Human Capital and Brain Power in the Wisconsin Economy: Shaping the New Wisconsin Economy

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Introduction:

In 2002, the Wisconsin Technology Council first published *Vision 2020: A Model Wisconsin Economy. Vision 2020* lays out a vision for retooling the Wisconsin economy to make the state competitive in a rapidly changing global economy.

A section of the report entitled "The Road to Prosperity" provides an overview of the key factors that will drive the economic future of the state. Those factors include human capital/brain power, investment capital, knowledge and technology, and business entrepreneurship and networks. For each of these areas, *Vision 2020* provides the critical factors to measure and benchmarks for future years.

In this report, we review the critical factors and benchmarks related to human capital/brain power. These factors are benchmarked to the year 2002 when *Vision 2020* was published. To the extent possible, we provide data for 2004 and analysis on how Wisconsin is doing on building the human capital base necessary to be competitive in the New Economy.

Context for this Report:

The recession of 2001, the events of 9/11/2001, and a very slow economic recovery have had a major influence on employment levels in Wisconsin and the United States. Total U.S. employment did not return to the levels of 2001 until late in 2004.

Furthermore, a number of technology sectors were hit hard by the general economic conditions and the global competition and job outsourcing of technology jobs. For example, several of the states in New England experienced double digit losses in the number of information technology workers in the period from 2001-2004. Massachusetts and New Hampshire are prime examples.

Relative to the national data and various sections of the country, Wisconsin has maintained or gained knowledge workers in most sectors.

The Education Level of the Workforce:

According to the U.S. Census Bureau, in 2004 Wisconsin had about 3,540,000 residents 25 years of age or older, comprising 64.26 percent of the state's total estimated population of 5,509,026 people. Of that 3.54 million, 88.8 percent, or about 3,143,520 people, had earned a high school degree. Wisconsin ranked above the national average in high school graduates and the proportion of the age 25 or older population who are high school graduates continues to rise.

Table 1
Education Level of Persons 25 and Older in Wisconsin and the United States

		Population 25 Years or Older	High School Graduates or Higher	Associates Degree Holders	Bachelors Degree or Higher
2002	**WI**	3.48 Million	3.01 Million (86.6%)	.27 Million (7.9%)	.81 Million (23.2%)
	US	182.69 Million	150.97 Million (82.6%)	12.35 Million (6.8%)	47.37 Million (25.9%)
2003	**WI**	3.49 Million	3.04 Million (87.1%)	.29 Million (8.3%)	.83 Million (23.8%)
	US	184.40 Million	154.19 Million (83.6%)	12.89 Million (7.0%)	48.94 Million (26.5%)
2004	**WI**	3.54 Million	3.14 Million (88.8%)	No data available	.90 Million (25.6%)
	US	186.88 Million	159.13 Million (85.2%)	No data available	51.75 Million (27.7%)

Wisconsin also ranked above the national average in the proportion of its age 25 and older population that hold an associates degree. In 2003, the most recent year in which data was available, 8.3 percent of Wisconsin's age 25 and older population had earned an associates degree while 7 percent of the U.S. population had achieved that mark.

Wisconsin continues to trail the U.S in terms of college-educated in the workforce. In 2004, 25.6 percent, or about 906,240 Wisconsin residents had earned at least a bachelor's degree as compared to 27.7 percent of the U.S. population. Wisconsin has increased its college-educated percentage of the workforce in every year since 2000 but the rate of growth is not enough to close the gap with the national averages.

In its 2002 State New Economy Index, the Progressive Policy Institute ranked Wisconsin 25th in workforce education. The PPI ranking was based on 2001 Census Bureau data, and has not been updated since the 2002 State New Economy Index was published.

Knowledge and Creative Workers:

Vision 2020 reported on knowledge and creative workers who are a good indicator of economic growth. The report contained data on doctoral scientists and engineers and creative workers as represented by occupations in the arts, design, entertainment and media workers.

The Bureau of Labor Statistics has data available through 2003 by the North American Industrial Classification System (NAICS) code for many creative and knowledge workers categories in its quarterly Census of Employment and Wages.

