

BUILDING THE REGION'S KNOWLEDGE BASED INDUSTRY CLUSTERS

Using Industry Clusters as a Base for Devising Economic Development Initiatives is a Logical Approach to Build Our Region's Economy.

This report is designed around the premise that the way to build our regional economy is to concentrate our efforts on firms that primarily make things and who import a significant amount of their income from outside the region. This report also focuses on our existing industrial base and categorizes approximately 600 industries into 13 SIC Code industry clusters to get a better understanding of our regional economic base. Developing economic development initiatives such as: business financing, making infrastructure improvements, providing workforce training programs and providing technology assistance etc. that benefit a given cluster of industries that are integral to our region's economy or show an assimilated fit for growth are initiatives that will provide a greater return in the form of good jobs, sales, income, and tax base than initiatives that neglect or give less weight to the economic base of our region. It is this logical concept of building on our existing industry assets and strengths that this report is premised.

We Have Divided Our Region's Industries Into Thirteen Separate Industry Clusters

The Region's 13 industry clusters were defined by grouping industries that make similar products using the United States Government's Standard Industrial Classification (SIC) Code. Due to the constant changing business environment and diversification of some industries some misrepresentations are likely documented in this report. Industries open and close, merge and/or change their names and change their product lines therefore we do not assert that this is a totally complete and accurate listing. Many primary service related firms may also have a small manufacturing side to them as well. Some of these have been identified in this report but by no means all. Despite these limitations, by going through this process a better understanding is gained on what industries are driving our Region's economy and more useful information is provided on the major industries and industry clusters in the region.

It is important to note that the identification of these industries and their employment levels was arrived at by researching directories, telephone books, and various civic organization and economic development reports produced in our nine county region. Actual company names, addresses, telephone numbers etc. can be tied to approximately 600 industries in our database, Section 13. In some instances employment information was not provided to us. To validate this data retrieval method we cross checked the figures shown in Table 1.01 with the U.S. Department of Commerce – Bureau of Economic Analysis figures for each county and found that our figures were 14% higher for the number of employers or firms and 21% higher for the number of employees than the federal report. One possible reason for this variation is our research was conducted in 2000, and the most recent federal data was 1999. Another and more likely reason for our higher numbers could be attributed to the fact that when the number of firms and employment figures are collected locally for economic development reports and promotion activities it is usually the case that companies and economic development organizations report out recent peaks for promotion purposes in the number of firms and employment whereas the federal figures are based on a specific reporting date each year. Despite this variation in data we are reasonably assured that Table 1.01 correctly identifies the major industry clusters that make up the economic base of our region. This report is to serve as a guide to build knowledge based industry clusters in our region, therefore the more industries we can identify the greater the opportunity there is to build these clusters.

Machinery, Equipment, and Electronic Manufacturing, Wood and Furniture Product Manufacturing, and Food Processing are the Three Largest Industry Clusters in the Region

The 13 industry clusters in the nine county Mississippi River Region are listed on Table 1.01 followed by their respective SIC Codes, the number of firms, and their approximate employment. The three largest industry clusters in the Region in terms of number of firms and total employment are: 1) Machinery, Equipment and Electronic Product Manufacturing; 2) Wood and Furniture Products Manufacturing; and

3) Food Processing Manufacturers. Maps 1 through 13 beginning on Page 11-1 illustrate the level of concentration of these industry clusters within the Mississippi River Region.

	Industry Cluster	SIC Code	Number of Firms	⁽¹⁾Approximate Employment
1	Food Processing	2000-2199	61	3,226
2	Textile, Apparel & Leather Prod.	2200-2399 & 3100-3199	36	1,181
3	Wood and Furniture Products	2400-2599	114	5,680
4	Printing Products	2600-2799	83	2,171
5	Chemicals & Petroleum Products	2800-2999	19	489
6	Plastic and Rubber Products	3000-3099	26	2,125
7	Stone, Clay, & Glass Products	3200-3299	37	1,487
8	Metal Products	3300-3499	47	3,272
9	Machinery, Equip. & Electronic Prod.	3500-3699	80	6,553
10	Transportation Equipment	3700-3799	19	1,279
11	Instruments & Related Products	3800-3899	10	131
12	Miscellaneous Manufacturing	3900-3999	37	856
13	Computer Serv., Program. & Software	7370-7379	87	717
TOTAL			656	29,167

(1) Employment information was not provided by some industries.

We Need to Take Steps to Further Integrate Our Region’s 13 Industry Clusters With the Ten Knowledge Based Clusters Driving the State’s Economy

In the late fall of 2000 a report titled “Critical Success Factors for Knowledge-Based Industrial Clusters in Wisconsin” was prepared by Mark Mone, Associate Dean, School of Business Administration, UW-Milwaukee; John Torinus, CEO Serigraph Inc.; Brenda Blanchard, Secretary, Wisconsin Department of Commerce; Timothy Sheehy, President, Metropolitan Milwaukee Association of Commerce; and Joseph J. Shepley, UW-Milwaukee. Ten knowledge-based clusters were identified in this report as being the primary drivers of the state’s economy. Most of these not surprisingly involve manufacturing. Many of the other economic sectors of the Wisconsin economy are not included in these ten clusters since they are dependent on the good health of the ten primary clusters. The clusters were given the name “Knowledge-Based” since they rely heavily on intellectual capital and could also be regarded as technology-based industries. In addition to the identification of these key clusters driving the state’s economy this report also identified critical success factors for all of these clusters in general and critical success factors in the context of each industry cluster as well.

