

The Wisconsin Manufacturing Study:
An Analysis of Manufacturing Statewide and in Wisconsin's
Seven Economic Regions

Prepared for the Wisconsin Manufacturing Extension Partnership

by

The MPI Group

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Executive Summary

ES-I. Wisconsin's Manufacturing—and Economy—at the Brink

Wisconsin's industrial economy is well-positioned to become a 21st Century leader in manufacturing, but it must adapt to emerging trends in information technology, logistics, and management theory that will favor industries with new ways of competing globally.

Manufacturing remains the engine that drives regional economies. Every \$1 of final demand spent for a manufactured good generates \$0.55 of Gross Domestic Product in the manufacturing sector and \$0.45 of Gross Domestic Product in the non-manufacturing sectors.¹ Thus, manufacturing is inextricably tied to non-manufacturing—everything from raw materials to intermediate components to software to financial, legal, health, accounting, transportation, and other services—in the course of its normal business functions.

The Wisconsin Manufacturing Study was designed to find the leverage points that would help the state tip its manufacturing base and policies toward the New Economy future.

- First, it pinpoints the major manufacturing industries that drive Wisconsin's economy.
- Second, it compares their capabilities with eight other states to measure Wisconsin's manufacturing competitiveness.
- Third, the Study examines the state's overall business climate to determine just where those leverage points exist.
- And, finally, from these facts, a picture emerges of where the major producers stand compared to their present and prospective opportunities for moving into the New Economy.

The Key Findings of the Study

1. Wisconsin is home to 24 *statewide* manufacturing driver industries. By almost every measure—gross product, productivity, capital expenditures, employment, and foreign exports—manufacturing and its related industries comprise *almost one half* of the state's economy. In 2004 alone, Wisconsin's manufacturers generated more than \$46 billion in gross product, employed 512,630 workers, who produced \$90,000 in gross product per employee, and exported \$14 billion in manufactured goods.

2. The Study employed a new, sophisticated quantitative analysis to identify 43 manufacturing industries in the state's seven economic regions that sell their products outside of the region, state, or country, thereby returning new monies to Wisconsin's

¹ Manufacturing in America: A Comprehensive Strategy to Address the Challenges to U.S. Manufacturers, U. S. Department of Commerce, January 2004, p. 14. See www.ita.doc.gov/media/Publications/pdf/manuam0104final.pdf

economic regions. These industries are driver manufacturing industries. They *drive* Wisconsin’s manufacturing economy.

3. If a driver industry is located in two or more of the seven economic regions, it is defined as a *statewide* driver industry. Of these 43, 24 driver industries are located in two or more of the seven economic regions. They are Wisconsin’s *statewide* manufacturing driver industries. The remaining 19 driver industries appear in only *one* of the seven regions and, therefore, are not statewide drivers. This Study focuses on just the 24 *statewide* manufacturing driver industries, analyzing their strength and economic competitiveness.

4. Other, single firms in Wisconsin—no matter how large—or groups of small firms with similar products, no matter how successful, do not meet the statistical test and are not called “driver industries” under this Study’s methodology. A single firm does not comprise an “industry”; and small, though successful, firms do not generate enough business volume to meet the threshold for the designation of “driver industry.” However, they may become driver industries in the future.

5. Driver industries, together with their suppliers and their customers, are *industry clusters*. When they have close buy-sell relationships, use common technologies, or share a specialized labor pool—i.e., are concentrated—industry clusters have a competitive advantage over the same industry in other regions, states, or countries.

6. Today, all 24 of Wisconsin’s *statewide* manufacturing driver industries indicate concentrations that afford them a competitive advantage over those industries in other states throughout the country.

7. Wisconsin manufacturers interviewed and surveyed recognize the strengths of the state that support a vibrant manufacturing-based economy. They listed:

- Wisconsin’s proximity to a vast consumer population.
- Excellent transportation infrastructure.
- At present, a superior, highly skilled workforce.
- Well educated managerial and engineering talent.
- Outstanding support industries.
- Active manufacturing intermediaries.
- A highly valued quality-of-life.

8. However, the state’s manufacturing *output*, compared to eight other states that compete with Wisconsin’s 24 driver industries, is stagnant. It typically ranks last or next to last

among these competitors. Wisconsin's average output per manufacturing employee is 86% of the national average. Wisconsin's manufacturing executives believe they face four major barriers that could limit the state's readiness for competition with other states and countries. These are:

- Manufacturing has a poor image professionally.
- Taxes of all types are high.
- Businesses are unable to contain manufacturing costs.
- There is an emerging two-tiered workforce. Older, reliable workers are retiring soon. Their potential replacements are difficult to attract and retain.

9. The consequence is that Wisconsin is beginning to approach critical difficulties as it attempts to transit from low-cost, high labor, low profit Old Economy commodity products to the high-cost, low labor, high profit New Economy niche and specialty global markets. However, New Economy manufacturing might reverse the present status and offer the incentives to attract a highly motivated workforce.

10. As commodity products yield to low-pay countries, Wisconsin's manufacturing executives predict a migration of corporate headquarters, research and development, and production from the state in the next five years. This may signal the loss of market share in commodity markets.

11. Wisconsin has a surprising number of small manufacturing firms compared to the eight competing states: 82.4% of Wisconsin manufacturers' corporate parents have annual revenues of less than \$100 million, while all of the other states have percentages less than 65%. While addressing the needs of its driver manufacturing industries, the state's many *small* companies may offer significant opportunities for moving into the global market. From 1992-2001, 30% of U.S. exports were from small- and medium-sized exports, two-thirds of which had 20 or fewer employees. Their numbers grew twice as fast as large company exporters. Smaller, more flexible companies may be able to adjust more rapidly to the New Economy than their larger competitors.

ES-II. A New Manufacturing—and Economic—Paradigm

Manufacturing in Wisconsin and elsewhere has changed dramatically in recent years, resulting in often traumatic reorganizations of existing industries and significant dislocations of workers and communities around the globe. Factors affecting manufacturing worldwide include:

- Globalization of competition, due to advances in logistics that make sourcing from distant regions a viable strategy;
- Reduced trade restrictions between nations;

- Availability of low-cost labor in emerging markets;
- Advances in information technology, including the emergence of the Internet, that allow businesses and consumers to compare a wide array of products and prices, pressuring manufacturers to reduce prices on an ongoing basis.

These factors have driven almost every product category toward commoditization in which product features, quality, and prices become standardized over time.

Manufacturing competition in the 21st Century will favor New Economy firms and regions that adopt some combination of the following strategies:

- A commodity strategy, in which the firm or region commits to becoming the low-cost provider of standardized products in a given industry, earning lower margins on higher volumes of product; and
- A non-commodity, or value-added, strategy in which the firm or region commits to combining products and services into complete value packages that allow for greater customization, earning higher margins on lower volumes of products.

Globalization is here to stay, and most of the world's market is outside of the United States. To survive, manufacturers will have to adapt their businesses to a new reality: Customers increasingly want very different things from what they used to demand. They now expect value to increase continuously. Wisconsin's manufacturers must *and can* respond.

The state is ready for a transition from the Old Economy manufacturing—high labor percentages in cost of goods sold, low wages, and commodity sales strategies—to the New Economy manufacturing with its low labor percentages in cost of goods sold due to automation, its high wages, and its high tech, specialty, and niche markets. Wisconsin is ready, but it is not assured of success in making or surviving this transition.

ES-III. Driver Industries for Wisconsin's New Manufacturing and Economic Future

For Wisconsin to take advantage of the manufacturing opportunities before it, the state must focus on those industries that are most competitive and have the greatest potential for national and global prominence. These are Wisconsin's *statewide* manufacturing driver industries. The fundamental methodology for discovering these primary economic forces in manufacturing is based on an analytical tool developed by Ned Hill and John Brennan (2000), part of the team that created this report.²

The Importance of the Methodology

² E. Hill & J. Brennan (2000). A Methodology for Identifying the Drivers and Clusters: The Foundation of Regional Competitive Advantage. *Economic Development Quarterly*, 14, pp. 65-69.

The statistical methodology of Hill & Brennan differs markedly from other approaches in that it is far more comprehensive and analytical. The methodology applies 12 different measures to generate indicators of relative individual industry strength, and these measures allow the quantitative results to be interpreted in economic terms. And, the methodology groups industry variables for analysis by one of three types: (1) competitiveness (productivity, national market share, and relative earnings); (2) export orientation (output and employment specialization), and (3) regional centrality (share of regional output), all of which generate statistical measures for determining an industry's relative strength.³

In contrast to the Hill & Brennan methodology, other approaches are most often limited by over-simplification. Typically, they may look only at (1) a select group of industries instead of all possible industries; (2) qualitative analysis with limited case studies, with their associated quantitative industry profiles, which cannot adequately translate into quantitative findings; (3) quantitative analyses that cannot capture industry dynamics due to weak analytical tools that address only relative strengths; or (4) one or very few variables as indicators of industry strength. In short, these other approaches are simply not as robust in scope or as concentrated in economic analysis as the Hill & Brennan methodology.

Drivers and Industry Clusters

Driver industries are concentrated by numbers in a region and produce more goods than can be consumed locally. Those goods are exported—out of the region, the state, and the country. By selling their product outside of the region, these companies bring new monies back into it. Thus, they *drive* the regional economic growth.

Industry clusters form around the *driver industry*. They are the suppliers *to* the drivers and the buyers *from* the drivers. They are firms in the same industry that have close buy-sell relationships with other industries in the region, use common technologies, or share a specialized labor pool that, together, provide these firms with a competitive advantage over the same industry in other regions, states, or countries.

The Hill & Brennan methodology identified driver industries in Wisconsin's seven county-based economic regions.

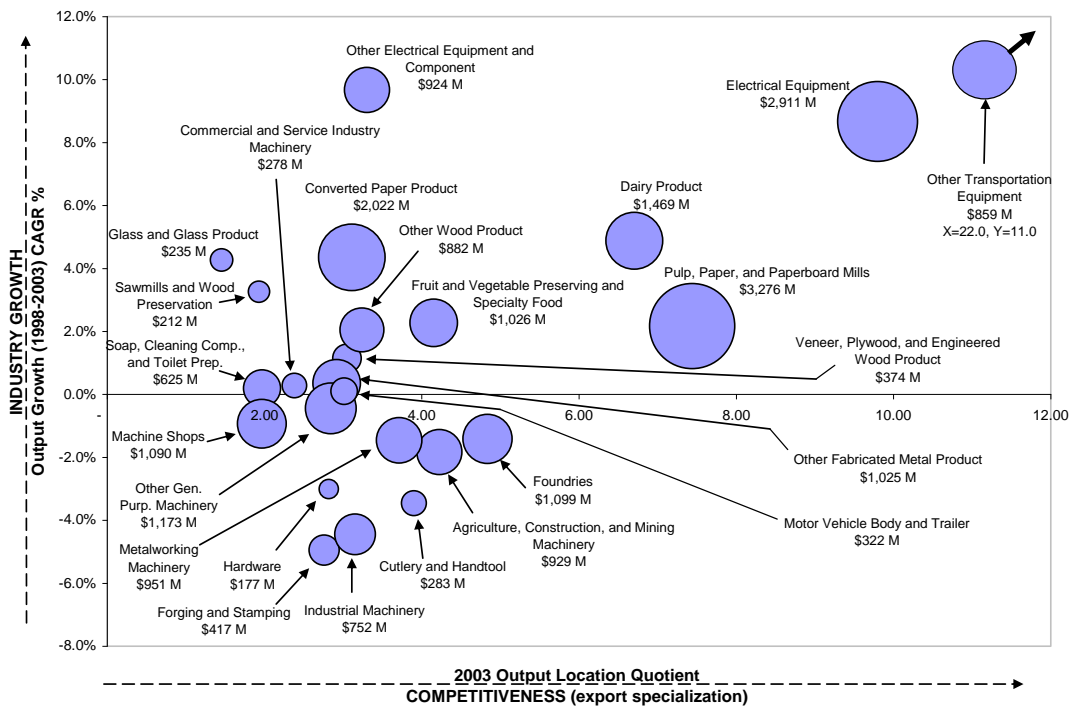
- **Central:** Adams, Clark, Langlade, Lincoln, Marathon, Portage, Taylor, Waushara, Wood
- **East Central:** Brown, Calumet, Door, Kewaunee, Marinette, Menominee, Oconto, Outagamie, Shawano, Waupaca, Winnebago
- **North:** Ashland, Bayfield, Burnett, Douglas, Florence, Forest, Iron, Oneida, Price, Rusk, Sawyer, Vilas, Washburn

³ Further details about the methodology appear in Section 2, with a full description in Section 14.2.

- **South:** Columbia, Crawford, Dane, Grant, Green, Iowa, Juneau, Lafayette, Marquette, Richland, Rock, Sauk, Winnebago, IL
- **Southeast:** Dodge, Fond du Lac, Green Lake, Jefferson, Kenosha, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Walworth, Washington, Waukesha
- **West Central I:** Barron, Buffalo, Chippewa, Dunn, Eau Claire, Pepin, Pierce, Polk, St. Croix
- **West Central II:** Jackson, La Crosse, Monroe, Trempealeau, Vernon

The following chart shows 24 *statewide* manufacturing drivers compared to (1) their gross product in dollars, (2) their competitiveness, and (3) their percent growth over a five-year period.

Figure 1-1 Overview of Wisconsin's Statewide Drivers



This chart relates the economic health of driver industries in Wisconsin by two factors—their “competitiveness” in terms of export orientation or specialization on the X axis (i.e., the horizontal axis)⁴ and their “growth” on the Y axis (vertical). *Competitiveness* is measured in terms of output location quotient, which is a ratio of the industry’s concentration in the state compared to the industry’s concentration nationally. In general, a location quotient above 1 indicates that the industry is more concentrated in Wisconsin than it is nationally. This concentration suggests that the industry exports its products,

⁴ The “competitiveness” values appear in the middle of the chart. “Competitiveness” is marked in even increments—2, 4, 6, 8, 10, and ending with 12 at the far right of the chart.

and that Wisconsin offers competitive advantages to the industry over other states throughout the country. An industry is increasingly more competitive as it moves to the right on the X axis. And the more competitive it is, the more it sells goods outside of Wisconsin, thereby generating more money for the state.

Industry *growth* is measured in terms of compound annual growth rates over a five-year period and is shown on the Y axis. An industry is growing faster as it moves upward from 0.0%; it is declining if it is below 0.0%. The area (size) of each circle represents the gross product of each industry and indicates the industry's size compared to the other industries. Through this picturing of all of the 24 statewide drivers, a sense of the overall strategies and services that will be needed in Wisconsin begins to emerge.

