities to establish start-ups and license technology to Michigan companies, possibly through:
 - Establishment of economic development offices within the universities and/or the development of a stand-alone, non-profit University Economic Development Center.
 - Establishment of a series of efforts to commercialize products developed within universities, for example grant programs that fund commercialization activities or a product competition, similar to the Great Lakes Venture Quest (GLVQ), that awards money for the successful commercialization of a university technology.
 - Increase industry-university partnerships through development of tax incentives and rebate programs for companies that partner with universities, incentives for donating patents and/or technologies and programs to educate faculty members on how to commercialize products or concepts.
 - Develop a B2B exchange database system that matches commercial technologies at universities to appropriate companies for licensing or launching a start-up.
- Strengthen MEDC collaboration with Small Business Development Centers (SBDC) to assist entrepreneurs and start-up companies by providing training in areas including technical certification, business planning, financing options and grant writing.

- Evaluate the potential impact of R&D Tax Credit to encourage R&D investment in Michigan. The analysis should consider a tax credit that benefits a range of business sizes as well as emerging businesses. Potential provisions could include:
 - A pre-profit tax credit for smaller firms, suppliers, and start-ups;
 - Tax credits for corporations who license technology from universities;
 - Tax credits for corporations who spin-out companies in Michigan;
 - University incentives to encourage universities to commercialize their technologies.
- Review the MEGA high-tech tax credit and determine if it could be revised to encourage additional R&D investments in Michigan.
 - At present, to be eligible, a company must meet the requirements of the high-tech definition and 25% of their operating expenses must be dedicated to R&D. Revise to allow companies to be eligible if they fulfill either of the requirements.
 - A company's entire operations must fulfill the requirements of the tax credit to be eligible. To encourage additional investment, this could be broadened to allow subunits of a company (division/branch) to obtain eligibility.