Economic Development Initiatives Directed Towards: Achieving the Success Factors of the Ten Knowledge Based Industry Clusters; Undertaking Regional Import Substitution Activities; and Undertaking Industry Cost Sharing and Resource Pooling Activities Will Assist Our Region’s Industries Prosper in the New Knowledge Based Economy

The most prudent approach to assist economic growth in our Region is to concentrate our efforts on the relevant knowledge based industry cluster success factors that influence the primary industry clusters of our Region. In conjunction with this it is recommended that initiatives be undertaken that involve import substitution strategies by our industries in the Region. This would involve buying raw materials or components needed for production by a given industry from within our region as opposed to from outside our Region. Encouraging industry cost sharing and resource pooling are other recommendations of this report. Examples on how import substitution, cost sharing, and resource pooling could occur are included in the county industry cluster and economic development opportunity part (*Sections 2-10*) of this report.

The import substitution and the cost sharing/resource pooling opportunities identified are based in part from a survey that was mailed to approximately 600 industries. By undertaking these initiatives we can be more successful in overcoming the serious economic challenges facing our Region and the State economy as outlined on Pages 1-10 through 1-12.

The following are the ten Knowledge-Based clusters driving the State's economy accompanied by an explanation of each, its influence on our region, and a listing of the recommended success factors.

1. Agriculture Business/Food Processing Cluster

The Region's 11,900 farms and approximately 60 food-processing firms are included in this grouping. It includes crop production and food processing such as dairy manufacturing, meat processing, bakeries and breweries.

Farms and food processing companies are obviously an important part of our regional economy. The following sections of this report organized by county show that food processing industries are located in all of the Mississippi River Region's nine counties. Critical success factor recommendations for this cluster based on the Statewide Industry Cluster Report include:

- Continue to develop the life sciences that benefit this cluster through university research. This sector depends heavily on technological advances developed in our university system.
- Speed up implementation of the "Smart Growth" law from ten to five years complete with a program of Purchase of Development Rights (PDR) to maintain choice farmlands. It is this report's contention that shortening the time period of the state's smart growth law by 5 years will not have a significant impact on saving choice farmland due to each local unit of government (*City, Village, Town and/or County*) having the ability to define what choice or prime farmland is, and their ability to make their agricultural zoning consistent with their comprehensive plan through ambiguous language in the plan to suit their tax base needs. Never the less maintaining land in farms through PDR and other incentives needs to be seriously pursued.
- Fix the inequities in the federal milk pricing system. Wisconsin dairy farmers are penalized severely by an archaic federal pricing system.
- Continue to invest in our primary and secondary road systems at the state and local level, so products can get from farm to the factory and from the factory to the store.
- Push for the elimination of federal inheritance taxes on small businesses and farms.

2. Biotechnology/Bioinformatics Cluster

Various U.S. Government publications have defined biotechnology as a set of techniques that use organisms or their cellular, subcellular or molecular components to make products or modify plants, animals and microorganisms to carry desired traits.

Uses of Biotechnology include Medical Biotechnology, which deals with weapons to fight diseases; Agricultural Biotech, which deals with genetically manipulated seeds or plants; Environmental and Industrial Biotech, which deals with eliminating waste streams and sustainable development. The Bioinformatics field is an emerging part of the Biotech Cluster. This field blends biotech research with computers to store, retrieve, analyze or predict the composition or structure of biomolecules. These molecules include genetic material-nucleic acids and the products of your genes; proteins. The Milwaukee School of Engineering, Medical College of Wisconsin, U.W. Milwaukee, and U.W. Parkside are already offering baccalaureate and advanced degrees in this field. Some technical colleges offer two year degrees as well.

The cluster of industries that is involved with this are often dependent upon research institutions. This industry cluster is therefore concentrated in the Madison area. The State's new Biostar Program,

involving joint public/private financing of \$317 million over ten years in support of biotechnology research facilities at U.W. Madison and \$88 million for a biomedical research and technology incubator at the Medical College of Wisconsin will further the development of the biotechnology cluster in this part of the state.

This industry cluster more than any other is the least pronounced in the nine county Mississippi River Region. Further developing this cluster here may best be accomplished by firms and institutions subcontracting or partnering with the Madison area firms and institutions that will be receiving the large amount of public and private investment over the coming years.

The critical success factor recommendations for this cluster based on the Statewide Industry Cluster Report include:

- Follow through on Biostar.
- Find state and private support for initiatives in the state that will stimulate new knowledge-based businesses.
- Consider a state tax credit on 5% of R & D spending, similar to what Texas enacted in 1999.
- Establish Bioinformatics as a specialty for Wisconsin, since advanced degrees are already being offered in the field. Emphasize initiatives in the area of opto-electronics, software development, and computer component manufacturing.
- Keep environmental regulations scientifically based and rational, despite emotional reactions in other parts of the world.
- Increase prudent portions of public and private pension funds flowing into the venture funds serving the State.
- Promote more angel groups across the State so a network of seed capitalists is readily available for biotech concepts that can be commercialized.

3. Business Services/Supply Chain Management Cluster

This cluster is more service orientated and therefore the economic vitality of this cluster is more dependent on the success and good health of industries. As will be explained, firms and employees within this cluster are highly prominent and found throughout the Mississippi River nine county region and all other counties in the state. This cluster has been identified as the fastest growing part of the state's economy and offers relatively high paying jobs. It is made up of a wide range of service firms such as consultants, accounting firms, law firms, advertising and public relations, system managers and many others. Many industries in the Region obviously outsource these functions to these businesses.

Included in this cluster is supply-chain management, a new and rapidly evolving business. Manufacturers are now concentrating more and more on a few core competencies and contracting out for many services which they use to take care of in house. The dividing line between manufacturing and service companies is becoming blurred due to the efficiencies involved in out sourcing in creating value to products. Companies like Schneider Logistics, an offshoot of Schneider National, the largest trucking company in the country, and Banta, a printing company have moved into this line of business. Undergraduate and graduate degrees are also being offered in supply-chain management.