Here are the figures for several key occupations:

Table 2
Knowledge and Creative Workers

Wisconsin	2002	2003	2004 (est.)
Specialized Design Services	1,231	1,284	no estimate available
Arts, Entertainment & Recreation	33,231	34,475	35,432
Information	51,123	49,873	50,110

According to the BLS data, Wisconsin employed approximately 34,475 workers in the field of Arts, Entertainment, and Recreation in 2004, an increase of 3.3 percent over the 2002 numbers. Arts, Entertainment & Recreation (NAICS code 71) includes a variety of occupations from performing arts to spectator sports to museums.

Specialized Design Services (NAICS code 5414) encompasses the following subcategories: Interior Design Services, Industrial Design Services, Graphic Design Services, and Other Specialized Design Services. This category of workers went up in 2003 versus 2002 but there is a small base number of these workers.

Information businesses (NAICS code 51) includes a wide range of media-related industries, including publishers of newspapers, periodicals, books, software, and greeting cards, the motion picture, music, and television industries, as well as broadcasting and telecommunications. Information worker numbers for Wisconsin fell about 2 percent in the period from 2002-2004 but this decline was less than the national average.

Cyberstates 2005, a publication of the American Electronics Association, reported 14,000 computer systems design and related services workers in Wisconsin in 2003, down 200 workers from 2002. The publication also notes a decline in telecommunications services workers from 14,700 in 2002 to 14,000 in 2003, and a decline in engineering services from 11,400 workers in 2003 to 10,800 in 2003. Overall, Wisconsin is ranked 21st in high-tech employment and 34th in average wages for high-tech positions. It is also noted that in Wisconsin, 33 of every 1000 private sector workers are employed by high-tech firms.

The National Science Foundation (NSF) compiles data regarding doctoral scientists and engineers. The most recent data from NSF is for the year 2001. In 2001, there were 542,940 doctoral scientists in the United States. Wisconsin, with 8,520 of them, ranked 23rd in the nation. In 2001, there were 112,760 doctoral engineers in the United States. Wisconsin ranked 22nd among the states, with 1,610. Adding these two numbers together results in 10,130 doctoral scientists and engineers, an increase over the 9,740 reported in the year 2000 in the *Vision 2020* report. Vision 2020 suggested a benchmark target of 10,000 doctoral scientists and engineers by 2005. If subsequent data from NSF verifies the 2001 data, we may be able to report significant progress on this indicator.

Hopeful Signs of Progress in Increasing the Number of Knowledge Workers:

Despite the difficult economic conditions, Wisconsin made significant progress in growing the number of knowledge workers in a number of key areas. Most of the areas are fairly small but they represent high growth areas that have a growing number of small firms.

Two sectors that are representative of the expansion of knowledge-related businesses are management and consulting services and scientific research and development services. Tables 3 and 4 show the number of employees, the number of establishments and the average annual wage for these two industries in Wisconsin.

Table 3
Management and Consulting Services in Wisconsin- NAICS 5416

Wisconsin	**2001**	**2002**	**2003**
Employees	7,398	7,847	7,947
Establishments	1,646	1,727	1,865
Average Annual Wage	$46,930	$49,476	$49,724

Table 4
Scientific Research and Development in Wisconsin- NAICS 5417

Wisconsin	**2001**	**2002**	**2003**
Employees	2928	2930	3272
Establishments	191	199	207
Average Annual Wage	$53,930	$51,794	$58,945

Given the difficult economic conditions in 2002 and 2003, the growth in these New Economy sectors is encouraging. The number of business establishments in each sector grew steadily as did the numbers of employees. Each of these sectors produces high-wage jobs that are 60-80 percent higher than Wisconsin's per capita income.

Summary and Conclusions:

In a difficult economic climate, Wisconsin has made progress in many areas. The encouraging signs in the data for 2003 and 2004 data need to continue in order for the state to grow its per capita income to the national average. State incentives passed in the 2003-2005 state budget may be timely in further encouraging the growth in high-wage jobs.

Despite signs of progress, the state must concentrate on the education level of its workforce. Below average numbers of college graduates is an area of concern. One only has to look to neighboring Minnesota to find a state that has 20 percent more colleges graduates in its workforce and per capita income that is nearly $4,000 higher. That economic equation is compelling and should provide a clear path for Wisconsin's future actions.

For questions about the report, please contact:

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