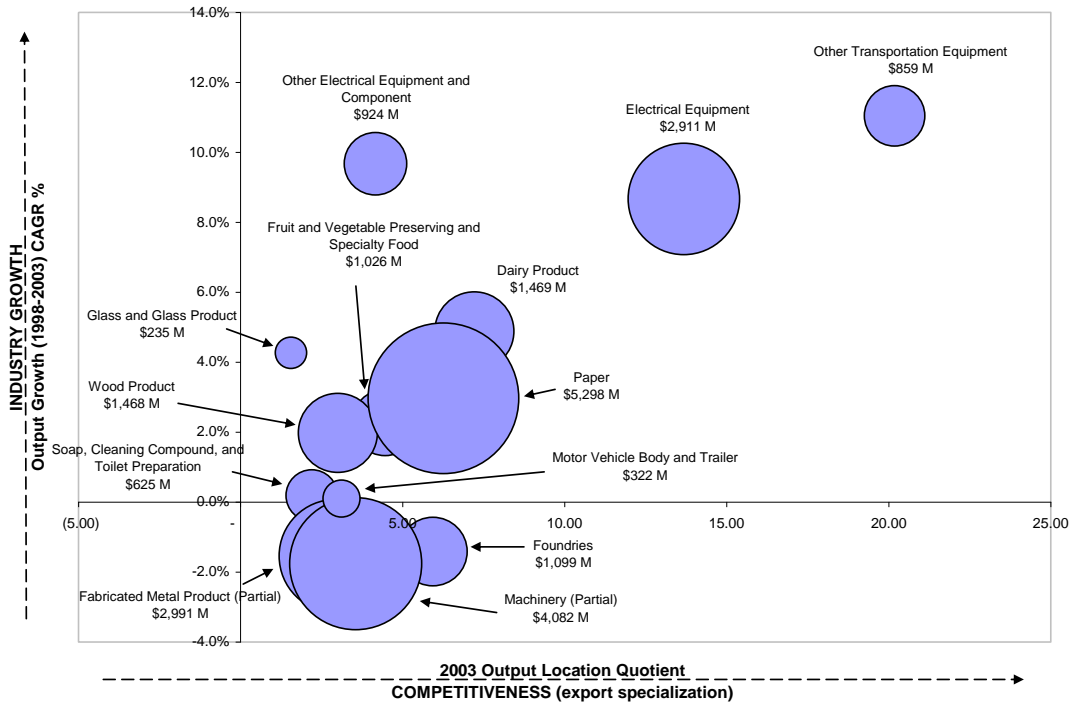
A further perspective appears when affiliated industries are combined. This is possible because a number of the 24 statewide driver industries are closely related by raw material used, the manufacturing process employed, and / or the shared technology or workforce. For example, the two categories, 3221-Pulp, Paper, and Paperboard Mills and 3222-Converted Paper Product Manufacturing, both use the same raw material and similar processes; therefore, they can be grouped under the 3-digit NAICS code, 322-Paper Manufacturing. The same can be said about the industries in 3211, 3212, and 3219.

Table 1-1 Statewide Driver Industries

	NAICS	Title
1	3114	Fruit & Vegetable Preserving & Specialty Food Manufacturing
2	3115	Dairy Product Manufacturing
3	321	Wood Product Manufacturing (Complete)
	3211	Sawmills and Wood Preservation
	3212	Veneer, Plywood, and Engineered Wood Product Manufacturing
	3219	Other Wood Product Manufacturing
4	322	Paper Manufacturing (Complete)
	3221	Pulp, Paper, and Paperboard Mills
	3222	Converted Paper Product Manufacturing
5	3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing
6	3272	Glass and Glass Product Manufacturing
7	3315	Foundries
8	332	Fabricated Metal Products (Partial)
	3321	Forging and Stamping
	3322	Cutlery and Handtool Manufacturing
	3325	Hardware Manufacturing
	3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
	3329	Other Fabricated Metal Product Manufacturing
9	333	Machinery Manufacture (Partial)
	3331	Agricultural, Construction, and Mining Machinery Manufacturing
	3332	Industrial Machinery Manufacturing
	3333	Commercial and Service Industry Machinery Manufacturing
	3335	Metalworking Machinery Manufacturing
	3339	Other General Purpose Machinery Manufacturing
10	3353	Electrical Equipment Manufacturing
11	3359	Other Electrical Equipment and Component Manufacturing
12	3362	Motor Vehicle Body and Trailer Manufacturing
13	3369	Other Transportation Equipment Manufacturing

The chart below regroupes similar 4-digit industries into four 3-digit categories, allowing the 24 statewide drivers to be consolidated into 13 statewide drivers. This might suggest that future planning could be centered around these 13 drivers, not all 24.

Figure 1-2 Consolidated Overview of Wisconsin's Statewide Drivers



Since all of Wisconsin's 24 driver industries (or 13 industry categories) have a Location Quotient greater than 1, indicating competitiveness, they are all more concentrated in the regions than in the rest of the nation. **This is a significant competitive advantage.** And, all of the industries above 0.0% on the Y axis have been growing through the recession, from 1998-2003, the Other Transportation Equipment category most of all. However, the metal industries are competitive but not growing. They include Industrial Machinery, Forging and Stamping, Cutlery and Handtools, Metalworking Machinery, and Other General Purpose Machinery, along with the machine shops that supply them.

These driver industries represent Wisconsin's manufacturing future, not only for themselves but for the industry clusters which depend upon them—a manufacturing future with the potential for growth and global competitiveness, but it is one which is not guaranteed. Indeed, each of these driver industries faces a host of challenges, issues, and opportunities both within Wisconsin and around the globe. These are analyzed in Section 5 for each of Wisconsin's 13 driver industry categories, including:

- Driver industry definition
- Export changes
- Gross product
- Employment
- Top 10 employers
- Products

- Associated industry clusters
- Industry challenges and recommendations

ES-IV. Obstacles to Becoming a New Economy State

This Study includes information directly from Wisconsin’s manufacturers, in addition to data from many documents. Information sources include a panel discussion conducted by the MPI Group and attended by representatives of Wisconsin’s manufacturing industries on May 17, 2005, in Milwaukee, and MPI’s online questionnaire for Wisconsin’s manufacturers. The complete transcript of the panel discussion is on WMEP’s website, while the findings from the questionnaire are in the Appendix. Finally, the documents cited are footnoted throughout the report. To a remarkable extent, these sources agreed, in detail, on the present condition of Wisconsin’s business climate—the state’s strengths, weaknesses, and opportunities.

Wisconsin’s manufacturers believe that they face four (4) major barriers that could limit the state’s readiness for competition with other states and countries in the global marketplace:

1. Manufacturing has a poor image professionally in Wisconsin; therefore, it is difficult to attract and then retain high quality replacement labor.
2. Taxes of all types are high in Wisconsin, compared to border and other competitor states.
3. Businesses are unable to contain manufacturing costs, due to spiraling health care, liability insurance, on-the-job training, and new machinery and technology costs.
4. There is an emerging two-tiered workforce in Wisconsin. Older, reliable, hard-working employees are retiring soon. Their potential replacements may not be as dedicated to the work ethics of their forerunners and they are increasingly difficult to hire and retain.

To improve their competitive position, both in domestic and foreign exports, manufacturers believe that Wisconsin must:

1. Reinstate tax incentives to encourage the purchase of new equipment and higher technology.
2. Support automated manufacturing through tax incentives or other subsidies.
3. Support or provide state-funded on-the-job training, especially for new employees.
4. Introduce tort and regulatory reform that will reduce product, workplace, and environmental liability for manufacturers.

5. Improve regional economic development planning and coordination to recruit new businesses to Wisconsin, especially in the southwest.
6. Provide assistance in linking manufacturers to new export distribution channels.
7. Provide assistance in overcoming ethnic language blocks through pre-employment training or English classes to provide more high quality workers.

It is notable that most Wisconsin manufacturers who participated in the panel discussion and online questionnaire still emphasize Old Economy concerns—taxes, work ethic, costs of doing business, poor image of manufacturing—even as they begin to recognize the need for long-term strategies that would move them into the New Economy.

One promising factor in the struggle to transition from the Old Economy to the New Economy lies in the fact that Wisconsin's manufacturing firms are small when compared to those in the eight competing states: 82.4% of Wisconsin manufacturers' corporate parents have annual revenues of less than \$100 million, while all of the other states have percentages less than 65%. U.S. Trade Administration figures suggest that smaller, more flexible firms have significant opportunities for moving into the global market:

- More than two-thirds of the U.S. exporters have fewer than 20 employees.
- The number of small- and medium-sized exporters grew twice as fast as the number of large company exporters between 1992 to 2001.
- Small- and medium-sized export revenues rose 77% from 1992 to 2001.
- Small- and medium-sized exporters comprise roughly 30% of U.S. exports.⁵

ES-V. Analysis and Recommendations

Whether any of Wisconsin's driver industries succeed in transitioning to the New Economy will depend primarily on the performance of their leaders and employees in managing the complexities of a new global manufacturing paradigm. At the same time, state and regional policies, regulatory frameworks, and tax structures do impact competitiveness. To capitalize on its 21st Century manufacturing potential, Wisconsin will have to create a business and social environment that fosters (or at least does not hinder) responsible, growth-oriented manufacturing industries. At present, Wisconsin's business climate currently offers both significant opportunities and challenges to its manufacturers.

All of these challenges must be addressed within the context of Wisconsin's driver manufacturing industries and the seven economic regions in which they predominate.

⁵ U. S. Department of Commerce, "Summary Graphs," Small & medium-Sized Exporting Companies: A Statistical Handbook: Results from the Exporter Data Base, pp. 6-11. See www.ita.doc.gov/td/industry/otea/docs/SMEseminar.pdf

Therefore, any strategies for aiding an industry must also consider its growth / competitiveness position within a specific region. The regional profiles, along with each region's driver industries, appear in Sections 7-13. Other information includes regional industry cluster suppliers and customers, the top companies in that industry, their gross products, employment, growth, competitiveness, and other data to pinpoint further where individual industry leverage points might reside.

We recommend that over the next 24 months, the project collaborators use the findings of this Study as the basis to convene working groups within each of the 13 statewide driver industry categories, with regional representation, to develop plans and recommendations specific to each industry. Notwithstanding regional differences, however, a number of statewide, cross-industry issues must be addressed by each of these plans—reflecting statewide, collaborative actions that must occur for Wisconsin to claim its place among the world's elite manufacturing centers.

We also recommend that Wisconsin focus its manufacturing transformation efforts in the following four areas:

1. **Build on Wisconsin's driver industries.** Nurturing driver industries is the key to economic growth. Wisconsin should concentrate its state and regional economic development efforts on strengthening driver industries and the cluster industries around them. The focus should be on helping these driver industries adapt to a new manufacturing economy.

For example, Wisconsin should consider:

- a) Strengthening driver industry supply chains by targeting improvement services to driver industry suppliers. Encourage and foster the growth of driver industry-led original equipment manufacturer (OEM) supplier consortia to promote globally competitive Wisconsin suppliers.
- b) Developing research/technology/innovation centers to support Wisconsin's driver industries. The transformation of today's driver industries depends on the adoption of new technology and techniques. Driver industry technology centers will spur innovation, attract new scientific and engineering talent, and spin off new businesses that are likely to stay in the area because the cluster already exists in the state. The recent formation of a paper products research center in the Green Bay area is an example of how a key driver industry can be advanced in this fashion.
- c) Developing regional purchasing and management cooperatives for certain industries, particularly those that operate in a number of economic regions, such as the Dairy Industry, found in six of the seven regions, and Electrical Equipment found in five regions.

- d) Redoubling efforts to expand Wisconsin exports and penetrate international markets, with special attention to non-commodity products. Emphasize Wisconsin's driver industries in the state's export promotion and assistance programs.
- e) Encouraging manufacturing service providers and regional economic development entities to deliver services targeted to driver industry firms and supply chains. Those services should continue to support in competitive strategies such as Lean Manufacturing but should be expanded to emphasize New Manufacturing Economy imperatives of innovation, marketing, and value-added services bundling.

2. Create structural change that fosters sustainable focus on manufacturing. Efforts to adapt to the world's new manufacturing paradigm have been sporadic and inconsistent in Wisconsin and elsewhere. A dedicated effort to identify the keys to success for Wisconsin's driver industries – and to replicate those success factors among the state's large number of smaller manufacturers – will pay dividends for decades to come.

For example, Wisconsin should consider:

- a) Establishing an ongoing bi-partisan legislative manufacturing task force to ensure legislative attention commensurate with manufacturing's importance to Wisconsin. Manufacturing issues span the jurisdictions of multiple legislative committees. A legislative manufacturing task force would provide a cross-cutting perspective and be a resource to standing committees.
- b) Establishing an ongoing cross-agency team of agency leaders to coordinate executive actions to advance manufacturing in Wisconsin. Agencies involved would include the Departments of Commerce, Workforce Development, Natural Resources, and others.
- c) Assigning responsibility for ongoing research on manufacturing issues. This could provide manufacturers and policymakers with data to help make informed choices and provide benchmarks for progress. Valuable research areas could include biannual updates on driver industries in the state, regular assessment of best practices of competitive and growing firms, and regular benchmarking of other states' manufacturing support policies.

3. Take immediate action to correct the current and projected skill shortages in advanced manufacturing. The availability of talent is *the* most important factor for the long-term success of Wisconsin's driver industries. The private, public, and non-profit sectors should leverage resources in innovative solutions to attract and train entry level workers as well as professionals in engineering, science, and mathematics.

For example, Wisconsin should consider:

- a) Strengthening partnerships between driver industry firms and the state’s workforce development boards, technical schools, and universities to design workforce development strategies and encourage placement of management, engineering, and technical talent with Wisconsin firms.
 - b) Expanding internships for students and teachers to provide a first-hand look at manufacturing’s state of technology and career opportunities.
 - c) Integrating manufacturing into academic and technical institutions’ curricula, especially into more K-12 education.
 - d) Researching and replicating innovative workforce development models.
 - e) Aggressively promoting manufacturing as a high-tech industry with a strong future and with high quality of life jobs. Industry, government, and academic leaders should have a visible role in communicating this message.
 - f) Acquiring best practices from other states and countries that support economic competitiveness and investment, e.g., “flexible” labor laws, new education and research strategies, and “tax optimization” that “encourages more foreign direct investment.”⁶
4. **Prepare a broad-scale legislative package based upon close examination of policies affecting driver manufacturing industries and their industry clusters, with the goal of supporting Wisconsin manufacturing.** Many Wisconsin manufacturers believe some state policies and practices are barriers to competitiveness. The state should initiate legislative action on issues that impact manufacturers and affect their ability to compete in the New Economy. Among the policies, practices and issues identified by manufacturers as potential barriers are:
- a) Rapidly rising health care costs
 - b) Wisconsin’s tax structure
 - c) Skill shortages in key manufacturing occupations
 - d) Regulatory authority, process, and limits
 - e) Minimum wage levels
 - f) Product and environmental liability
 - g) Access to capital for new technology investment

⁶ Thomas L. Friedman, “Follow the Leapin’ Leprechaun,” *The New York Times*, July 1, 2005, p. 1. See <http://query.nytimes.com/gst/abstract.html?res=F70715FE3B5E0C728CDDAE0894DD404482>

h) Economic development priorities

Perhaps most difficult of all, for any industry, will be changing public perceptions about the viability of manufacturing as an economic growth engine for the state and about the desirability of careers and communities based on manufacturing.