The critical success factor recommendations for this cluster based on the Statewide Industry Cluster Report include:

- Increase the depth and variety of Information Technology, Logistics, and Telecommunication offerings at the two-year, four-year and graduate levels at all Wisconsin colleges and universities.
- Improve the business climate by moving to single sales factor on corporate income taxes.

- Develop a university center for supply-chain management.
- Get out of the top 10 tax states by further lowering of personal income taxes.

4. Finance/Insurance Cluster

The success of this cluster is highly dependent upon the prosperity of industry and income of their employees. After all, industry and the people they employ are the ones who purchase finance and insurance products.

This cluster relies heavily on information systems and is reported to be suffering from a shortage of Information Technology workers. The cluster is also national and international in nature and therefore dependent on efficient air travel as well. High paid money managers that frequent this industry have the option to go anywhere therefore quality of life issues and a good business climate are other important factors influencing this cluster. The growth of Midwest Security Insurance Company from one employee to over 300 and the company's new corporate headquarters in Onalaska is a good example of the economic benefits this industry cluster could bring to the Region.

The critical success factor recommendations for this cluster based on the Statewide Industry Cluster Report include:

- Continue to offer reasonable regulation at the state level. The concept of combined reporting of corporate income could have a negative effect.
- Provide an increased flow of Information Technology graduates from the state's educational institutions.
- Make sure the state is positioned on the leading edge of bandwidth development and Internet connectivity.
- Get out of the top 10 tax states by further lowering personal income taxes.
- Continue the support of finance, accounting and taxation programs at leading state universities.
- Continue to improve Wisconsin airports to support this cluster, which is thoroughly national and international.
- Keep and attract airline hubs.

5. Information Technology/Data Processing Cluster

This cluster definitely blurs the line between producing products versus providing service. Prepackaged software products versus data processing involving payroll and benefits service is an example of the extremes in types of activity provided within this cluster. A reported concern for this cluster is that educational offerings are not meeting demand. One Information Technology executive was recently reported to have said that (*in Wisconsin*) there is a growing gap of 2,000 open positions in this cluster. Metavante, a financial technology company in Milwaukee that provides service to 3,300 customers including the twenty largest banks in the U.S. consistently has several hundred Information Technology jobs open.

Despite a step up in educational offerings from Wisconsin's technology colleges and four-year universities the offerings still do not meet the demand for this cluster. Recent positive steps to meet this demand for Information Technology workers included more than fifty 2-plus-2 articulated Information Technology data processing degree programs between the states 16 technical colleges and its 4 year public universities and the establishment of apprentice-like network technician programs for juniors and seniors at high schools under the auspices of the Cisco Academy.

The Statewide Industry Cluster Report makes a point of the great boost it would be if every high school in the state opened up the Cisco Academy option. The report states that just fifteen per high school per year would create "more than 5,000 eighteen-year olds with basic computer proficiency on

their portfolios, making them well positioned to move up the Information Technology ladder in school or work”. The report then identifies the In Roads Program in Milwaukee for 250 high school juniors and seniors who are headed to U.W. Milwaukee for computer degrees.

The Statewide Industry Cluster Report also states that Wisconsin is well-wired and can usually provide this cluster with the bandwidth infrastructure needed. It then provides an example where Ameritech installed a full grid of fiber-optic cable for its data processing center and was soon followed by Blue Cross Blue Shield, Provantage, and Wisconsin Energy. In La Crosse something similar happened which started with the formation of First Logic in downtown who was followed by CenturyTel and then EDS.

The Statewide Industry Cluster Report concluded by stating that Information Technology/Data Processing companies are very mobile, since they have few fixed assets and can operate in almost any connected area. Therefore, the business climate and quality life must be competitive with other states and other countries. High personal taxes (*in Wisconsin*) remain a challenge.

The critical success factor recommendations for this cluster based on the Statewide Industry Cluster Report include:

- Charge every technical college, college, university and graduate school, public or private with increasing the flow of Information Technology/Data Processing graduates. Availability of skilled labor drives location decisions in this area.
- Increase its seed and venture funding, similar to Information Technology Angels investing group in Madison. (*An angel investor group called Origin Investments is presently being formed by a group in the La Crosse area.*)
- Establish an Information Technology apprenticeship program in every high school in the state. Business must create apprentice and intern slots in large numbers.
- Get out of the top 10 tax states by further lowering personal income taxes.

6. Machinery Manufacturing/Automation Cluster

Industries included in this cluster are highly ubiquitous throughout Wisconsin as well as throughout the Mississippi River Region where over 70 industries have been identified. Some of these regional manufactured products include wood working machinery, heating and refrigeration machinery, farm machinery, lawn care machinery, pumping machinery, tool, die, jig and fixture products produced by numerous manufacturers throughout the Region.

The Statewide Industry Cluster Report states that this cluster is dependent on a steady flow of highly skilled graduates from our engineering schools and technical colleges. It also mentions how the state has helped establish manufacturing technology centers at two-year technical colleges to help students and companies adopt leading edge methods.

The critical success factor recommendations for this cluster based on the Statewide Industry Cluster Report include:

- Reliable and competitively-priced energy sources.
- Ample bandwidth for the movement of CAD files and other data between suppliers and customers.
- To fill skilled labor shortages in tool and die and other manufacturing disciplines, follow through on establishing manufacturing automation centers at two-year colleges (*Centers already established or being established include Chippewa Valley Technical College and one in the Racine-Kenosha area, and Moraine Park Technical College*)

- Develop regional technology centers, such as Techstar, as a way of spreading machinery and automation disciplines from engineering research labs into the commercial world.
- Build up the network of angel groups in the state and venture capital funds to help launch start-ups.
- Increase supply of Information Technology graduates at two and four-year colleges and universities.

