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Michigan's Place in the Knowledge Economy

Rex L. LaMore, Ph.D., Director, MSU Community and Economic Development Program; Ken Corey, Ph.D., Faron Supanich-Goldner, John Melcher, and Mark Wilson, Ph.D.

What has Changed?

We all know that the global economy is changing and that Michigan's economy is undergoing a particularly painful transition. While trying to address the short-term consequences of this economic dislocation, Michigan must also look ahead and begin planning for a better tomorrow. Understanding where we currently stand in the knowledge-based economy is the first step in developing strategies to compete in this new arena.

In the new economy, knowledge and information drive economic growth, competition is increasingly intense, and occupations and industries shift rapidly in response to changing conditions. In this environment, traditional techniques and tools for economic development are no longer adequate.

In the new economy, knowledge and information drive economic growth

What is the Knowledge Economy?

There are many definitions of this phenomenon. In our work we used two defining characteristics:

- It applies new methods or new technologies to the production and distribution of goods and services

- It is characterized by "H3" jobs: high growth, high wage, and high skill

Although manufacturing is clearly knowledge based, it is not typically considered part of the knowledge economy principally because in Michigan and the U.S, manufacturing jobs are declining as a proportion of total employment (i.e., it is not high growth).

Knowledge occupations, for example, often include jobs involved with:

- Computers and mathematics
- Life, physical, and social sciences
- Education, training, and libraries
- Management
- Architecture and engineering

Wages in these job sectors are considerably higher than in other occupations. In Michigan the average wage in Knowledge Economy jobs is $61,158 compared to $33, 141 in all other occupations. Michigan also lags in growth in knowledge economy jobs; the Michigan growth rate is 13.1% compared to 21% in the nation as a whole [1].

How does Michigan Compare with Other States?

Based on an analysis by the Progressive Policy Institute, Michigan is in the middle of the pack, ranking 23rd of 50 states.

Based on an analysis by the Progressive Policy Institute, Michigan is in the middle of the pack, ranking 23rd of 50 states. Midwest leaders are Minnesota and Illinois, with Michigan, Ohio, Indiana, and Wisconsin lagging behind [2].

What is the Knowledge Economy Capacity of Michigan's Local Communities?

The research that my colleagues and I conducted ranked Michigan's counties on 16 indicators of the Knowledge Economy and metropolitan areas on 14 indicators. These rankings are just a snapshot in time and do not represent progress that communities may be making. The analysis is intended to help planners develop timely strategic actions to increase capacity over time.

The county indicators fall into five categories:

- **Knowledge Jobs —** Knowledge jobs are the drivers of the global knowledge economy. The indicators track the proportions of the workforce in information technology and computer jobs or in managerial and professional occupations, and the general knowledge level of the workforce.

- **Innovation** – These indicators attempt to measure the capacity of communities to transform new ideas into firms and jobs. They include the proportion of the workforce who are engineers or engaged in certain high tech and biotech businesses, the presence of venture capital firms, and patent activity.

- **Digital Economy —** The Knowledge Economy relies on a rapid global communications network. For Michigan we measured this category using the number of residents who use the Internet frequently, the percent of local governments who have Websites, and projected cable modem access. **Michigan lacks information about the capacity of the digital economy, which is a matter of concern.**

Table 1.
Michigan County Rankings on
Knowledge Economy Indicators
(Each category indicates only top 5 counties)

| County	Overall	Knowledge Jobs	Innovation	Digital Economy	Globalization	Dynamism
Oakland	x	x	x		x	
Washtenaw	x	x	x		x	
Ingham	x	x	x			
Kent	x			x	x	
Ottawa	x			x		
Kalamazoo		x				
Leelanau		x				
Midland			x			
Houghton			x			
Bay				x		
Eaton						
Calhoun						
Wayne					x	
Macomb					x	
Clare						x
Lake						x
Crawford						x
Barrie						x
Benzie						x
Allegan				x		
Muskegon				x		

- **Globalization —** The ability to export to foreign markets is a requirement for economic growth. Indicators in this area included the number of firms with foreign parents and the number of firms engaged in production export.

- **Dynamism/Creative Community Capacity —** The ability to adapt quickly to a changing environment is often evidenced by "churn" in the workforce as new jobs replace old jobs in the economy. This factor includes indicators of change in the percent of the workforce in various sectors of the economy. While some change involves loss of jobs, it is a characteristic of the knowledge economy. This category in future analyses may also measure our individual and community "inventive" capacity [3].

Who are the Leaders in Michigan's Knowledge Economy?

In our research we assessed the capacity of each county [4] and eight metropolitan areas [5] for each of the Knowledge Economy Indicators. For complete descriptions of each, consult our full reports available on our Website at **www.cedp.msu.edu**.