Wisconsin clearly has unique manufacturing assets and potential based on its long history of manufacturing leadership. The fundamental economic development question facing the state's leaders, manufacturers, and general population is whether they will have the savvy, persistence, and will to capitalize on what is before them—the New Economy.

This study addressed many issues, but there are a number of areas worth exploring more fully as Wisconsin seeks to retain and grow driver manufacturing sectors. Wisconsin should assign entities to track, analyze, and address issues associated with at least these two areas, and others as needed:

- The impact of manufacturing on other sectors of the economy. Manufacturing is shifting and a new manufacturing economy will depend more on outsourced suppliers and services. As a result, the true health of a manufacturing driver industry will be less apparent by looking at direct manufacturing employment numbers. A better understanding of this impact is essential.
- The impact of Wisconsin's heavy concentration of small, privately owned manufacturing base. The data clearly show that Wisconsin stands out in the percentage of firms that have this characteristic. It is unclear what implications this has on future manufacturing success in the state.

1 Global Manufacturing and the New Economy

Manufacturing is an integral part of a web of inter-industry relationships that create strong regional and national economies. Manufacturing sells goods to other sectors in the economy and, in turn, buys products and services from them.

Manufacturing spurs demand for everything from raw materials to intermediate components to software to financial, legal, health, accounting, transportation, and other services in the course of doing business. According to the Bureau of Economic Analysis, every \$1 of final demand spent for a manufactured good generates \$0.55 of GDP in the manufacturing sector and \$0.45 of GDP in nonmanufacturing sectors.⁷

Critical Issues

- The most fundamental strategic questions facing manufacturers today are about customers, and the fundamental ways in which customer expectations have changed.
- Manufacturers who maintain a narrow-minded focus on price and efficiency will do so at their peril—because widespread commoditization of products, due to the emergence of manufacturing competitors around the globe, is causing product-related prices and margins to fall in industry after industry.
- Providing a package of total value—including service and other non-product attributes—will be the key to survival for manufacturers adapting to 21st century competition.

Manufacturing in the 21st century requires new strategies. Those who develop them will see top line revenue growth, while those who don't will find themselves in a race to the bottom, where commoditization erodes profits and ultimately closes businesses.

What will be required for Wisconsin to be competitive in manufacturing? In short: Manufacturing businesses cannot continue to run “as usual.”

1.1 Globalization Is Here to Stay

Manufacturing has changed dramatically in the last 20 years, and will continue to evolve rapidly over the next generation. To survive, manufacturers will have to adapt their businesses to a new reality of global economy: Customers and potential customers increasingly want very different things from what they used to demand. Customers across a wide array of industries—perhaps having been trained by the software industry, where new features are added every year while the price stays the same—now *expect value to increase continuously*. What's more, customer expectations are leaping from one industry to others. As a result, the most fundamental strategic

⁷ Manufacturing in America: A Comprehensive Strategy to Address the Challenges to U.S. Manufacturers, U. S. Department of Commerce, January 2004, p. 14. See www.ita.doc.gov/media/Publications/pdf/manuam0104final.pdf

questions facing manufacturers today are about customers—and the fundamental ways in which customer expectations have changed. Market dynamics have reduced most customer interactions to discussions of “price” without reference to “value.”

Yet even though customers focus on price in negotiations, they increasingly select vendors on non-price value attributes, a fact that few leaders and even fewer companies understand. Even worse, most leaders have failed to recognize how deeply advances in information technology, logistics, and management techniques have affected their customers’ expectations. In market after market, real prices—those adjusted for inflation—have declined steadily over the last 20 years. In high-tech markets the trend is even more impressive: calculators that sold for hundreds of dollars in the 1970s are now giveaways at trade shows, and computing power that cost millions of dollars then is now available for under \$300.

Manufacturers’ focus on price has driven extensive commoditization of products and prices, even in markets where complexity and customization should differentiate. With margins in freefall, manufacturers often cut corners to survive, instead of increasing real and perceived value, which is what today’s customers really want. Increasingly, dissatisfied customers demand even lower prices, driving ever more commoditization. In many manufacturing industries, CEOs despair of ever being able to raise prices again—or of investing in the future.

Can manufacturers change the customer conversation from price to value?

Yes, but doing so requires a fundamental reorganization of the customer relationship, by providing a customer-value package *wrapped around* the core product or service, and negotiating what the package offers:

- Improved quality/reliability/timeliness of delivery and service;
- Reduced total cost of ownership/procurement/business relationship;
- Reconfigured solution bundles, of which the core product or service may be a small part;
- Transparent access to information, serving the end-customer and supporting the product; and
- Provision of valuable business expertise, even if unrelated to the core product or service.

Changing the discussion from price to value increases margins dramatically—because adding more customer value does not mean proportionally more investment. It also enables manufactures to grow customer loyalty as customers increasingly value the relationship, not merely the product or service.

To make the price-to-value argument stick, a manufacturer must reorganize all processes and customers’ interactions around a value-added strategy. This requires five key initiatives:

- (1) Develop a systematic, continuous methodology to understand what customers *really value*. For example, half of U.S. heads of households are too tired to prepare an evening meal. “Tops Markets LLC eliminated most of its greater Cleveland Sandusky store butchers and introduced a line of Tender Choice beef and a companion line, Tender pride pork, both produced by Excel, a subsidiary of meat giant Cargill. A

Tops spokesman explains its reasoning: “It’s a trend.” The Tender Choice program “allows us to go to a wider variety of cuts, with a longer shelf life because they've been packaged already. It really fits today's lifestyle.”⁸

- (2) Focus intently on building relationships instead of products, broadening the value proposition from merely having preferred products to becoming a preferred partner. Consider, for example, a consumer who orders a computer from Marlow, New Hampshire-based PC Connection. If the customer calls before midnight, PC Connection will fully configure a new computer—including the addition of accessories and loading software—and then deliver the computer to the customer’s home the next day.
- (3) Reexamine your product and customer value proposition, and bundle it with other products/services. Automakers, for instance, are incorporating a range of information and entertainment options, from DVD players to real-time traffic reports to Internet access. Why? Because the automotive industry’s ultimate product may no longer be a car or even safe and secure transportation, but instead a one- or two-hour daily experience in the automobile. As another example, Harley-Davidson’s Parts and Accessories division “introduced 1,137 new accessories in its ever-expanding array of ways for customers to customize their personal motorcycles. New riding gear and fashion apparel from the Harley-Davidson MotorClothes line underscored the positioning of General Merchandise as the fashion and function leader in motorcycle apparel.”⁹
- (4) Put information management – about product/services/value and customers – at the core of your customer value proposition, delivery data, information, products, and services whenever, however, and wherever customers want it. To illustrate, in a just-in-time environment, information about a shipment or service delivery date is often more valuable than the shipment or service itself – because a missed delivery may shut down a customer’s operation. Information about shipments or service deliveries gives customers the power to schedule, to plan, and to deliver outstanding service to *their* customers.
- (5) Develop a systematic, continuous methodology to evaluate products and customer-value propositions as well as the value packages offered by competitors, and invent and implement new concepts in customer-value creation. At Starbucks, for example, quality coffee is only the first level of customer value. By adding grocery store availability of high-end coffees and coffee drinks, Starbucks debit cards, and Internet access with pay-as-you-go or unlimited-usage charges at retail locations, the company managed to grow from a coffee stand in 1971 to a global corporate power with more than \$4 billion in revenue in fiscal year 2003. And, Starbucks’ Ken Lombard has added to these products and services with CD sales of popular musicians and singers, creating an additional revenue stream.¹⁰ By doing so, Starbucks has also boosted

⁸ Joe Crea and John S. Long, “Chew on the Meaning of ‘Fresh,’” *The Plain Dealer*, Sunday, June 12, 2005, p. A20.

⁹ We Ride With You. Harley-Davidson 2004 Annual Report, p. 3. See <http://investor.harley-davidson.com/annual.cfm>

¹⁰ Daniel McGinn, “Leadership for the 21st Century—Fresh Ideas,” *Newsweek*, June 13, 2005, p. 52.

productivity: customers can add a CD to their purchase, which may cost 3 to 4 times their coffee.

Through these practices, manufacturers create wealth by opening up new revenue streams, answering the perennial question, “What are we going to do to survive?”

1.2 How Can Wisconsin and Its Manufacturers Compete?

World-wide manufacturing trends argue compellingly that manufacturers who succeed will do so by meeting the increasing customer demand for high-end products and services, not the mass production of low-cost, high labor commodities. The Federal Reserve Bank of San Francisco reported these observations:

Comparing states with and without job recoveries, we find no significant difference in productivity growth. The results indicate that differences in demand (output) rather than differences in productivity growth have been the main primary drivers of job growth across states.

. . . If the acceleration in productivity growth had been due largely to cautious employers pushing the existing workforce harder, we would expect to see some negative correlation between employment growth and productivity growth across states—in other words, either faster employment growth and slower productivity growth or vice versa. The idea is that, if a firm had confidence to expand employment, it would be less likely to engage in stopgap measures to raise productivity.¹¹

This position on the interrelationship among employment, gross product, and productivity by the Federal Reserve Bank of San Francisco concludes that data at the state level from 2001 through 2004 showed “. . . no statistically significant relationship between productivity growth and employment growth across the U.S. . . . Indeed, it appears that the states’ employment growth rates in recent years have been related to output growth, rather than to productivity growth.” In effect, productivity gains can meet demand, but companies experiencing substantial demand hire new workers.¹²

In short, any state’s manufacturing industry benefits competitively from productivity growth, but it is overall growth in a state’s manufacturing gross product—more demand for its manufactured goods—that ultimately leads to a state’s manufacturing prominence.

This suggests that as a strategy, a state’s manufacturers must distinguish themselves from their competitors with customer-value packages *wrapped around* the core product or service. The market reward is preferential purchase from those companies that best meet their customer’s desire for continuous value improvement in products or services. This is how manufacturers must compete in the new global economy.

California’s *Bay Area Economic Forum* said bluntly what we might see on this new pathway:

¹¹ Federal Reserve Bank of San Francisco, pp. 1-3.

¹² Federal Reserve Bank of San Francisco, p. 3.

“. . . the global manufacturing footprint of the future, even for a single company, likely will involve a mix of locations, with ‘basic’ high-volume production [i.e., commoditization] offshore and ‘customized’ production maintained domestically.”¹³ Some industries will not fit this pattern because they will be tied to their location, such as food production and delivery in California, or logging and paper manufacturing in Wisconsin.

The consequences of these trends are immense. By almost any measure—gross product, productivity, capital expenditures, employment, or foreign exports—manufacturing and its related industries comprise almost one half of the total U.S. economy. In general, domestic manufacturing is clearly leaving behind years of high-pay, low-skill jobs (textiles, apparel, and toys) and turning toward high-skill, high-pay industries (aerospace, office and computing equipment, communications equipment, drugs and medicines, and medical, precision, and optical instruments.) The transition calls for careful analysis of global (customer) trends and local business climate compositions to develop statewide and regional strategies that minimize the loss of the outgoing high-pay, low-skill jobs to low-pay, low-skill countries and to maximize, rapidly, the plans and resources to grow high-skill, high-tech, high-pay industries.

¹³ Bracketed comment is the Study author’s. Bay Area Economic Forum, “Introduction,” One Million Jobs at Risk: The Future of Manufacturing in California, March 2005, p. 2. See www.cmta.net/multimedia/at_risk_jobs_20050301.pdf.

2 The Wisconsin Manufacturing Study

Critical Issues

- What can Wisconsin's manufacturing sector do to adjust to the new global economy?
- Who are its main competitors?
- How can Wisconsin address the needs of its very diverse manufacturing issues in its regions?

In light of these realities in the new global marketplace, the Wisconsin Manufacturing Extension Partnership (WMEP) asked the Manufacturing Performance Institute (MPI) "to analyze the current and future state of manufacturing in Wisconsin." MPI partnered with a team of researchers led by Dr. Edward W. (Ned) Hill, Professor and Distinguished Scholar of Economic Development at the Maxine Goodman Levin College of Urban Affairs at Cleveland State University. Dr Hill recently completed research on a similar evaluation of Pennsylvania's manufacturing economy.

The Wisconsin Manufacturing Study was initiated to look at: (1) the impact of Wisconsin business sectors relative to manufacturing statewide and compared to eight states with which its main industries compete; (2) the manufacturing industries within each of the state's seven economic regions; (3) and manufacturing issues and recommendations for the future, for both statewide and individual industries.