7. Manufacturing/Materials Cluster

This cluster covers a diverse number of industries that are highly prevalent across Wisconsin and the Mississippi River Region. They manufacture such products as plastics, rubbers, metals, concrete, glass, chemicals, foam, apparels, and canvas. There are over 150 manufacturers in the Mississippi River Region that might fall into this cluster that employ over 9,800 workers. The Statewide Industry Cluster Report stresses that these manufacturers pursue the “high road” in order to remain successful. This means produce high value added product; generate high productivity; create high quality products; use high levels of just-in-time delivery and use high technology process and systems. The report goes on stating that this will require high levels of investment in complex machinery and high levels of investment in education and training of workers to handle their complex operations. This results in higher levels of pay for the technicians driving the system and the general high standard living and quality of life in the state. There is no “low road” strategy left in the manufacturing arena (*in Wisconsin*).

The statewide report also makes note of Wisconsin’s strong manufacturing sector measured by manufacturing jobs to other jobs. Wisconsin’s 23% is 8% higher than the U.S. with 15% and higher than our Midwestern neighbors, Illinois 16.6%, Iowa 18.1% and Minnesota 17.3%. Only Michigan with 21.4% approaches Wisconsin’s strength in the manufacturing sector. The State has been blessed with an entrepreneurial climate in the manufacturing sector ever since the late 1800s and that entrepreneurial climate still exists. This accounts for the concentration of manufacturing in the job base today. Many of the start-ups occurring in the state deal with systems, processes and controls that support the state’s and the Mississippi River Region’s manufacturing sector.

The critical success factor recommendations for this cluster based on the Statewide Industry Cluster Report include:

- Push the marriage of “new economy” technologies within the manufacturing sector to compete with low-cost manufacturing centers in third world countries. Manufacturing research centers at colleges and universities such as Milwaukee School of Engineering, U.W. Madison’s School of Engineering, U.W. Platteville, and U.W. Stout need to raise their profiles where state firms can go for technological help.
- Stimulate technology transfer and start-ups at the intersection of Manufacturing, Information Technology, and Materials Development.
- Get out of the top ten taxed states by further lowering of personal income taxes and adopt a single sales factor formula for apportioning corporate income tax.
- Continue to develop the state’s education and training infrastructure, so that every adult in the state can become an employable worker. The scarcity of labor looms as the largest threat to growth of manufacturing in Wisconsin. Some businesses have already chosen to locate elsewhere to tap into available labor. More than two-thirds of job openings are for skilled positions at higher levels of pay. There is a mismatch between the unskilled parts of the population that lacks the skills for high-end manufacturing and the jobs that would be available to them if they had the requisite education and training. With such low unemployment rates the state must try to develop every available person for the jobs open in the workforce.
- Take the necessary steps to assure a supply of reliable, competitively priced energy. One of the more obvious moves is a transmission line to the northwest to tap into generation plants that rely

on the hydropower and coalfields to the west. New generation plants are needed in the state to replace the near archaic and heavy polluting existing plants. An energy gap looms if new generation plants and transmission lines are not brought on line.

8. Medical Devices/Medical Informatics Cluster

This cluster similar to the biotechnology cluster is not a major contributor to the industry base of the Mississippi River nine county Region. Opportunities for this cluster do exist due to several factors. One being Pierce County's close proximity to the large health care providers and medical device manufacturers in the Twin Cities area. The county government in partnership with other local governments and business organizations has been very successful in assisting Twin Cities area manufacturers expand their operations within the County. The possibility of assisting a medical device manufacturer to expand in Pierce County is therefore very real and should be pursued to further build this knowledge-based cluster in the Mississippi River Region.

Another reason for this cluster having opportunity for growth in the Region is the fact that a 1985 targeted industry study reported a very favorable location quotient for medical instruments and supply companies in La Crosse County. The suitability for this industry cluster in La Crosse County has most likely grown even stronger since this study was conducted. The continued growth of the county's health care providers and the establishment of the \$26 million Allied Health Center on U.W. La Crosse's campus with the help of the city's hospitals and clinics, Viterbo University and Western Wisconsin Technical College provided substantial evidence as to why medical device manufacturers are still highly suited to locate in La Crosse County.

The critical success factor recommendations for this cluster based on the Statewide Industry Cluster Report include:

- Ability to provide an ample supply of highly skilled labor in Imaging Technology, Information Technology, and Machine Making
- Keep heavy hitters like GE Medical in the State
- Establish collaborations and partnerships for technology transfer, patent and licensing interactions
- Expand collaboration between companies and universities both in research and education
- Increase the flow of Information Technology graduates in all colleges and universities in the State
- Increase the flow of seed and venture funds to startups in this cluster
- Improve the business climate with single sales tax factor and further lowering personal income taxes
- Fund and implement Tech Star and other collaborations to increase technology transfer in this area

9. Papermaking/Forest Products Cluster

In 1996 the nine county Mississippi River Region had just under 11% of the State's 16 million acres of forestland and produced 4.7% of the State's 3.1 million cords of pulpwood and 14.7% of the State's 645,262 thousand board feet of saw timber. Jackson and Monroe County were the leading producers of pulpwood accounting for 86% of the region's production and Vernon and Monroe County were the leading producers of saw timber accounting for 36.2% of the region's production.

This forest resource has contributed to a papermaking industry in the State that leads the Nation. Papermaking manufacturers in the Wisconsin River Valley are the buyers of our region's pulpwood. There are no pulpwood mills in the Mississippi River Region despite the Region being identified as having many of the attributes needed for a pulpwood operation. These findings were reported in a study conducted by a Governor appointed steering committee in 1989. This report identified 21

locations in the Region that would qualify as practical sites for a pulp mill based on both economic and environmental factors. The findings from this study coupled with the rich forest resources of our region, our solid road and rail infrastructure creates a very positive environment in which to develop the paper product industry here.