Table 1 shows the top five ranking counties overall and in each category. As you can see, no one county ranks at the top in every category, and so no county can afford to "rest on its laurels." One pattern is worth noting. The Detroit metropolitan area is our critical link to the global economy, as Oakland and Wayne Counties account for nearly half of the 3450 exporting firms in Michigan. Think of it as our "front door" to the world. Metropolitan areas also tend to be above the state average in the proportion of the workforce in information technology jobs and numbers of professional engineers.

Figure 1.
Innovation-Commercialization Continuum

The Innovation-Commercialization Continuum

Conception   -   Invention   -   Prototype   -   Commercialization
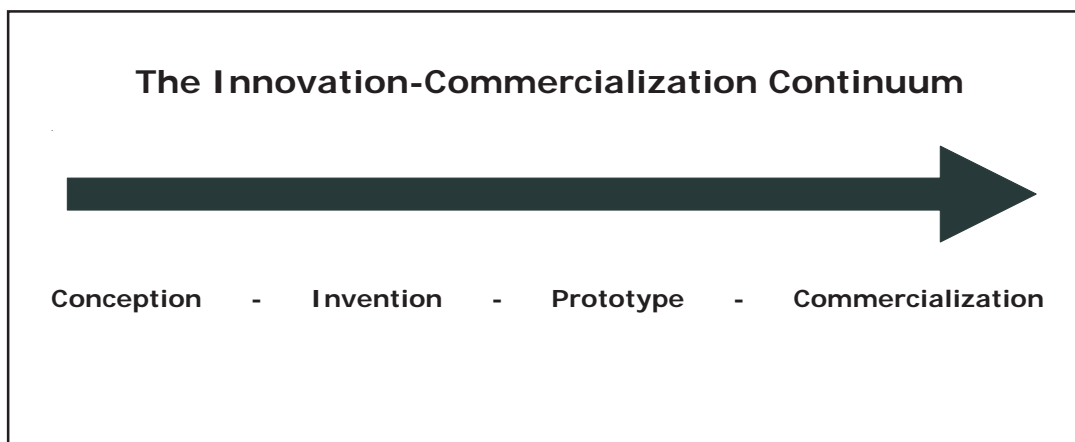
What can Counties do to Increase their Knowledge Economy Capacity?

The capacity of communities to support and nurture creativity and to bring these innovations to the marketplace may determine our state's future economic success. The inventive process in the production of goods and services generally moves along a continuum from conception through invention to prototype to commercialization (see Figure 1). Elements of this process seem to occur most frequently in specific locations. Conception and innovation tend to concentrate in areas where there are networks and institutions that support and bring together inventive and creative people, such as universities and research laboratories. The development of prototypes, while still requiring connection to the creative center, can move further from that environment. Commercialization – that is, the routine production of a service or product – can potentially go global. It is in the commercialization process that communities throughout Michigan can potentially benefit from strategic investment in the Knowledge Economy.

It is in the commercialization process that communities throughout Michigan can potentially benefit from strategic investment in the Knowledge Economy.

How can State Policymakers Support the Development of Michigan's Knowledge Economy Capacity?

Although much of the development of our Knowledge Economy Capacity will occur at the local level, there are policy options that states can implement to support local efforts. Michigan recently funded a 21st Century Jobs Fund to promote entrepreneurship of this type.

As an independent validation of this knowledge economy analysis, we recently compared the Rank by County to the number of proposals submitted to the 21st Century Jobs Fund. The top 5 counties to submit were Washtenaw, (141), Ingham (88), Wayne (69), Oakland (54), Kalamazoo (33). All of these counties were identified in our ranking as being Leaders in the Knowledge Economy Index.

Policy Alternatives

Here are some additional thoughts about state policies that can promote local capacity-building.

- **Provide for educational opportunities across the life span of the workforce.** In the Knowledge Economy, an educated citizenry is critical to success. If the state does not get "smarter" it will get poorer. In Michigan communities facing severe short-term hardships, there is a growing income and well-being gap between those in the knowledge economy and those left behind. To reduce economic disparities and prepare Michigan's workers for the new economy, Michigan should provide equal access to quality early childhood and K-12 education, career development, higher education and retraining programs.

If the state does not get "smarter" it will get poorer.

The information infrastructure represents the waterways and roads of the 21st Century Knowledge Economy.

- **Map the state's Information Infrastructure.** The information infrastructure represents the waterways and roads of the 21st Century Knowledge Economy. Without maps created by the early explorers, our state would have been settled more slowly and this is the same situation we face today. Michigan should conduct a statewide assessment of the information infrastructure and make this information available to potential entrepreneurs and local economic developers.

- **Ensure that all citizens have equal access to the global communications network.** The state can provide support to local communities to offer non-formal adult education programs on the global communications network and make access more readily available to all.

- **Encourage local communities to engage in Knowledge Economy Planning.** Michigan could become the first state in the nation to require, as a condition for funding, that communities develop a local Knowledge Economy Plan. This plan would assess their current capacity in the knowledge economy indicators we have discussed and identify their short- and long-term priorities for improving local capacity.

For copies of the research reports on the Knowledge Economy in Michigan, visit our website at: **www.cedp.msu.edu.**