2.1 The Analysis

The analytical method employed in the Study is based on a technique developed by Ned Hill and John Brennan (2000). The method identifies "driver industries" and "industry clusters." From an economic perspective, driver industries are relatively concentrated in a region and produce more goods than can be consumed locally. These companies sell their product outside of the region, thereby bringing new monies back into the region. Thus, they *drive* regional economic growth.¹⁴

The driver industries form the heart of a linked group of companies, the industry clusters. These are a geographic concentration of firms in the same industry that have close buy-sell relationships with other industries in the region, use common technologies, or share a specialized labor pool that, together, provide these firms with a competitive advantage over the same industry in another region, or state, or country. The complete cluster consists of suppliers, the driver industry that produces the finished product, and the customer, or consumer of that product or service. In this Study, "industry clusters" refers to the binding of these three entities; whereas other authors generally use the word to refer to a group of industries that are similar in the product they make or the process they use to manufacture their output.¹⁵

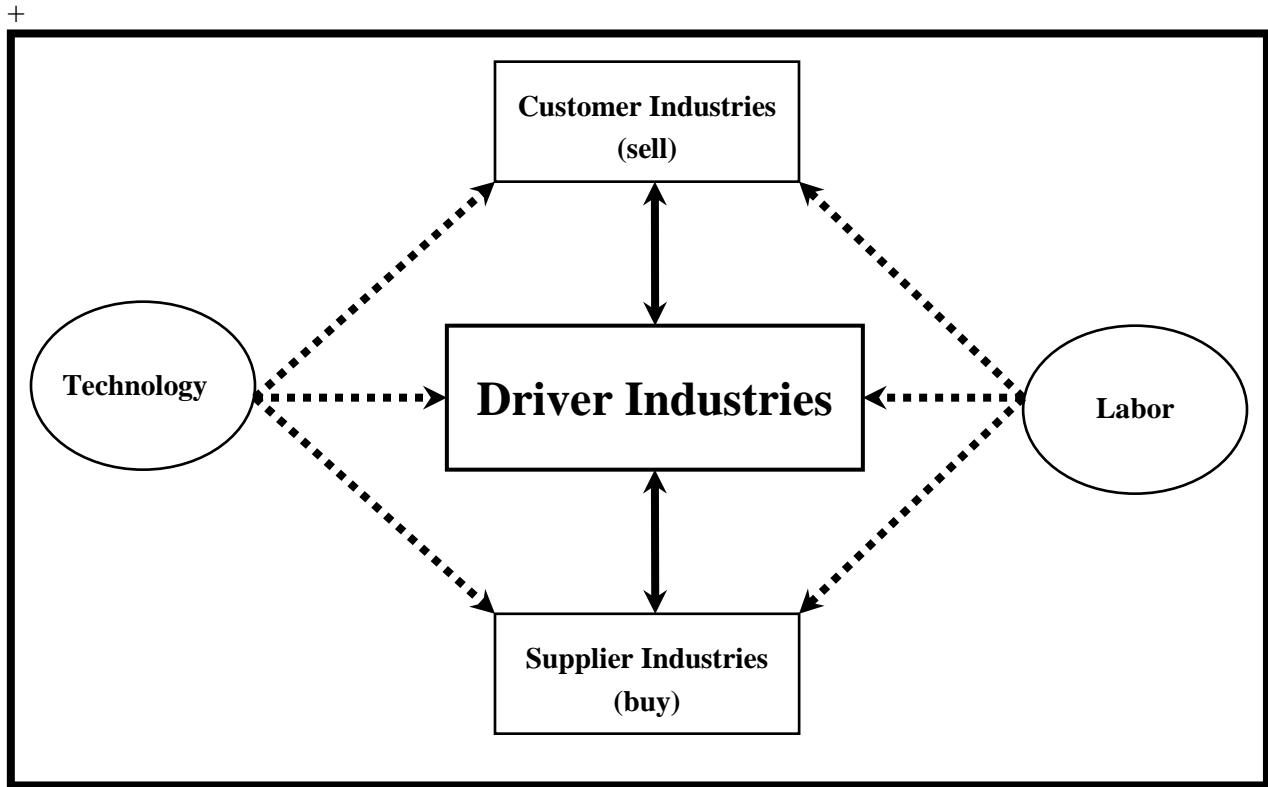
The methodology is described in detail in the Appendix.

¹⁴ E. Hill & J. Brennan (2000). A Methodology for Identifying the Drivers and Clusters: The Foundation of Regional Competitive Advantage. *Economic Development Quarterly*, 14, pp. 65-69.

¹⁵ E. Hill & J. Brennan (2000). pp. 65-69.

The relationships among the three industry cluster components are depicted graphically in Figure 2-1.

Figure 2-1 Structure of a Competitive Industry Cluster¹⁶



2.2 Wisconsin and Its Eight Competing States

In addition to identifying the driver industries and their industry clusters, the Study compares the performance of the State of Wisconsin's manufacturing industries with those from a select group of states that are identified as "competitors." In general, competitor states are those that have a significant concentration of firms and/or industries that compete with firms in the State of Wisconsin. The Study identifies eight states that are primary competitors for the markets of the major driver industries in Wisconsin.

These eight competitor states include two that border Wisconsin—Minnesota and Illinois—since, by their geographic location, they offer the same access to all non-governmental resources as locations within Wisconsin itself, and their proximity facilitates the flow of competing manufactured goods. That proximity also makes it possible for the workforce in these contiguous states to cross state lines for employment. Other nearby competitor states include Michigan and Indiana, as well as the State of Ohio, which historically has had an industrial base similar to that of Wisconsin. Altogether, these five Great Lakes Basin states offer many of same labor skills,

¹⁶ Hill & Brennan, 2000.

natural resources, and transportation networks that manufacturers seek in Wisconsin's driver industries.

In addition, three other states were included for their clear competitiveness. Tennessee competes in various driver industries, but especially in furniture manufacturing. California competes as well with Wisconsin in many of its driver industries, but particularly in dairy products. Finally, Texas was included as a competitor of substantial size across many of Wisconsin's driver industries.

In summary, in this Study the eight competitor states are California, Illinois, Indiana, Michigan, Minnesota, Ohio, Tennessee, and Texas.

2.3 Wisconsin's Seven Economic Regions

For the purposes of the Wisconsin Manufacturing Study, the Wisconsin Study Advisory Board and MPI differentiated the state into seven, county-based economic regions. Regions were initially identified by overlaying the current definitions of Metropolitan Statistical Areas from U.S. Office of Management & Budget with the U.S. Bureau of Economic Analysis' Economic Areas. This information was supplemented with employment and commuting pattern data across the state to arrive at the final set of seven regions that are believed to best represent "economic," rather than political or geographic, regions and was inclusive of all counties within the State.

The seven regions and the counties which comprise each are as follows:

- **Central:** Adams, Clark, Langlade, Lincoln, Marathon, Portage, Taylor, Waushara, Wood
- **East Central:** Brown, Calumet, Door, Kewaunee, Marinette, Menominee, Oconto, Outagamie, Shawano, Waupaca, Winnebago
- **North:** Ashland, Bayfield, Burnett, Douglas, Florence, Forest, Iron, Oneida, Price, Rusk, Sawyer, Vilas, Washburn
- **South:** Columbia, Crawford, Dane, Grant, Green, Iowa, Juneau, Lafayette, Marquette, Richland, Rock, Sauk, Winnebago, IL
- **Southeast:** Dodge, Fond du Lac, Green Lake, Jefferson, Kenosha, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Walworth, Washington, Waukesha
- **West Central I:** Barron, Buffalo, Chippewa, Dunn, Eau Claire, Pepin, Pierce, Polk, St. Croix
- **West Central II:** Jackson, La Crosse, Monroe, Trempealeau, Vernon

The economic regions are presented graphically in the map titled "Economic Regions in the State of Wisconsin" at the end of this Section.

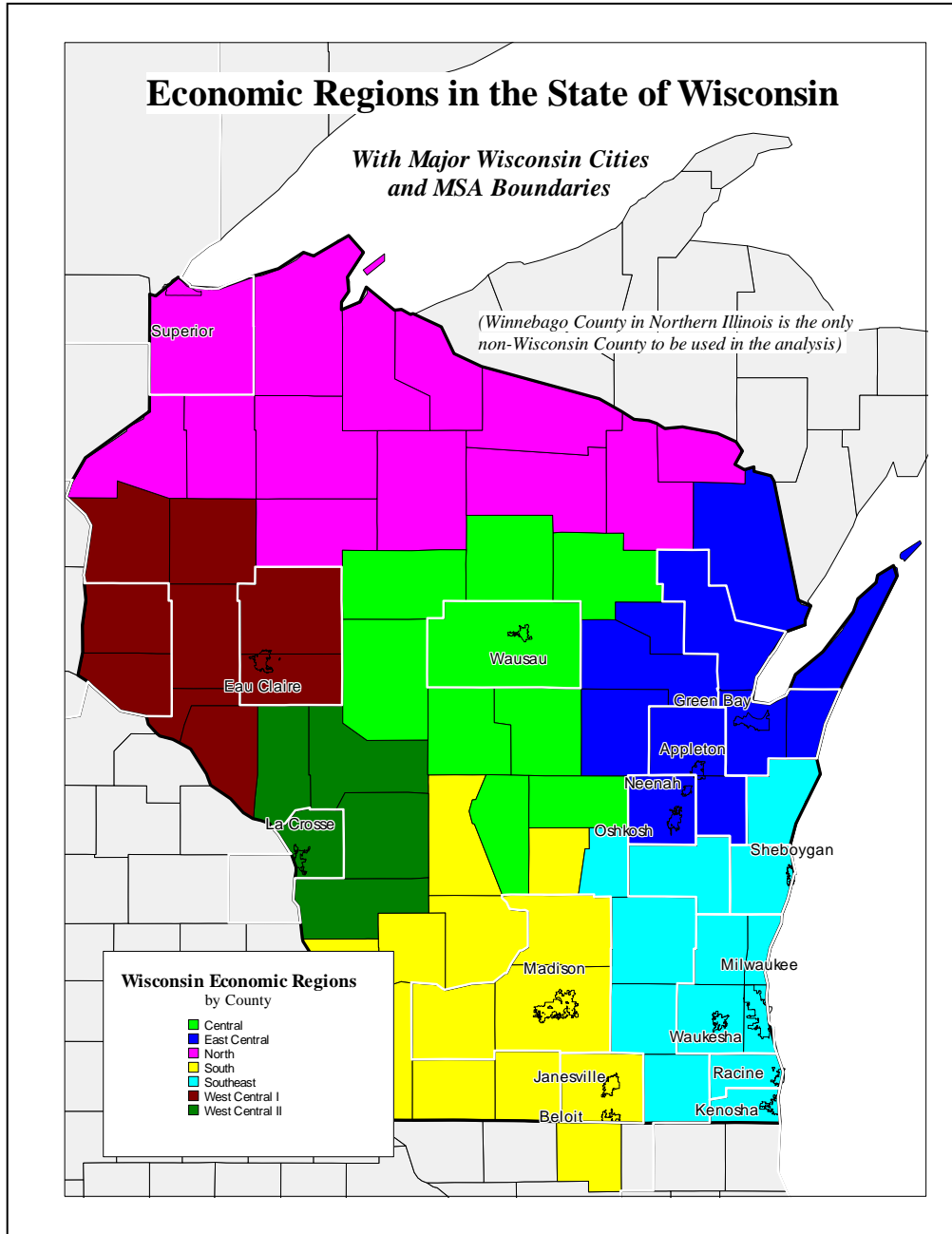
2.4 Information Dating and Data Sets

In the tables that follow in this Study, all data under a year column is historical from 1993 through 2002. Thereafter, the data is *projected* from 2003 through 2004, and *forecast* through 2008. So, 2002 figures are the last *actual* data, the normal delay for publishing the U.S.

Department of Commerce's data from the Economic and Statistics Administration and its components¹⁷ being approximately two years.

MPI's data sets will be available to WMEP on CD-ROM and on line.

Figure 2-2 Economic Regions of the State of Wisconsin



¹⁷ For the U.S. Department of Commerce, Economics and Statistics Administration, See www.esa.doc.gov/reports.cfm; for the Bureau of Economic Analysis, see www.bea.gov/; for the U.S. Bureau of Census, see www.census.gov/; and for STAT-USA, see www.stat-usa.gov/.

3 Concerns of Wisconsin Manufacturers

Critical Issues

- What worries Wisconsin's manufacturers?
- What do they believe would help them be more competitive?
- Do they know what they need to know about new customer demands to compete in the new global economy?

3.1 Panel Results

The MPI Group convened a panel attended by 17 business men and women representing 11 Wisconsin manufacturing industries in Milwaukee on May 17, 2005. They agreed on four major barriers to the state's competitiveness that may bear on Wisconsin's readiness for competition with its competitor states and in the global marketplace.

1. Manufacturing has a poor image professionally; therefore, it is difficult to attract and then retain high quality labor.
2. Taxes of all types are exorbitant in Wisconsin, compared to border and other competitor states.
3. Businesses are unable to contain manufacturing costs, due to spiraling health care, liability insurance, on-the-job training, and new machinery and technology costs.
4. There is a two-tiered workforce. Older, reliable, hard-working employees are retiring soon. Their potential replacements are not dedicated to the work ethics of their forerunners and are increasingly difficult to hire and retain.

To improve their competitive position, both in domestic and foreign exports, panel members advocated these changes.

8. Reinstate the state tax incentives to encourage the purchase of new equipment and higher technology.
9. Subsidize automated manufacturing.
10. Provide state-funded on-the-job training, especially for new employees.
11. Guarantee freedom from product, workplace, and environmental liability.
12. Improve planning to relocate new business in Wisconsin, especially in the southwest.
13. Aid in linking to new export distribution channels.
14. Overcome ethnic language blocks through pre-employment training or English classes to provide more high quality workers.

The panel also recognized state policies and programs that had been helpful to their manufacturing progress.

1. Lean manufacturing practices made significant contributions to containing costs.
2. The engineering schools are producing excellent employees.
3. Wisconsin's quality-of-life has been a powerful attraction to the state's superior workforce.
4. Adding value to exported products to gain a competitive edge over prices.
5. Restructuring of hiring and employee management practices, enhancing individual growth, first, before company growth.

The full transcript of the Panel¹⁸ conveys the impression of a group of people who are solidly together in their perception of what is difficult for them in manufacturing. Most of their spoken concerns were about taxes, the costs of doing business, the poor image of the state's manufacturing, and the fearful prospect of their inability to find highly skilled, motivated, and hard-working employees. There seemed to be only a slight acknowledgement of the pressures from outsourcing and the conflict between low-paying, low-priced commodity products and high-paying, high-tech new economy products. New attitudes toward customer changes, their desires and needs, and how those are going to affect globalization were not paramount ideas to this group.

The striking difference between what is argued in Section I as important—changing from costs to value, and what this group emphasized—costs, suggests there is room for increasing their experience about what is happening to manufacturing globally. They did recognize the symptoms of their dilemma, but they did not seem to know clearly what long-term strategies they would need to adopt.

Though, near the end of the meeting, a number of the participants did address the importance of flexibility, listening to customers, and—because of the small size of many manufacturers—an urgency for assistance from outside sources.

3.2 Survey Results

In addition to opinions about Wisconsin's manufacturing competitiveness from these 17 panelists, MPI also received additional details from 75 respondents to a written survey. The compilation of their responses appears in the Appendix. Respondents' answers to the six open-ended question in the survey appear with their respective regions under the title "Wisconsin Executive Perspectives in the [Name] Region." Like the issues raised by the panel members, survey respondents present a picture of Wisconsin manufacturing that warrants follow-up with companies in each industry sector to learn precisely what obstacles they see to future competitiveness. What is more, the leadership at these companies must also be asked what it will be doing to keep its current customers and to attract new buyers of its products and services. To succeed in the new economy, these companies must become partners with their customers, offering them total solutions to their business problems, not just a product or service.

One rather alarming finding was the pending loss of business leadership. The survey asked what would be the projected change in business functions performed at the respondents' present Wisconsin location five years from now. In all 10 categories queried, every single business function was predicted to erode substantially in the next five years.

¹⁸ MPI has a transcript of the proceedings.

Business Function	Currently	In Five Years
Corporate headquarters	82.7%	48.0%
Division/unit headquarter	53.3%	28.0%
Research, development, & Product deployment	78.7%	46.7%
Manufacturing, Production, Procurement & assembly	98.7%	54.7%
Logistics/distribution & Fulfillment	82.17%	44.0%
Data center/IT	77.3%	38.7%
Call center/customer care	73.3%	40.0%
Service	69.3%	36.0%
Sales and marketing	88.0%	49.3%
Administrative/shared Services (back office)	90.7%	49.3%

Although no reasons were directly given by survey respondents for this outlook, perhaps it is the beginning of the California prediction, above, “. . . the global manufacturing footprint of the future, even for a single company, likely will involve a mix of locations, with ‘basic’ high-volume production offshore and ‘customized’ production maintained domestically.”¹⁹

With these losses in business functions, it is difficult to imagine just how these same respondents will be able to take on the tasks which comprise the strategies they are “planning to emphasize over the next five years to encourage profitable growth.”²⁰ (This is a partial quote of the survey question.) They listed the percent of their effort in seven strategies.