The present restructuring that is occurring in the paper industry is an important factor that needs to be considered. The U.S. Bureau of labor statistics reports that since 1995, 62,400 jobs in paper, pulp, paperboard containers, and converted paper have disappeared. Presently the Bureau counts 637,000 workers nationwide in the paper industry. The loss of jobs have mainly occurred in the older mills located in small towns. Bigger appears to be better due to economies of scale and new technology allowing larger mills to make grade and production changes easily, putting the small specialty mills in peril. If a new mill would be established in western Wisconsin, it therefore would probably need to be big or associated with a big producer and make use of the latest in technology.

Forest products not only from our region but from others as well also contribute to a lumber, wood, and furniture product industry with over 90 companies that employ over 5,500 workers in the region. Lumber mills, cabinetmakers and both small and large furniture companies like Ashley Furniture are some examples of the types of industries that can be found within this sector of the industry cluster.

The critical success factor recommendations for this cluster based on the Statewide Industry Cluster Report include:

- Add power-generating plants and transmission lines to stabilize and increase Wisconsin's energy supply.
- Universities and colleges must continue to graduate skilled workers, especially in papermaking disciplines and Information Technology.
- A research center in the technologies of papermaking should be reestablished at a major university in the State. A paper chemistry institute belongs here.
- Collaborative approaches to improving the environment between business, regulators and researchers need to replace command and control methods.
- Improve the business climate by further lowering personal income taxes to get out of the top 10 tax states.
- Develop a university center for supply-chain management.
- To move this cluster's bulky products, continue the state's heavy investment in its road and rail infrastructure.

10. Printing Cluster

Printing companies are found throughout the State and the Mississippi River Region. Many of these companies also publish daily and weekly newspapers and classified ad publications. Larger printing firms that rely on outside printing contracts are also highly prevalent. This concentration of printing firms provides ample opportunity to further build this cluster within the Region.

The Statewide Industry Cluster Report points out that Wisconsin needs to do a better job in developing leading edge technologies for this cluster. The report states that most printing innovations are coming from other countries such as Israel in digital printing or Germany and Japan with their high technology presses. PCM in Green Bay, a machinery manufacturer in the flexographic printing sector is identified in the report as a model to be replicated. One of the deficiencies in the development of leading technologies for this cluster according to the report is the absence of any university or research facility that focuses on printing advancements. The Rochester Institute of Technology in New York is provided as an example of a research university that has specialized in serving printers. The report also identifies some technology training bright spots occurring in the printing industry. It reports that seven of the states 16 technical colleges have established 2 plus 2

programs with U.W. Stout or U.W. Platteville in which the two years of technical college credit count fully toward four-year Bachelor of Science degrees in Graphics, and Communication Technology Management. A marriage of programs between Waukesha Technical College and U.W. Stout to form a Waukesha Printing Institute is another printing technology training initiative that is mentioned. Milwaukee Tech High School is also identified due to their proposal for a program with a printing concentration. These types of initiatives should also be pursued in the Mississippi River Region to develop our very promising printing cluster.

Another concern for this cluster deals with environmental regulations. The report states "...every plant, bucket of ink and piece of equipment is heavily regulated in a three-tier command and control system. Southeastern Wisconsin is especially constrained because it is designated as a severe non-attainment area for air emissions. Plant expansions have therefore gone elsewhere. Collaborative approaches to controlling emissions would work better." This printing firm environmental problem for Southeastern Wisconsin could be a great opportunity for the Mississippi River Region to capitalize on with the condition that new plants coming to this region are operating in an environmentally sound manner.

The critical success factor recommendations for this cluster based on the Statewide Industry Cluster Report include:

- Establish a research facility at one of the state public universities to take a lead in new printing technologies.
- Make more "angel" and venture capital available for entrepreneurs in this cluster.
- Move to collaborative regulation of emissions instead of the automated command and control approach. Establish one-tier of regulations on printing plants instead of three.
- Get out of the top tax states by further lowering of personal income taxes.

Actions That Further Integrate Our Region's Industry Clusters With Information Technology and the Knowledge Based Industry Clusters Will Help Address Many of the Challenges and Concerns Identified at Wisconsin's Economic Summit

In late November 2000 the Wisconsin Economic Summit was held to open a dialog concerning the economic future of Wisconsin and to solicit input from government, business, education and citizens about Wisconsin's economic future. The summit was sponsored by the University of Wisconsin system and included presentations by the Governor, state legislators, economists, economic development consultants and business leaders. The following is a summary of economic development challenges and concerns identified at this summit, many of which can be met through increases in educational attainment and further integrating information technology into business and industry. David J. Ward Ph.D., President of Northstar Economics, and a former senior vice president of the U.W. System is to be credited for the following research.

- We need to raise our income levels. Wisconsin's 1998 per capita income was \$25,079 which was below the U.S. average of \$26,412. Illinois had a 1998 per capita income of \$28,873 and Minnesota's 1998 per capita was \$27,510 both greater than Wisconsin. Cost of living in Wisconsin is not significantly less than the nationwide average to reduce this concern about our income levels. In fact Eau Claire, Sheboygan, and Milwaukee/Racine MSA were above the nationwide cost of living index during the last quarter of 1999.
- Wisconsin lost over \$7 billion in purchasing power and tax base in 1998 due to our per capita income being below the national average. This is projected to grow even larger in the years ahead.

- Wisconsin's income levels are growing slower than other states and the nation as a whole. From 1973 to 1998 Wisconsin's income growth averaged 2.3% per year while the U.S. averaged 2.8%. A Standard and Poor's/DRI Forecast projects Wisconsin's 1999-2024 average rate of income growth at 1.8% and the U.S. average rate of growth at 2.3%.
- Wisconsin's per capita income level as a percent of the national average is expected to decrease from 95% in 1998 to 83% by 2024. By the year 2024 Wisconsin's per capita income is projected to be \$40,598 or 83% of the U.S. average of \$48,803. This is a decline from 1998 when Wisconsin's per capita income level of \$25,079 was 95% of the U.S. average of \$26,412.
- We need to create knowledge-based jobs. During the period of 1988-1999 the net wage growth of old economy industries was 4.5% while new economy wages grew 11%. New economy industries include high tech equipment, software, computer services, financial services, consulting, communications, media, and non-store retail. Old economy industries include construction, transportation, all other manufacturers, wholesalers, retailers, personal services, health care, and education.
- Future income growth for the State cannot come from creating new jobs. Wisconsin labor force participation rate in 1998 was 73% versus 66% for the U.S. and the state's labor force will start shrinking by 2012-13. Income growth must come from brain gain jobs.
- Wisconsin must increase its level of educational attainment. The percentage of Wisconsin's population with a 4-year degree age 25 or older in 1998 was 23.3% ranking us 29th of the 50 states. Wisconsin was below the U.S. average of 24%. Minnesota ranked 5th among the states with 31% of its population with a four year degree and Illinois ranked 18th among the states with 25.8% of its population with a 4-year degree – age 25 and older.
- The earning potential of a bachelors degree and a professional degree has increased significantly since 1977. In 1977 the annual earnings gap between a high school diploma versus a bachelor degree was \$13,969 and between a high school diploma and a professional degree was \$27,067. By 1997 the annual earning gap between a high school diploma and a bachelor's degree was \$17,856 and the earning gap between a high school diploma and a professional degree was \$40,960. (*Source: ACE and U.S. Census Bureau, earnings are adjusted to 1998 dollars*)
- The gap in lifetime earnings to a person having a high school diploma versus a bachelor degree is \$710,520.
- The gap in lifetime earnings to a person having a high school diploma versus a professional degree is \$1,557,570.
- The 1998 median family income (2 or more people) by education level is as follows: high school \$41,302, associate degree \$54,719, bachelors degree \$71,680, masters degree \$83,052, professional degree \$100,000.
- Wisconsin has a brain drain problem. In 1997 the State ranked last – 50th in the number of college graduates moving into the state and we ranked seventh in out migration or close to the top in number of college graduates leaving the state. (*Source: U.W. Applied Population Lab*)
- Wisconsin must create more knowledge-based jobs that will keep and attract college graduates. Knowledge-based jobs will raise income levels. From 1985 to 1990 Wisconsin lost 33,000 college graduates – 102,000 moved out, 69,000 moved in.

- Wisconsin ranks near the bottom in per capita wealth assets. The Wisconsin Taxpayers Alliance reports that in 1995 the figure for Wisconsin was \$13, 862. This is significantly lower than Minnesota's \$17,153, Iowa's \$21,334 or Illinois's \$24,670.
- Venture capital or angel investment in Wisconsin needs to be increased. A report by the Wisconsin Taxpayers Alliance indicated that venture capital investments in Wisconsin in 1998 were \$14.30 per capita. This was significantly below the U.S. average of \$71.79 and way below Minnesota's venture capital investment of \$137.19 per capita. During the first half of 2000 five venture capital deals were done in Wisconsin totaling \$31 million. During this same time period 51 deals totaling \$524 million were done in Minnesota.

To address the above mentioned concerns and challenges the U.W. System and its Board of Regents, in partnership with business, community leaders and other interested parties across the state wish to facilitate a statewide conversation on seven important topics.

- *Building Quality Jobs.* This conversation will identify the challenges and opportunities Wisconsin faces. How can we “grow our own” New Economy businesses and workers through: technology transfer, research parks, college graduate and worker retention/recruitment strategies, business recruitment, state investment, incentives for technology-based companies, private-public partnerships, support services for new business start-ups, university policies that encourage research and development and build intellectual infrastructure?
- *Educating the Workforce.* This conversation will examine strategies for strengthening the current workforce and developing New Economy jobs, through education. Likely topics include: improved training and educational opportunities for workers of all ages, the seamless delivery of educational resources, access to international education, specially tailored coursework, on-site and distance education programs, public-private educational partnerships that address educational needs identified by labor and management.
- *Increasing Seed and Venture Capital Investment.* This conversation will focus on strategies for improving the investment – from both within and outside Wisconsin – of funds required to finance the birth of new technologies and businesses.
- *Improving the Regulatory Climate.* This conversation will focus on state and local governmental rules and regulations that deal with quality of life and the state's economic vitality, such as: environmental standards, land-use planning, business siting, energy and telecommunication policy, e-commerce policy, efficient delivery of state services, providing timely decisions.
- *Improving Wisconsin's Fiscal Future.* This conversation will consider the role of government and the fiscal policies that shape economic growth, workforce development, financial health and the quality of life for Wisconsin's citizens. Key topics include: taxes and spending, investments in education, and incentives/disincentives for revenue growth.
- *Enhancing Key Infrastructures & Entrepreneurial Climate.* This conversation will examine strengths and weaknesses relating to Wisconsin's economic potential, in terms of key infrastructures: transportation, utilities, telecommunications, Internet, electronic commerce.
- *Building a Distinctive Brand/Image to Position Wisconsin as a Technology and Fast-Growing Jobs Leader.* This conversation will consider the development of a statewide brand, or image, for Wisconsin as a “business-growth state” – as well as strategies for advancing the Wisconsin brand in the national and global marketplaces.