Strategy	Percent Effort
Improved operations (e.g. speed, cost, quality, delivery)	81.3%
New products	56.0%
New product markets or distribution channels	56.0%
New features/services on existing products	50.7%
Enhanced service and support	48.0%
Increased customization of products and services by staff	42.7%
Enter new geographic markets	40.0%

Like the Panel members, these 75 company representatives indicated that entry-level and semiskilled production labor would be increasingly difficult to employ and retain, while managerial labor was generally available and qualified.

Their plans for improving competitiveness are primarily three. Two-thirds of the companies indicated they were “very likely” to purchase new equipment over the next five years. They are going to continue their outsourcing, which, once more, might mean that some of the business

¹⁹ Bay Area Economic Forum, pp. 2-3.

²⁰ The MPI Group, WMEP Wisconsin Manufacturing Study Survey, online, May-June 2005.

functions will leave Wisconsin to go to those new sources. And, approximately 75% of these are going to emphasize Lean manufacturing and Lean and Six Sigma methodologies to improve their competitiveness, with which they have already experienced great success.

While these trends are primarily under the control of the individual manufacturer, other trends are not. Of the many that are not, health care cost was the bad apple. This single cost was rated by 96% of the respondents at 4-5, the latter meaning a “major obstacle.” Other factors beyond a company’s control were governmental regulations and taxes. They were cited as major influences on deciding whether to stay and/or expand in Wisconsin, or not. These confirm earlier panel, survey, and statewide documentary findings.

Answers to six open ended questions supported Wisconsin manufacturers’ anxieties about issues critical to their competitiveness and, as some put it, to their survival. The following questions were asked, with respondents allowed 50 words for their answers.

1. As you consider your industry and business for the next 5 to 10 years, what are the most prominent workforce-related concerns?
2. As you consider your industry and business for the next 5 to 10 years, what are the most prominent advantages that the Wisconsin workforce can offer?
3. Will your company be able to retain and attract the talent in Wisconsin necessary for your business to succeed over the next 5 to 10 years?
4. What changes, if any, would you like to see in the Wisconsin higher education system to better meet the long-term needs of your industry and firm in the state?
5. Describe any innovative workforce attraction or development programs that you would like to see expanded in Wisconsin.
6. What are the business challenges that your organization faces – what most keeps you up at night?

Again, full results were pulled out by region, and the comments are included in their entirety for each region under “Wisconsin’s Executive Perspectives on the [Name] Region.” A full discussion of the findings appears in Section 6, Business Climate, while the entire MPI Survey report data and tables appear in the Appendix.

In summary of the survey, which included opportunities for open-ended answers and were assigned by the seven economic regions, the overall responses highlighted these concerns:

- Future replacement workers
- Spiraling health care costs
- The poor reputation of manufacturing as a career

Global competition

Good employee work ethic

The agreement, again, between the Panel and the Survey results is nearly perfect, lending credibility to the current perception of Wisconsin's business climate. These opinions will be compared to other, statistical analyses in Section 6.

4 Wisconsin's Manufacturing Status

Critical Issues

- How does Wisconsin compare in manufacturing to its competitor states?
- What are its weakest and strongest features in the industry?
- What are the State's priorities among gross product, productivity, capital expenditures, employment, and exports?

Historically and culturally, Wisconsin is a manufacturing state. Many of its earliest industries from the 19th and early 20th century are the same ones that continue to drive its economy today: wood and wood products; food products and processing, including dairy, meats, beverages, grains, fruits, and vegetables; and foundries and transportation equipment,

Early on, Milwaukee became the State's manufacturing center, and as technology progressed through the 20th century, so did the breadth of Wisconsin's manufacturing product lines, adding aerospace, electrical component, medical instruments, farm implements, and audio and video equipment. Its northern ports "... accommodate large, oceangoing ships, as well as shipyards and coal and ore docks that are among the largest in the nation."²¹

The Panel and the Survey discussed earlier tell us much about what manufacturers in Wisconsin are thinking in mid-2005 as they consider current business opportunities and those down the road. To put their thoughts into perspective, and to form a better understanding about Wisconsin's prospects in the new, global economy, this Section considers data about its manufacturing performance to date compared to that of its competitors, as well as the United States as a whole. The following data are based on *all* manufacturing industry activity for the years noted.

4.1 Manufacturing in Wisconsin, Eight Competing States, and the U.S.

4.1.1 Manufacturing's Gross Product

The table below shows the manufacturing gross product totals for Wisconsin and the eight competing states in actual dollars for 1993 through 2002, with projections for 2003 through 2004, and the forecast for 2008. Again, U.S. figures are included for comparison.

²¹ Wisconsin Historical Society, "The Rise of Skilled Manufacturing," Turning Points in Wisconsin's History, p. 3. See www.wisconsinhistory.org/turningpoints/tp-044/

Table 4-1 Manufacturing Gross Product for Wisconsin, the Eight Competing States, and the U.S., 1993-2008 (Current \$1,000)

State	1993	1998	2000	2001	2002	2003	2004	2008
Wisconsin	31,740,790	40,589,410	42,527,520	43,726,060	42,573,110	43,697,750	46,088,050	54,097,360
California	108,481,950	145,739,230	176,441,090	157,413,330	139,617,630	144,280,340	150,661,090	178,630,190
Illinois	53,278,820	65,938,550	66,637,480	62,251,810	57,643,350	58,738,940	60,621,130	71,697,100
Indiana	39,346,410	53,180,750	56,613,040	56,252,960	59,177,200	61,166,920	64,621,220	75,924,010
Michigan	56,998,970	72,216,280	77,875,360	67,855,190	62,481,500	63,583,110	65,309,380	76,328,090
Minnesota	19,328,200	26,299,560	28,915,120	25,985,680	24,928,780	24,658,940	25,482,130	29,993,340
Ohio	69,069,560	86,129,880	84,165,890	80,860,840	76,187,670	77,645,210	80,269,440	93,236,670
Tennessee	27,873,760	33,469,750	35,412,380	37,455,660	37,303,520	39,057,000	41,115,910	48,068,910
Texas	60,635,610	91,914,930	98,757,910	100,370,230	93,440,670	95,038,160	99,645,330	117,705,040
United States	1,039,900,000	1,343,900,000	1,426,200,000	1,341,300,000	1,347,200,000	1,402,300,000	1,495,450,000	1,862,500,000

The percent *change* in gross product for Wisconsin, the eight competing states, and the U.S. appears below.

Table 4-2 Percent Change in Manufacturing Gross Product for Wisconsin, the Eight Competing States, and the U.S., 1993-2008

State	1993-1994	1998-1999	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2007-2008
Wisconsin	6.7%	3.1%	2.8%	-2.6%	2.6%	5.5%	4.5%	3.7%
California	3.1%	9.9%	-10.8%	-11.3%	3.3%	4.4%	4.6%	4.2%
Illinois	14.8%	-0.1%	-6.6%	-7.4%	1.9%	3.2%	4.2%	4.0%
Indiana	8.6%	3.8%	-0.6%	5.2%	3.4%	5.6%	4.2%	4.0%
Michigan	19.7%	7.5%	-12.9%	-7.9%	1.8%	2.7%	3.6%	3.9%
Minnesota	9.2%	4.3%	-10.1%	-4.1%	-1.1%	3.3%	4.4%	3.8%
Ohio	5.4%	-1.5%	-3.9%	-5.8%	1.9%	3.4%	3.7%	3.7%
Tennessee	7.9%	5.4%	5.8%	-0.4%	4.7%	5.3%	4.1%	3.9%
Texas	15.6%	1.7%	1.6%	-6.9%	1.7%	4.8%	4.5%	3.9%
United States	7.6%	2.2%	-6.0%	0.4%	4.1%	6.6%	6.1%	5.2%

While Wisconsin's manufacturing gross product was relatively stable from 1998 through 2002, the United States overall experienced a comparatively large loss in gross product dollar value in 2000-2001. The percent change table above shows substantial decline in manufacturing gross product from 2000 through 2002 for California, Michigan, and Minnesota, with lesser declines for Illinois, Ohio, and Texas (2001-2002). Holding value in gross product, comparatively speaking, were Indiana, Tennessee, and Wisconsin. The data show that these last three states maintained demand for their manufactured goods, while the other competing states lost demand and, therefore, dollars.

4.1.2 Manufacturing's Productivity

Tables 4-3 and 4-4 compare manufacturing productivity for Wisconsin and the eight competing states. Again, the U.S. figures are included for reference.

Table 4-3 Manufacturing Productivity (Gross Product per Employee) for Wisconsin, the Eight Competing States, and the U.S., 1993-2008 (Current \$)

State	1993	1998	2000	2001	2002	2003	2004	2008
Wisconsin	60,313	68,419	71,579	78,035	80,585	86,206	89,905	105,358
California	63,990	78,467	94,991	88,143	85,223	93,354	98,523	118,521
Illinois	61,910	72,795	76,544	76,348	76,455	81,852	85,664	103,000
Indiana	64,031	80,978	85,327	91,403	100,585	106,743	113,570	135,499
Michigan	70,738	81,152	86,856	82,794	82,218	87,467	92,560	110,786
Minnesota	55,057	66,252	72,909	68,649	70,060	71,523	73,086	86,528
Ohio	70,425	83,568	82,431	84,842	86,093	91,924	97,142	114,795
Tennessee	55,427	67,118	72,563	82,478	87,072	94,320	99,383	117,293
Texas	64,354	85,316	92,470	97,735	98,486	105,517	112,540	135,841
United States	61,987	76,531	82,603	81,581	88,297	96,658	104,368	132,586

A review of the productivity figures in Table 4-3 shows that Wisconsin is consistently in eighth place in productivity dollar value, except in 2000 when it was in ninth, or last, place. Increased productivity is a goal for managers that may be achieved through changes in management practices, employee training, automation, and other means. Wisconsin's comparatively low productivity values suggest that improvements in worker output could make it more competitive with other states and in global markets. Or, it could mean Wisconsin products are low cost, and therefore workers cannot produce much value per hour no matter how hard they try.

Table 4-4 Percent Change in Manufacturing Productivity (Gross Product per Employee) for Wisconsin, the Eight Competing States, and the U.S., 1993-2008

State	1993-1994	1998-1999	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2007-2008
Wisconsin	2.8%	2.9%	1.7%	9.0%	3.3%	7.0%	4.3%	4.2%
California	3.8%	11.6%	8.5%	-7.2%	-3.3%	9.5%	5.5%	4.7%
Illinois	12.5%	2.5%	2.5%	-0.3%	0.1%	7.1%	4.7%	4.5%
Indiana	6.7%	2.5%	2.8%	7.1%	10.0%	6.1%	6.4%	4.5%
Michigan	13.6%	6.5%	0.5%	-4.7%	-0.7%	6.4%	5.8%	4.5%
Minnesota	6.1%	4.7%	5.1%	-5.8%	2.1%	2.1%	2.2%	4.3%
Ohio	3.0%	-1.2%	-0.2%	2.9%	1.5%	6.8%	5.7%	4.2%
Tennessee	5.5%	6.2%	1.8%	13.7%	5.6%	8.3%	5.4%	4.3%
Texas	12.8%	3.0%	5.2%	5.7%	0.8%	7.1%	6.7%	4.4%
United States	6.0%	3.6%	4.2%	-1.2%	8.2%	9.5%	8.0%	5.8%

Given these data for gross product and productivity, and the State's employment losses (discussed below), what does their interrelationship suggest during this recent economic period? Some economists conclude that successful gross product and productivity numbers with falling employment during the recession actually represent the benefits of previous capital investments and workplace reorganization, in effect replacing workers with efficiency.²² If so, a tailing off of growth would be expected as those capital investments age and capital expenditures decline, as shown in Table 4-5. To reverse that trend and be more competitive, Wisconsin would have to continue to find the means for increasing gross product and productivity in the face of a jobless recovery.

²² Federal Reserve Bank of San Francisco, "Gains in U.S. Productivity: Stopgap Measures or Lasting Change?" FRBSF Economic Letter 2005-05, March 11, 2005, p. 1. See www.frbsf.org/publications/economics/letter/2005/el2005-05.html

4.1.3 Manufacturing's Capital Expenditures

Capital expenditures have traditionally been an early indicator of a commitment to manufacturing. Although Wisconsin and its competitor states vary widely in numbers of manufacturers and total top line revenues, a state's manufacturing mix also affects capital expenditures. Some high-end value products require costly investment in technology (e.g., computers and nanotechnology), while many low-end value products—commodities or products heading toward commoditization—rely more on labor than capital investment (e.g., old economy logging or parts assembly).

Table 4-5 gives an historic overview of capital expenditures in manufacturing for machinery and equipment from 1998 through 2003 by Wisconsin, the eight competing states, and the U.S. It clearly shows the effects of the recession of 2001 on total capital expenditures for all manufacturing establishments in the U.S. Generally, investments peaked in 2000, and then began falling some 25% over the period 2001 through 2003.

Table 4-5 Total Capital Expenditures for Machinery & Equipment—Wisconsin, Eight Competing States, and U.S., 1998-2003* (Current \$1,000)

State	1998	1999	2000	2001	2003
Wisconsin	\$3,659,790	\$3,738,312	\$3,802,200	\$3,172,983	\$2,849,091
California	\$12,880,128	\$12,798,238	\$13,959,348	\$13,266,095	\$10,342,634
Illinois	\$6,751,595	\$6,060,366	\$6,193,905	\$5,490,003	\$4,548,752
Indiana	\$4,666,651	\$5,608,098	\$5,300,293	\$4,436,840	\$4,018,563
Michigan	\$8,918,779	\$7,945,507	\$7,169,598	\$6,260,643	\$4,769,669
Minnesota	\$2,751,113	\$2,751,113	\$2,548,154	\$4,086,699	\$2,214,281
Ohio	\$7,603,598	\$7,670,181	\$7,508,397	\$6,393,081	\$5,177,214
Tennessee	\$3,793,943	\$3,313,936	\$3,243,591	\$4,086,699	\$3,212,485
Texas	\$10,018,334	\$10,617,428	\$12,176,540	\$9,747,641	\$8,196,328
U.S.	\$128,212,906	\$127,252,067	\$130,366,938	\$117,499,242	\$97,315,758

*Comparable data for 2002 not available from the U.S. Census Bureau.

Source: Table 3: Supplemental Statistics for the United States and States, Geographic Area Statistics, Annual Survey of Manufacturers, U.S. Department of Commerce, Economics and Statistics Administration, U.S. Census Bureau, Years 1998, 1999, 2000, 2001, and 2003.

The question for manufacturers to consider when thinking about future capital expenditures is how that investment will keep current customers and attract new ones by providing solutions and value bundles that the new economy's buyers demand. Gathering information about the customer base and its needs and continuously probing for changes in how customer problems can be solved better by one's product and bundle of services can be one of the most important investments manufacturers can make in the new economy. To increase their top line revenues, manufacturers will have to strike a balance between investing in traditional capital and investing in intellectual capital, the information about the intangibles of the business, including customers, competitors, and how the industry is changing. In the new economy, information is as valuable to customers as the product. Among competing manufacturers with comparable products, those who succeed will help their customers shorten their to-do lists and help deliver top line revenue.

4.1.4 Manufacturing's Employment

Table 4-6 below compares Wisconsin's manufacturing employment figures for 1993-2008 with those of its competitor states. The U.S. figures are included to give a dimension to the portion each state contributes to the total U.S. employment in manufacturing.

Table 4-6 Manufacturing Employment—Wisconsin, Eight Competing States, and U.S., 1993-2008

State	1993	1998	2000	2001	2002	2003	2004	2008
Wisconsin	526,270	593,250	594,130	560,340	528,300	506,900	512,630	513,460
California	1,695,300	1,857,340	1,857,460	1,785,890	1,638,270	1,545,520	1,529,190	1,507,160
Illinois	860,580	905,810	870,580	815,370	753,950	717,620	707,660	696,090
Indiana	614,490	656,730	663,480	615,440	588,330	573,030	569,000	560,330
Michigan	805,780	889,890	896,600	819,570	759,950	726,940	705,590	688,970
Minnesota	351,060	396,960	396,590	378,530	355,820	344,770	348,660	346,630
Ohio	980,750	1,030,660	1,021,050	953,070	884,950	844,670	826,310	812,200
Tennessee	502,890	498,670	488,020	454,130	428,420	414,090	413,710	409,820
Texas	942,220	1,077,350	1,068,000	1,026,960	948,770	900,690	885,420	866,490
9 State Total	7,279,340	7,906,660	7,855,910	7,409,300	6,886,760	6,574,230	6,498,170	6,401,150
U.S. Total	16,776,170	17,560,170	17,265,670	16,441,250	15,257,670	14,507,920	14,328,580	14,047,480
9 State % of U.S.	43.4%	45%	45.5%	45.1%	45.1%	45.3%	45.4%	45.6%

Total employment for all nine states shows that, together, year to year, they employ some 45% of the total U.S. workforce in manufacturing.

Percent *change* in employment figures—in actual numbers, projected, and forecast—follows in Table 4-7.

Table 4-7 Percent Change in Manufacturing Employment—Wisconsin, Eight Competing States, & U.S., 1993-2008

State	1993-1994	1999-2000	2000-2001	2001-2002	2002-2003	2003-2004	2004-2005	2007-2008
Wisconsin	3.8%	-0.1%	-5.7%	-5.7%	-4.1%	1.1%	1.2%	-0.4%
California	-0.7%	1.5%	-3.9%	-8.3%	-5.7%	-1.1%	0.1%	-0.4%
Illinois	2.0%	-1.3%	-6.3%	-7.5%	-4.8%	-1.4%	-0.5%	-0.5%
Indiana	1.8%	-0.2%	-7.2%	-4.4%	-2.6%	-0.7%	0.0%	-0.5%
Michigan	5.3%	-0.2%	-8.6%	-7.3%	-4.3%	-2.9%	-0.7%	-0.5%
Minnesota	2.9%	0.3%	-4.6%	-6.0%	-3.1%	1.1%	0.5%	-0.4%
Ohio	2.3%	-0.6%	-6.7%	-7.1%	-4.6%	-2.2%	-0.3%	-0.5%
Tennessee	2.2%	-1.4%	-6.9%	-5.7%	-3.3%	-0.1%	0.5%	-0.4%
Texas	2.5%	0.4%	-3.8%	-7.6%	-5.1%	-1.7%	-0.8%	-0.5%
United States	1.5%	-0.3%	-4.8%	-7.2%	-4.9%	-1.2%	-0.1%	-0.6%

The years of interest in Table 4-7 are the three columns for 2000-2003. Every state lost manufacturing employment during those years: the greatest loss by Michigan, the least, by Minnesota, as shown by the *average* of their three-year losses: Michigan, -6.7%; Illinois, -6.2%; Ohio, -6.1%; Texas, -5.5%; Tennessee, -5.3%; Wisconsin, -5.2%; Indiana, -4.7%; and Minnesota, -4.6. By comparison, the average loss in manufacturing employment for the U.S. over that three-year period was -5.6%. Generally, all states began to reduce job losses in 2002-2003.

Wisconsin fared slightly better than the U.S. in manufacturing job losses from 1998 through 2002. In addition to the effects of the 2001 recession, an Economic Policy Institute briefing paper accounts for manufacturing job losses with these numbers: “From 1998 to 2003, 3.04 million jobs were lost in manufacturing, with rising net imports accounting for about 1.78 million of them. Between 2000 and 2003, 2.70 million jobs were lost in manufacturing, with rising net manufactured imports explaining about 950,000 of this decline.”²³ The report continues with these observations:

While demand for manufacturing output has remained constant (or even grown) as a share of the U.S. economy, *production* of manufactured goods has lagged this demand by a widening margin in recent years. This ‘wedge’ between demand and production means that manufacturing purchases by U.S. consumers and businesses do not translate into expanded employment output.

This wedge is equal to net imports.²⁴

4.1.5 Exports in Wisconsin’s Driver Industries

Data is from the Harris InfoSource database, 2005. These data are available only at the NAICS 3-digit level, so precise figures for the 4-digit codes are unavailable. These data do, however, suggest trends in U.S. exports in the manufacturing sectors summarized below, and allow for a snapshot comparison of how Wisconsin is doing relative to the eight competing states in total dollars exported, U.S. market share, and in percent change from 2003 to 2004.

In nine of the 10 driver categories, Wisconsin’s exports increased from 2003 in 2004. The exception was in Food Manufacturing.

Table 4-8 Food Manufacturing Exports—NAICS 311 (Drivers 3114, 3115) (Current \$)

State	Rank	2002	2003	2004	% Share			% Change
					2002	2003	2004	2004/2003
Wisconsin	17	571,707,154	650,636,182	560,428,540	2.21	2.37	2.1	-13.86
California	1	3,550,885,719	4,168,177,618	4,158,863,829	13.7	15.2	15.6	-0.22
Illinois	5	1,205,544,503	1,297,199,528	1,302,394,791	4.66	4.72	4.89	0.4
Indiana	31	212,903,396	247,657,812	207,748,308	0.82	0.9	0.78	-16.11
Michigan	21	315,169,690	422,286,397	397,852,428	1.22	1.54	1.49	-5.79
Minnesota	9	700,454,666	731,190,128	870,591,880	2.71	2.66	3.27	19.07
Ohio	19	506,464,697	470,857,208	445,054,340	1.96	1.71	1.67	-5.48
Tennessee	22	204,703,448	284,575,373	310,620,896	0.79	1.03	1.17	9.15
Texas	2	2,490,043,699	2,755,198,756	2,648,433,291	9.63	10	9.94	-3.88
United States		25,855,503,616	27,495,603,579	26,645,578,031	100	100	100	-3.09

Wisconsin’s food exports declined massively in 2004 because Japan, China, and South Korea likely began purchasing food products from Asian sources, rather than from the U.S., presumably for reasons of cost due to lower labor rates. It would be useful to learn what food

²³ J. Bivens, “Shifting Blame for the for Manufacturing Job Loss: Effects of Rising Trade Deficit Shouldn’t Be Ignored. Economic Policy Institute Briefing Paper, #149, April 8, 2004, p. 4.

²⁴ J. Bivens, p. 3.

products Minnesota is exporting and to where. The future here lies in niche markets where global commoditization has not taken place.

Table 4-9 Wood Product Manufacturing Exports—NAICS 321 (Drivers 3211, 3212, 3219) (Current \$)

State	Rank	2002	2003	2004	% Share			% Change
					2002	2003	2004	2004/2003
Wisconsin	18	81,840,546	87,478,319	95,258,811	2.07	2.17	2.12	8.89
California	1	392,725,549	402,697,622	422,645,962	9.95	9.98	9.41	4.95
Illinois	28	39,381,350	42,664,920	37,472,737	1	1.06	0.83	-12.17
Indiana	10	126,311,646	134,269,287	145,784,906	3.2	3.33	3.25	8.58
Michigan	13	89,128,375	110,227,199	130,673,875	2.26	2.73	2.91	18.55
Minnesota	23	83,559,719	74,330,266	74,912,555	2.12	1.84	1.67	0.78
Ohio	7	162,094,209	179,027,359	199,237,391	4.11	4.44	4.44	11.29
Tennessee	21	75,932,222	73,912,658	84,597,637	1.92	1.83	1.88	14.46
Texas	11	100,662,100	132,746,160	144,524,620	2.55	3.29	3.22	8.87
United States		3,948,151,881	4,036,281,435	4,491,569,114	100	100	100	11.28

Wisconsin's wood product exports increased modestly in 2004, but global competition for the low-end furniture markets (Walmart, IKEA, Target) and other wood products (Home Depot, Lowe's) will continue to commoditize manufactured wood products. Key to increasing exports will be finding higher-end products that have appeal in global markets and cannot be challenged by low-labor economies.

Table 4-10 Paper Manufacturing Exports—NAICS 322 (Drivers, 3221, 3222) (Current \$)

State	Rank	2002	2003	2004	% Share			% Change
					2002	2003	2004	2004/2003
Wisconsin	7	528,315,412	563,186,987	664,923,606	3.74	3.88	4.23	18.06
California	3	1,051,420,085	1,069,151,280	1,148,854,547	7.45	7.37	7.3	7.45
Illinois	13	510,566,868	489,863,365	479,889,320	3.62	3.38	3.05	-2.04
Indiana	30	99,618,586	125,546,777	123,515,953	0.71	0.87	0.79	-1.62
Michigan	22	232,519,111	298,675,876	290,157,965	1.65	2.06	1.84	-2.85
Minnesota	20	244,315,979	263,407,830	296,979,251	1.73	1.82	1.89	12.75
Ohio	11	447,246,774	492,394,435	563,460,767	3.17	3.39	3.58	14.43
Tennessee	17	425,916,328	332,432,383	382,898,550	3.02	2.29	2.43	15.18
Texas	2	1,133,475,070	1,234,343,335	1,373,033,125	8.03	8.51	8.73	11.24
United States		14,107,299,427	14,504,183,330	15,731,828,692	100	100	100	8.46

Wisconsin is the nation's number one paper and paper products producer, and though its total output has declined in recent years, it has found new opportunities in exports. It had the greatest increase in exports compared to the competitor states and the U.S. Its success warrants exploration of market trends where it can succeed with new economy strategies.

Table 4-11 Chemical Manufacturing Exports—NAICS 325 (Driver 3256) (Current \$)

State	Rank	2002	2003	2004	% Share			% Change
					2002	2003	2004	2004/2003
Wisconsin	27	589,793,200	585,331,646	638,795,212	0.73	0.64	0.59	9.13
California	3	5,417,794,765	5,963,655,321	6,644,089,654	6.73	6.55	6.12	11.41
Illinois	6	3,517,530,829	3,890,966,685	4,617,181,607	4.37	4.27	4.26	18.66
Indiana	9	2,440,535,003	3,005,403,239	3,678,569,978	3.03	3.3	3.39	22.4
Michigan	14	2,822,618,232	2,785,333,789	3,059,097,130	3.51	3.06	2.82	9.83
Minnesota	29	410,406,046	480,715,943	617,757,451	0.51	0.53	0.57	28.51
Ohio	10	2,532,405,477	2,834,381,299	3,417,832,346	3.15	3.11	3.15	20.58
Tennessee	17	1,583,631,572	1,723,443,326	2,139,338,461	1.97	1.89	1.97	24.13
Texas	1	15,002,401,622	17,125,246,559	22,564,307,455	18.6	18.8	20.8	31.76
United States		80,504,165,962	91,017,177,975	108,484,042,230	100	100	100	19.19

In this category, Wisconsin has only one driver industry from the total of seven 4-digit categories, Soap, Cleaning Compounds, and Toilet Preparations. Though it is lowest in percent growth, it is doing reasonably well, given the range and number of chemical products other states manufacture and export.

Table 4-12 Non-Metallic Mineral Product Manufacturing Exports—NAICS 327(Driver 3272)(Current \$)

State	Rank	2002	2003	2004	% Share			% Change
					2002	2003	2004	2004/2003
Wisconsin	25	56,486,022	57,190,747	58,747,808	0.89	0.89	0.85	2.72
California	2	733,412,096	540,007,083	592,648,046	11.59	8.43	8.56	9.75
Illinois	7	239,154,380	294,715,931	327,414,128	3.78	4.6	4.73	11.09
Indiana	13	161,473,298	177,943,172	172,325,885	2.55	2.78	2.49	-3.16
Michigan	5	474,409,941	473,046,842	510,181,173	7.5	7.39	7.37	7.85
Minnesota	18	166,464,088	109,287,126	138,635,938	2.63	1.71	2	26.85
Ohio	1	585,453,145	692,292,308	712,925,935	9.26	10.81	10.3	2.98
Tennessee	15	132,302,558	147,519,275	160,429,677	2.09	2.3	2.32	8.75
Texas	3	557,614,940	540,798,498	568,916,627	8.82	8.44	8.22	5.2
United States		6,325,735,662	6,405,335,115	6,924,574,568	100	100	100	8.11

Wisconsin's driver in this category is Glass and Glass Products Manufacturing, which is beginning to show only modest gains in the global market. Altogether, there are five 4-digit NAICS industry categories, so Wisconsin is competing with only 20% of the potential exports. If it is to be profitable globally, it will need to examine the foreign markets for products such as tempered, insulated, and other window and door glass products, and cultivate the high-end niches.

Table 4-13 Primary Metal Manufacturing Exports—NAICS 331 (Driver 3315) (Current \$)

State	Rank	2002	2003	2004	% Share			% Change
					2002	2003	2004	2004/2003
Wisconsin	31	95,709,250	108,745,102	145,268,217	0.57	0.57	0.64	33.59
California	5	1,012,986,853	1,167,545,304	1,339,973,500	6.07	6.1	5.88	14.77
Illinois	11	511,895,451	574,193,637	702,533,587	3.07	3	3.08	22.35
Indiana	10	526,297,707	612,346,471	775,973,020	3.15	3.2	3.4	26.72

State	Rank	2002	2003	2004	% Share			% Change
					2002	2003	2004	2004/2003
Michigan	9	838,154,156	912,806,536	1,214,924,358	5.02	4.77	5.33	33.1
Minnesota	39	53,654,969	50,389,958	44,416,283	0.32	0.26	0.19	-11.85
Ohio	8	884,966,484	1,001,276,989	1,264,062,353	5.3	5.24	5.55	26.25
Tennessee	19	266,067,656	254,384,211	337,448,354	1.59	1.33	1.48	32.65
Texas	1	2,080,901,968	2,097,170,031	2,860,885,721	12.5	11	12.6	36.42
United States		16,688,673,921	19,125,021,388	22,790,336,361	100	100	100	19.17

Foundry exports have increased markedly in Wisconsin. There are five NAICS 4-digit industries here—steel and alumina and other metal processing and products. While driver analysis shows this industry in negative numbers in output in the State, it has found foreign buyers, though the overall dollar amount is small. Nonetheless, it suggests an export area worth further research.