A Statewide Conversation on Wisconsin's Economic Future is Underway

Through the spring and summer of 2001 representatives of the planning committee contacted business leaders, education leaders, statewide organizations and others, to solicit their ideas and opinions on the seven topics. In addition, experts in each of these subjects were asked to prepare discussion papers. The planning committee will seek the public's views as well.

A high-level, statewide Economic Summit on these issues was held in the late fall of 2001. Its product will be a public policy and economic development strategic vision for Wisconsin. With a depth of insight, quality and long-term view, it will serve as the public policy blueprint for the state's economic future. This blueprint will resonate far into the 21st century.

This approach will accomplish three essential goals:

1. To provide a forum for information sharing inclusive of all citizens.
2. To create a feeling of statewide unity and ownership in the development of economic strategies for the future of our state.
3. To demonstrate the benefits of a collaborative, partnership approach to action.

Working together, we can help Wisconsin respond to the forces of economic change and ensure a brighter future for all citizens and businesses. Now it's time to begin the conversation.

This Report is the Beginning of the MRRPC's Contribution to This Statewide Conversation on Wisconsin's Economic Future

This Industry Cluster and Regional Trade Report is the Mississippi River Regional Planning Commission's contribution to assist in devising economic development strategies for the state and our Region and to demonstrate our commitment to continue to work in a collaborative approach to build a healthier economy.

Actions That are Underway That Will Help Build Knowledge Based Industry Clusters in Our Region

The serious economic challenges discussed in the previous section have already caused actions that will help integrate Information Technology into our Region's industries and to further build our Knowledge-Based industry clusters. The following identifies actions that are currently underway within the Region.

- Angel investment groups are forming. One of these by the name Origin Investments, LLC has recently formed in the La Crosse area. Angel investors are typically individuals with significant wealth or businessmen and women willing to make high-risk, high reward investments in small new businesses or existing businesses looking to expand their markets. Usually an emphasis is placed on a thorough business development strategy that shows potential for high growth. Angel investors are also often willing to offer their business expertise and participate in the management of the business. Other angel investment groups in Wisconsin include: Early Stage Research, Madison; Silicon Pastures, Milwaukee; Valley Angels Investment Group, Green Bay; and Wisconsin Investment Partners, Madison.
- Coulee Region Technology Business Alliance (CRTBA) was recently established to meet the ever-increasing demand for information technology training and represent the interests of technology based businesses and area educational institutions. The CRTBA also is to serve as a knowledge point for information about technology companies and a catalyst for development of other regional

technology partnerships across the region. The CRTBA provides a series of networking and professional development opportunities where members can meet potential clients, build business relationships, and learn about trends in the technology industry. In addition, CRTBA works to build recognition of the Region as a global leader in technology development and application.

Counted among the members of CRTBA are software developers, telecommunications companies, Internet providers and content developers, system integrators, area educational institutions, and others involved in the technology field. Western Wisconsin Technical College in La Crosse is the lead organization of the CRTBA and recently hired a full-time coordinator.

- Wing Technology Center (WTC) was established in 2001 on the University of Wisconsin-La Crosse (UW-L) campus. The WTC project included a \$10 million renovation and is described by the University as a “technology hub” for the 21st century. Wing Technology Center is the home of UW-L’s Information Technology Services, ITS Support Center, computer science faculty, information systems faculty, distance education, Educational Technologies, general computer access labs, as well as instructional photographic facilities and student radio and television laboratories.

WTC is also connected with the Health Science Center for sharing distance education transmission which is in close proximity to the UW-L campus. The Wing Technology Center and its state-of-the-art information technology equipment are essential tools that will be utilized by the UW-L students and faculty to support the high quality teaching and the education needed to pursue employment in the various technological careers. The facility will also serve as a center for the development of the University evolving enterprise computer systems.

- The University of Wisconsin-La Crosse has recently developed a masters degree program in software engineering.
- At a St. Croix Valley Economic Forum hosted by U.W. River Falls in October 2000, the development of a regional research park was proposed that would pool together the strengths of the area educational institutions, businesses, civic organizations, and local governments to assist in the commercialization of new technologies (e.g. biotech and agri-business), technology transfer and workforce development.
- The Pierce County Board recently sponsored and accepted a site plan report for the 160 acre Trenton Industrial Park. This site has many positive attributes that supply chain management companies are looking for. Rail, barge, highway and air service are available and the site’s close location to Redwing and the Twin Cities is another factor in its favor. This site could also be developed as a “Smart Park” with the latest in telecommunication infrastructure which would attract high technology business and industry.
- Viterbo University is building a 68,000 square foot building to house the Center for Ethics, Science and Technology. The Center will have distant learning capability and the latest in satellite and broad band/fiber optic connectivity. It will support Viterbo’s degree continuation program with Western Wisconsin Technical College. The Center will allow interaction among on-campus seminar attendees and noted thinkers on this field from digital locations, and help guide practitioners in the sensitive interaction of Science, Technology and Ethics.
- The Health Systems Education and Research Institute is being proposed and conceptionally designed to be a major partner in the La Crosse Medical Health Science Consortium (LMHSC). The Consortium members include University of Wisconsin-La Crosse, Viterbo University, Western Wisconsin Technical College, Gunderson Lutheran Medical Center, and the Franciscan Skemp Health

Care. HSC serves 24 counties in western Wisconsin. The “Institute” would be housed in the newly constructed Allied Health Science Center (HSC) which is located on the UW-La Crosse campus. The HSC and the Institute addresses Wisconsin’s emphasis on stopping the “brain drain” in the state and creating new opportunities for economic development. The Institute will have three components: advanced educational programs, health systems research, and biomedical technology department. The research component of the Institute will create the technology development infrastructure required to attract business, industry and investors. The biomedical technology component will create a vehicle for initial commercial development of ideas/technology that evolve from the institute, incubator projects, and ability to collaborate a commercially viable project.