Table 4-14 Fabricated Metal Products Manufacturing Exports—NAICS 332 (Drivers 3321, 3322, 3325, 3327, 3329) (Current \$)

State	Rank	2002	2003	2004	% Share			% Change
					2002	2003	2004	2004/2003
Wisconsin	15	381,119,904	352,939,008	422,332,369	1.89	1.73	1.87	19.66
California	2	2,157,888,964	2,298,693,639	2,590,193,025	10.7	11.3	11.5	12.68
Illinois	6	957,515,655	1,077,459,224	1,159,746,832	4.74	5.29	5.13	7.64
Indiana	12	494,115,564	482,654,269	525,961,511	2.45	2.37	2.33	8.97
Michigan	5	1,219,239,358	1,200,515,998	1,244,218,496	6.04	5.9	5.5	3.64
Minnesota	21	288,088,764	310,274,163	341,537,958	1.43	1.52	1.51	10.08
Ohio	3	1,736,506,090	1,728,344,660	1,692,925,522	8.6	8.49	7.49	-2.05
Tennessee	16	357,419,153	353,132,710	407,240,257	1.77	1.73	1.8	15.32
Texas	1	2,935,686,823	3,073,005,139	3,456,920,880	14.5	15.1	15.3	12.49
United States		20,186,682,206	20,364,725,147	22,614,074,928	100	100	100	11.05

Wisconsin led its competitors and the U.S. in growth in this sector, though its total revenues were sixth among its competitors. In a field of nine 4-digit industries in NAICS 332, Wisconsin has five drivers. One industry commentator sees continued U.S. success in this market as long as there is continued global economic recovery and a weaker dollar.²⁵

Table 4-15 Machinery Manufacturing Exports—NAICS 333 (Drivers 3331, 3332, 3333, 3335, 3339) (Current \$)

State	Rank	2002	2003	2004	% Share			% Change
					2002	2003	2004	2004/2003
Wisconsin	6	2,978,712,644	3,217,463,021	3,714,962,788	3.97	4.29	4.01	15.46
California	2	9,517,571,204	9,433,879,999	12,592,999,285	12.7	12.6	13.6	33.49
Illinois	3	6,528,324,168	6,892,917,239	8,528,414,361	8.71	9.2	9.2	23.73
Indiana	8	2,350,677,954	2,441,369,969	2,883,636,050	3.14	3.26	3.11	18.12
Michigan	7	3,583,611,733	3,372,049,454	3,680,258,177	4.78	4.5	3.97	9.14
Minnesota	13	1,374,355,639	1,490,721,065	1,882,008,457	1.83	1.99	2.03	26.25
Ohio	5	3,702,069,989	3,595,682,003	4,419,391,011	4.94	4.8	4.77	22.91

²⁵ Richard W. Judy, Who Is Manufacturing Tomorrow's Jobs?, Workforce Associates, Inc., February 2005, p.2. See editor.ne16.com/htmleditor/viewonline.asp?FileID=12007

State	Rank	2002	2003	2004	% Share			% Change
					2002	2003	2004	2004/2003
Tennessee	18	1,220,511,498	1,264,939,095	1,408,137,625	1.63	1.69	1.52	11.32
Texas	1	12,602,234,219	11,407,672,253	14,609,762,185	16.8	15.2	15.8	28.07
United States		74,945,292,363	74,925,131,610	92,673,993,772	100	100	100	23.69

The global economics of fabricated metals also apply to machinery manufacturing—i.e., a weaker dollar and a continued global economic recovery will keep exports in NAICS 333 healthy.²⁶ Wisconsin has five of the seven industry sectors in this category, and its overall exports sales are very good compared to its competitors. This is an export area deserving of further research for expanding markets, especially while recovery is underway, to form new global customer bases that will help this sector weather economic downturns.

Table 4-16 Electrical Equipment, Appliance, and Component Manufacturing Exports—NAICS 335 (Drivers 3353, 3359) (Current \$)

State	Rank	2002	2003	2004	% Share			% Change
					2002	2003	2004	2004/2003
Wisconsin	12	519,287,580	548,560,875	653,287,439	2.27	2.36	2.44	19.09
California	2	2,988,510,372	2,936,388,740	3,440,160,747	13.1	12.6	12.8	17.16
Illinois	3	1,625,312,026	1,710,591,373	1,792,495,677	7.11	7.34	6.68	4.79
Indiana	14	505,185,014	545,716,920	620,357,930	2.21	2.34	2.31	13.68
Michigan	10	645,309,646	739,611,130	765,022,324	2.82	3.18	2.85	3.44
Minnesota	25	313,234,412	289,385,492	371,207,954	1.37	1.24	1.38	28.27
Ohio	4	1,044,892,024	1,092,246,797	1,242,409,507	4.57	4.69	4.63	13.75
Tennessee	19	462,257,753	460,792,982	461,885,797	2.02	1.98	1.72	0.24
Texas	1	4,604,995,237	4,642,580,101	5,332,133,233	20.2	19.9	19.9	14.85
United States		22,848,272,994	23,291,635,958	26,828,083,360	100	100	100	15.18

At the state driver level, Wisconsin's Electrical Equipment and Other Electrical Equipment and Components have shown remarkable growth and increasing concentration, which its growth in exports in 2004 reflects. Its percent increase in this sector is second only to Minnesota, and its overall revenues nearly double that of Minnesota.

Table 4-17 Transportation Equipment Manufacturing Exports—NAICS 336 (Drivers 3362, 3369) (Current \$)

State	Rank	2002	2003	2004	% Share			% Change
					2002	2003	2004	2004/2003
Wisconsin	22	1,108,515,601	1,374,288,045	1,518,503,002	0.85	1.07	1.08	10.49
California	4	7,099,717,690	8,643,619,605	11,759,483,727	5.42	6.71	8.37	36.05
Illinois	14	3,254,389,560	2,950,212,946	3,146,466,247	2.49	2.29	2.24	6.65
Indiana	6	4,785,957,956	5,273,477,563	6,206,832,640	3.66	4.09	4.42	17.7
Michigan	1	19,582,756,000	18,086,120,532	18,498,572,174	15	14	13.2	2.28
Minnesota	26	1,061,055,501	1,141,149,410	1,188,741,376	0.81	0.89	0.85	4.17
Ohio	5	11,219,988,416	12,502,378,350	11,294,915,273	8.57	9.7	8.04	-9.66
Tennessee	12	2,765,938,909	2,390,988,760	3,337,897,300	2.11	1.86	2.38	39.6
Texas	3	10,507,662,862	9,902,791,603	12,576,894,508	8.03	7.69	8.96	27

²⁶ Richard W. Judy, p. 2.

State	Rank	2002	2003	2004	% Share			% Change
					2002	2003	2004	2004/2003
United States		130,897,140,664	128,854,240,130	140,439,444,352	100	100	100	8.99

Individually, Wisconsin's Other Transportation Equipment driver (3369) leads all others in terms of both growth and competitiveness, predicting rising exports as well. While Wisconsin has only two of the seven 4-digit NAICS industries as drivers, next to machinery manufacturing exports, this is the State's most revenue-generating category in the global marketplace.

In summary, Wisconsin is competing well or exceeding many of its competitors in percent growth figures in its recent export activity. The greatest to least revenue producing export areas for 2004 at the 3-digit NAICS level of its drivers are these:

Rank	NAICS 3-Digit Category	Total 2004 Export Revenues
1 st	Machinery Mfg	\$3,714,962,788
2 nd	Transportation Equipment Mfg.	\$1,518,503,002
3 rd	Paper Mfg.	\$ 664,923,606
4 th	Electrical Eqpt., Appliance, Component Mfg.	\$ 653,287,439
5 th	Chemical Mfg.	\$ 638,795,212
6 th	Food Mfg.	\$ 560,428,540
7 th	Fabricated Metal Products Mfg.	\$ 422,332,369
8 th	Primary metal Mfg.	\$ 145,268,217
9 th	Wood Products Mfg.	\$ 95,258,811
10 th	Non-Metallic Mineral Product Mfg.	\$ 58,747,808

The discussion below on Drivers and Clusters will suggest ways in which Wisconsin must support struggling driver industries to help them compete more successfully nationally and internationally.

Critical Issues

- How can Wisconsin manufacturers improve the competitiveness of their food products globally?
- What means can manufacturers use to parse the export data into strategies to develop customer-focused strategies, and business solutions that improve customer top line revenues?
- How can Wisconsin's manufacturers mine the critical information in today's global economy to develop short- and long-term business strategies that create value-added products and services that can weather economic change?

5 Wisconsin's Statewide Driver Industries and Industry Clusters

Critical Issues

- Which Wisconsin driver industries are struggling? Competing successfully?
- What are the industry issues facing the State's drivers?
- What are the next steps Wisconsin must take in support of its manufacturing drivers and industry clusters?

5.1 Overview of the Statewide Drivers

Using the methodology described in detail in the Appendix, the MPI Group identified 43 driver industries in Wisconsin. Of those 43, 24 are in two or more of the state's seven regions. These are classified as *statewide* drivers; the remaining 19 driver industries appear in one region only, and, by definition, are therefore *not* statewide drivers. Below, in table form, is an overview of the statewide drivers and regional drivers.

Table 5-1 Matrix of Wisconsin's Driver Industries by Region

NAICS	Title	State-wide	Central	East Central	North	South	South-east	West Central I	West Central II
3114	Fruit and Vegetable Preserving and Specialty Food Mfg.	X	X					X	
3115	Dairy Product Manufacturing	X	X	X		X	X	X	X
3116	Animal Slaughtering and Processing								X
3121	Beverage Manufacturing		X						
3162	Footwear Manufacturing							X	
3169	Other Leather and Allied Product Manufacturing						X		
3211	Sawmills and Wood Preservation	X	X		X			X	
3212	Veneer, Plywood, and Engineered Wood Product Mfg.	X	X		X			X	
3219	Other Wood Product Mfg.	X	X		X				
3221	Pulp, Paper, and Paperboard Mills	X	X	X	X				
3222	Converted Paper Product Mfg.	X		X				X	
3256	Soap, Cleaning Compound, and Toilet Preparation Mfg.	X					X	X	
3272	Glass and Glass Product Mfg.	X						X	X
3279	Other Nonmetallic Mineral Product Manufacturing					X			
3315	Foundries	X				X	X		
3321	Forging and Stamping	X					X	X	
3322	Cutlery and Handtool Mfg.	X	X			X	X	X	
3323	Architectural and Structural Metals Manufacturing								X
3324	Boiler, Tank, and Shipping Container Manufacturing							X	
3325	Hardware Manufacturing	X	X			X	X	X	

NAICS	Title	State-wide	Central	East Central	North	South	South-east	West Central I	West Central II
3326	Spring and Wire Product Mfg.						X		
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	X				X	X		
3329	Other Fabricated Metal Product Manufacturing	X	X				X		
3331	Agriculture, Construction, and Mining Machinery Mfg.	X					X		X
3332	Industrial Machinery Mfg.	X				X		X	
3333	Commercial and Service Industry Machinery Mfg.	X						X	X
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equip. Mfg								X
3335	Metalworking Machinery Mfg.	X				X	X		
3336	Engine, Turbine, and Power Transmission Equipment Mfg.						X		
3339	Other General Purpose Machinery Manufacturing	X	X				X		
3343	Audio and Video Equipment Manufacturing						X		
3346	Manufacturing and Reproducing Magnetic and Optical Media			X					
3351	Electric Lighting Equipment Manufacturing						X		
3352	Household Appliance Mfg.						X		
3353	Electrical Equipment Mfg.	X	X	X		X	X	X	
3359	Other Electrical Equipment and Component Manufacturing	X		X			X	X	
3361	Motor Vehicle Manufacturing					X			
3362	Motor Vehicle Body and Trailer Manufacturing	X	X			X	X		
3364	Aerospace Product and Parts Manufacturing						X		
3365	Railroad Rolling Stock Mfg.						X		
3369	Other Transportation Equipment Manufacturing	X	X	X			X		
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing		X						
3379	Other Furniture Related Product Manufacturing					X			

Ranking the numbers of industries within the economic regions shows their dispersion by economic location:

Regions	Number of Driver Industries
Southeast	23
West Central I	16
Central	15
South	12
East Central	7
West Central II	7
North	4

The differences among regions in the numbers and types of industries and their clusters will have a bearing on just what strategies for growth should be considered for each region. For example, while there are 4 industries in the North region, they are all related to wood and processed wood products. Therefore, there may be some umbrella policies and programs that help consolidate suppliers, drivers, and customers and propel them forward. One recommendation is that Wisconsin’s forests be certified sustainable—not only to protect, preserve, and improve the industry’s raw material source, but also to add value from a customer’s perspective, because then they, too, can market *their* products as sustainable—a growing market appeal. In similar fashion, the industries need to be analyzed in each region to discover how best to foster practices that increase growth and competitiveness—transportation might be logical for the Southeast Region.

Similarly, the location of the Dairy Industry in six of the seven regions suggests an inter-regional approach, rather than a regional plan, for industry needs. The development of region-wide cooperatives represents such a change to foster growth. Another industry, electrical equipment is in five regions, again suggesting that examination of common problems or requirements region-wide could identify new ways to strengthen their industry clusters.

A number of the 24 statewide driver industries are closely related by raw material used, the manufacturing process employed, and / or the shared technology or workforce. For example, the two categories, “3221-Pulp, Paper, and Paperboard Mills” and “3222-Converted Paper Product Manufacturing,” both use the same raw material and similar processes; therefore, they can be grouped under the 3-digit NAICS code, 322-Paper Manufacturing. The same can be said about the industries in 3211, 3212, and 3219. Table 4-2 regroups similar 4-digit industries into four 3-digit categories, shortening the 24 statewide drivers to 13.