- Western Wisconsin Technical College (WWTC) recently has established a two-year Electrical Engineering Technology (EET) Program. The EET program which gets students started on their bachelors degree is as challenging as a four-year program, yet gets students in the work force after graduating from the program in just two years. Electrical Engineering Technicians work closely with engineers to build, operate, troubleshoot and assist in the design of electrical systems and equipment. These graduates are in demand in a variety of high tech industries from computing to telecommunications and will provide a ready workforce for new and expanding technology-based industries in our region.

In addition, WWTC has a joint agreement with the Milwaukee School of Engineering (MSOE) which allows program graduates from WWTC to enter with junior standing into MSOE’s Electrical Engineering Technology Program to complete their bachelor’s degree.

There are Other Opportunities That Will Help Build Knowledge Based Industry Clusters in Our Region

The following are economic development opportunities identified in the Statewide Industry Cluster Report and other economic research reports conducted in the Mississippi River Region.

- In 1985 the La Crosse County Targeted Industry Study identified La Crosse County as a good location for medical instrument and supply companies. This report recommended the following industries for La Crosse County to target: medical instruments and supplies, fabricated metals and supplies, industrial machinery, miscellaneous machining excluding electrical, commercial printing, office computers and machines, and measuring and control devices. Pierce County’s close location to the large health care providers and medical device manufacturers in the Twin Cities area is also strategically located to build on the growth on the Medical/Device and Medical Informatics Cluster.
- Pierce County’s close proximity to the large medical device and service companies in the Twin City area makes this industry cluster an attractive target for economic development initiatives.
- In 1989 a pulp mill feasibility study was prepared by a steering committee appointed by the Governor. This study identified areas in the State where a pulp mill would be most suitable based on both environmental and economic factors. One of the 21 sites identified are in Crawford County and six of the 21 sites are in the nine county Mississippi River Region. The increased utilization of abundant smaller trees and of species not as suitable for saw log production would provide a better economic market for a currently underutilized resource. This would provide an immediate economic incentive for woodland owners to conduct “timber stand improvement” thinning on their properties. This would result in better quality and faster growth of saw timber and veneer grade logs, thus, over time, helping to relieve the reported shortage of larger, better quality, logs. A possible downside of this pulpwood market development could occur if a higher

demand increases market prices to the point where some landowners, shortsightedly, begin to cut into their young growing stock saw log reserve and harvest it as pulp wood. The Southwest Badger RC&D is presently studying the concept of establishing a round wood chip mill that would shred logs into chips near or on the Mississippi River and transfer them to a barge for transport to either a U.S. pulp mill or a foreign mill. A chip mill in Hixton, Wisconsin is presently shipping their chips by rail on the Wisconsin Central Railroad to Wisconsin pulp mills in the east. Another chip mill in Independence is manufacturing excelsior involving processing wood products into packaging material.

- The Statewide Industry Cluster report recommends that a university center for supply-chain management is needed. This concept should be investigated by one or more of our Region's three universities.
- The Statewide Industry Cluster report recommends that a university research center on papermaking should be reestablished in the State. This concept should be investigated by one or more of our Region's three universities.
- The Statewide Industry Cluster report recommends that a university research facility in new printing technologies be established. Is it practical for any of our Region's three universities to investigate this?
- The Statewide Industry Cluster Report recommends that Bioinformatics is an area Wisconsin should specialize in. Is it practical for any of our Region's three universities and three technical colleges to investigate offering degrees in Bioinformatics?
- The Statewide Industry Report recommends increasing the depth and variety of Information Technology, Logistics and Telecommunication offerings at the two-year, four-year and graduate levels at all Wisconsin colleges and universities.
- The Statewide Industry Report recommends that we should continue to build on the good local and secondary road transportation system. Our Region's dependence on agriculture, forest and wood products, and machinery, equipment and electronic products require a good road system.
- A La Crosse area report identifies the potential for an additional intermodal transportation transfer facility in the La Crosse area i.e. truck to rail.
- The Statewide Industry Cluster Report recommends the need to add power generating plants and transmission lines to stabilize and increase Wisconsin's energy supply. Take the necessary steps to assure a supply of reliable, competitively priced energy. One of the more obvious steps is the development of the transmission line through northwest Wisconsin to tap into generation plants that rely on hydropower and coalfields to the West. New generation plants are needed in the State to replace the near archaic and heavy polluting existing plants. An energy gap looms if new generation plants and transmission lines are not brought on line.
- The Statewide Industry Cluster Report recommends that more angel, venture capital groups should be formed. The strong economic growth of the past decade has created unprecedented wealth for many individuals. Many of these individuals will consider investing in new business ventures if part of an organized angel, venture capital group. A group is presently being formed in the La Crosse area called Origin Investments. These groups need to be networked across the State so they can cross invest in new companies.

- The Statewide Industry Cluster Report recommends that we need to move out of the top ten tax states by further lowering of personal income taxes and adopt a single sales factor formula for apportioning corporate income tax.
- A Midwest Regional Rail Report recommends a high-speed rail system. We need to promote the Mississippi River Valley route, the existing Amtrak route.
- The Statewide Industry Cluster Report recommends that we need to keep and attract airline hubs; regular scheduled air transport is needed by knowledge-based industries.
- The State of Wisconsin has recently passed legislation to create eight technology zones around the state and will be accepting applications from communities in 2002. Up to \$500,000 in tax credits may be claimed by businesses in each zone over a 10-year period. Such a zone or zones would assist in building knowledge-based clusters in the Region.