Table 5-2 Statewide Driver Industries

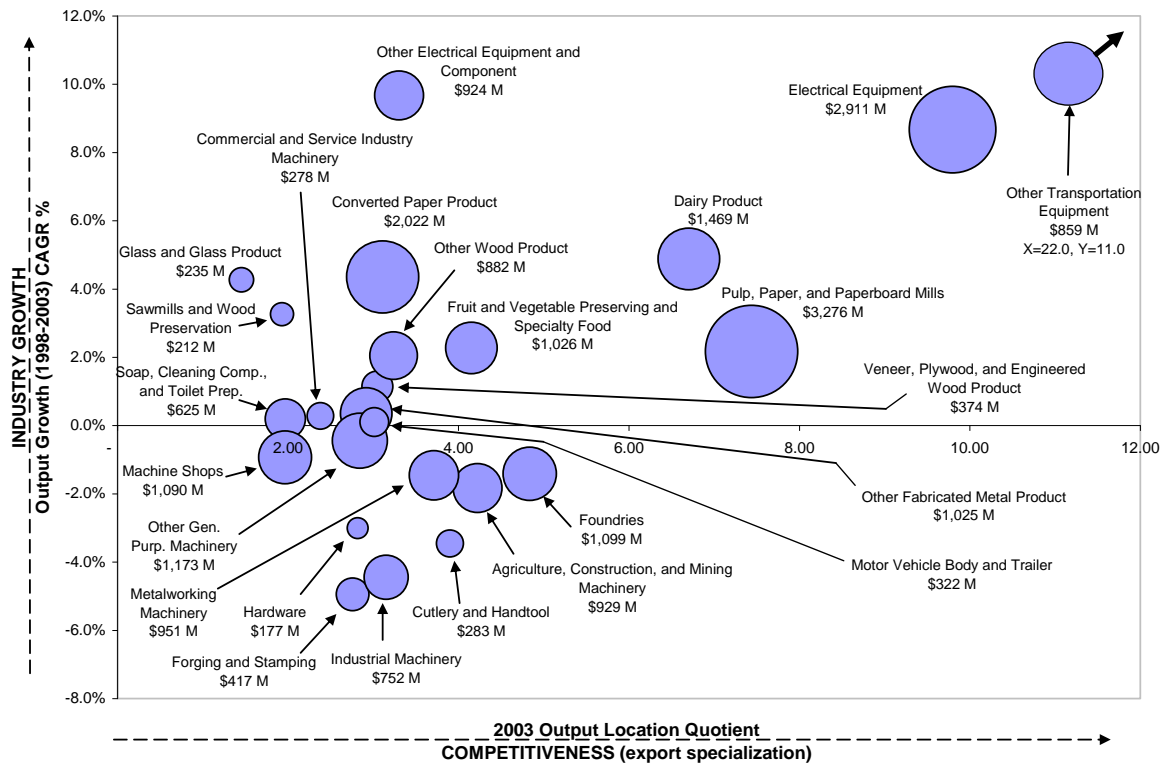
	NAICS	Title
1	3114	Fruit & Vegetable Preserving & Specialty Food Manufacturing
2	3115	Dairy Product Manufacturing
3	321	Wood Product Manufacturing (Complete)
	3211	Sawmills and Wood Preservation
	3212	Veneer, Plywood, and Engineered Wood Product Manufacturing
	3219	Other Wood Product Manufacturing
4	322	Paper Manufacturing (Complete)
	3221	Pulp, Paper, and Paperboard Mills
	3222	Converted Paper Product Manufacturing
5	3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing
6	3272	Glass and Glass Product Manufacturing
7	3315	Foundries
8	332	Fabricated Metal Products (Partial)
	3321	Forging and Stamping
	3322	Cutlery and Handtool Manufacturing
	3325	Hardware Manufacturing
	3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
	3329	Other Fabricated Metal Product Manufacturing
9	333	Machinery Manufacture (Partial)
	3331	Agricultural, Construction, and Mining Machinery Manufacturing
	3332	Industrial Machinery Manufacturing
	3333	Commercial and Service Industry Machinery Manufacturing
	3335	Metalworking Machinery Manufacturing
	3339	Other General Purpose Machinery Manufacturing
10	3353	Electrical Equipment Manufacturing

	NAICS	Title
11	3359	Other Electrical Equipment and Component Manufacturing
12	3362	Motor Vehicle Body and Trailer Manufacturing
13	3369	Other Transportation Equipment Manufacturing

The new regrouping into four driver industries is numbered in the left column. Four have been consolidated from 4-digit into 3-digit NAICS codes, numbers 3, 4, 8, and 9. These appear in bold. When all of the 4-digit categories are included, that industry, e.g., 321 and 322, is noted as *complete*. When some of the 4-digit categories are included, but not all, e.g., 332 and 333, they are noted as *partial*. These 13 driver industry categories and their industry clusters are the organizing principle for further discussion in this Section.

5.2 How Are Wisconsin's Statewide Drivers Doing?

Figure 5-1 Overview of Wisconsin's Statewide Drivers



This chart shows the relative economic health of driver industries in Wisconsin measured by two factors—their “competitiveness” in terms of export orientation or specialization on the X axis (horizontal), and their “growth” on the Y axis (vertical). Competitiveness is measured in terms of the output location quotients, which is a ratio of the industry’s concentration in the State compared to the industry’s concentration nationally. In general, a location quotient above 1 indicates that the industry is more concentrated in Wisconsin than it is nationally. This concentration suggests that the industry exports its products and that Wisconsin offers competitive advantages to the industry over other states throughout the country. An industry is

increasingly more competitive as it moves to the right on the X axis. And the more competitive it is, the more it sells goods outside of Wisconsin, thereby generating money for the State.

Industry growth is measured in terms of compound annual growth rates over the last five years and is shown on the Y axis. An industry is growing faster as it moves upward from zero; it is declining if it is below zero. The area (size) of each circle represents the gross product of each industry and indicates the industry's relative size as compared to the other industries. Through this picturing of all of the State drivers in one perspective, a sense of the overall strategies and services that will be needed in Wisconsin begins to emerge.

Interpretation: All of Wisconsin's 24 driver industries have a Location Quotient greater than 1, indicating competitiveness. They are all more concentrated in the regions than in the rest of the nation. (See separate discussions of the regions in Sections 7 through 13.) This is a competitive advantage. And, all of the industries above 0.0 on the Y axis have been growing through the recession, from 1998-2003, Other Electrical Equipment and Components, the most of all. And, Other Transportation Equipment is, literally, off the chart—high growth and very competitive. However, the metal industries are competitive but they are not growing. They include Industrial Machinery, Forging and Stamping, Cutlery and Handtools, Metalworking Machinery, and Other General Purpose Machinery, along with the Machine Shops that supply them.

Periodic replotting of this chart on growth and competitiveness for these industries may be a useful tool in tracking progress on a statewide basis. It can also be applied to the industries within individual regions—and this has been done for Wisconsin's seven economic regions in the following Sections.

5.3 Profiles of the Driver Industries and Their Industry Clusters

The remainder of this Section addresses Wisconsin's statewide drivers and their cluster industries. Overviews of each driver include 2004 export data for Wisconsin, where available—i.e., the Harris InfoSource data is available at the NAICS 3-digit level only. When appropriate, the overview discussion will combine kindred manufacturing sectors with similar issues, as for the first drivers below in Food Manufacturing (NAICS 311), 3114 (Fruits and Vegetables and Specialty Foods) and 3115 (Dairy). Following that are NAICS definitions, gross product and employment figures for 2002, top firms in the State by employment, examples of some of their products, comments about the industry, and the cluster industries of the drivers.

5.3.1 Food Manufacturing—NAICS 311

Definition: Industries in the Food Manufacturing subsector transform livestock and agricultural products into products for intermediate or final consumption. The industry groups are distinguished by the raw materials (generally of animal or vegetable origin) processed into food products.

The food products manufactured in these establishments are typically sold to wholesalers or retailers for distribution to consumers, but establishments primarily engaged in retailing bakery and candy products made on the premises not for immediate consumption are included. Establishments primarily engaged in manufacturing beverages are classified in Subsector 312, Beverage and Tobacco Product Manufacturing.

- *3114 Fruit & Vegetable Preserving & Specialty Food Manufacturing*
- *3115 Dairy Product Manufacturing*

Export Changes: Wisconsin’s food exports showed these changes from 2002 to 2004 at the 3-digit NAICS level, Food Manufacturing:

United States Exports (Origin of Movement - Total) Via Wisconsin								
NAICS Code: 311, Food Manufacturing								
YTD Comparison: January – December								
Rank	Country	U.S. Dollar			% Share			% Change
		2002	2003	2004	2002	2003	2004	2004/2003
	World	571,707,154	650,636,182	560,428,540	100	100	100	-13.86
1	Canada	218,134,419	248,156,805	261,915,946	38.15	38.14	46.73	5.54
2	Mexico	27,585,646	32,101,209	46,121,419	4.83	4.93	8.23	43.68
3	China	38,876,333	53,064,647	42,314,498	6.8	8.16	7.55	-20.26
4	Japan	68,733,704	78,972,768	38,707,807	12.02	12.14	6.91	-50.99
5	Korean Republic	85,817,626	86,213,703	32,110,564	15.01	13.25	5.73	-62.75

Source: Harris InfoSource database, 2005.

Observations:

At the global, 3-digit NAICS level, Food Manufacturing in Wisconsin is losing market share in the top 3 of its 5 highest importing countries. Compared to the U.S. overall and the eight competitor states, Wisconsin is especially challenged: only Indiana has lost greater global market share in the food manufacturing sector. The negative numbers are likely due to increased competition from other global food producers—China, Mexico, India, South American countries—whose labor rates in commodity foods make Wisconsin uncompetitive in some global markets.

5.3.1.1 NAICS 3114 Fruit & Vegetable Preserving & Specialty Food Manufacturing

Definition: This industry group includes (1) establishments that freeze food and (2) those that use preservation processes, such as pickling, canning, and dehydrating. Both types begin their production process with inputs of vegetable or animal origin.

- *31141 Frozen Food Manufacturing*
- *31142 Fruit and Vegetable Canning, Pickling, and Drying*

Gross Product: \$997,720,000 – Rank 8th of 13 drivers

Employment: 11,720 – Rank 8th of 13

Top 10 Firms by Region and Employment in That Region: McCain Foods USA, Central – 600; Del Monte Foods Co., Central – 600; Seneca Foods Corp., Southeast – 500; Lakeside Foods Inc., Southeast – 500; Seneca Foods Corp., South – 500; Kraft Pizza Co., Southeast – 450; Kraft Pizza Co., Central – 400; Del Monte Foods Co., Southeast – 400; McCain Snack Foods, West Central I – 400; Seneca Foods Corp., West Central I – 400.

What Some of the Top 10 Firms Produce: To gather a sense of what this sector is producing in Wisconsin, some companies and their products are noted. McCain Foods, a “Gold Supplier” of Sysco Food Services (a food distributor of frozen products, fresh meat, fresh produce, fresh seafood, fresh poultry, domestic & imported cheese products, and imported specialty dry products), and McCain specializes in potato and French fry products, making one-third of the world’s French fries. McCain Snack Foods makes high-end frozen appetizers.²⁷ Del Monte owns three vegetable canning plants in the State. Seneca Foods produces a variety of processed foods at several plants throughout the state, including corn, cranberry sauce, beets, Sloppy Joe sauce, potato salad, green beans, etc.²⁸ Lakeside Foods “makes private-label canned and frozen vegetables and beans; canned meat and stews; jams, jellies, and preserves; frozen and shelf-stable meals; salsa and other sauces; and whipped toppings for the Midwest retail food industry.”²⁹

Industry Challenges and Recommendations: With huge players in the fruits and vegetables market—India, Mexico, South America, and others, Wisconsin will have to examine niche opportunities, e.g., using advancements in nanotechnology and for packaging, adding new product lines and improving shelf-life of existing ones through package innovations: better control of gas exchange, thermal protection, mechanical strength, etc., for beverages, such as wines and juices, as well as preserved and ready-to-eat fruits and vegetables, ready-to-heat meals, and value-added, non-commodity dairy products?³⁰ As in other food sectors—dairy, meat processing, etc.—this sector must also manage biosecurity: pathogens, pests, contaminants. Raising healthier, more profitable genetic stocks may also create better economies and open new markets and revenue streams.³¹ Related to top line revenue gains are the costs of regulatory compliance at the federal and international levels, exemplified by *e-coli* contamination in U.S., or even embargos on some products with health impacts, parallel to those on American beef by Japan due to “mad cow” infection.

Manufacturers will have to examine transportation or distribution systems challenges, as well as ways to take advantage of consumer trends and niches nationally and internationally and *outside* of commoditized food markets. Demand for certified-organic, sustainably grown foods; ethnic foods in national and international markets; vegetarian consumers; products for diet-restricted consumers; foods that counter obesity trends in the U.S., for children and adults, such as low-fat, non-fat, and low-carbohydrate foods; high-end, value-added products such as artisan cheeses and preserves; specialty beverages, etc., all provide opportunities.

Associated Industry Cluster—3114 Fruit and Vegetable Preserving and Specialty Food Manufacturing

Supplier Industries for Typical Regional Industry		Supplier Industries for Typical National Industry	
FR	Farms	3222	Converted Paper Product Manufacturing

²⁷ Sysco Food Service of Eastern Wisconsin Web site. See www.syscoeast.com/index.cfm/choice/vendors/page/Gold/id/35

²⁸ <http://consumer.senecafoods.com/profile/plant/wisconsin.cfm>

²⁹ Lakeside Foods, Inc. Company Profile. See biz.yahoo.com/ic/111/111938.html

³⁰ Nanotechnology sales increase to . . . [US\$860m] in 2004, Food Production Daily, p. 1 See www.foodproductiondaily.com/

³¹ U.S. Department of Agriculture, “Agricultural Biosecurity: Prevention, Diagnosis, and Control Strategies for Pathogens and Pests. White Paper, June 2002. See www.csrees.usda.gov/newsroom/white_papers/biosecurity.doc

42*	Wholesale Trade	3272	Glass and Glass Product Manufacturing
3115	Dairy Product Manufacturing	3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
484*	Truck Transportation	3119	Other Food Manufacturing
3116	Animal Slaughtering and Processing	3231	Printing and Related Support Activities
3261	Plastics Product Manufacturing	3112	Grain and Oilseed Milling
4931	Warehousing and Storage	3221	Pulp, Paper, and Paperboard Mills
3324	Boiler, Tank, and Shipping Container Manufacturing	5419	Other Professional, Scientific, and Technical Services

Consumer Industries for Typical Regional Industry

722*	Food services and drinking places
3221	Pulp, Paper, and Paperboard Mills
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
622*	Hospitals
3115	Dairy Product Manufacturing
623*	Nursing and residential care facilities

5.3.1.2 NAICS 3115 Dairy Product Manufacturing

Definition: This industry group comprises establishments that manufacture dairy products from raw milk, processed milk, and dairy substitutes.

- *31151 Dairy Product (except Frozen) Manufacturing*
- *31152 Ice Cream and Frozen Dessert Manufacturing*

Gross Product: \$1,402,890,000 – Rank 6th of 13

Employment: 16,670 – Rank 6th of 13

Top 10 Firms by Region and the Employment in That Region: Mille Lacs Gourmet, South – 1,300; Schreiber Foods, Inc., East Central – 760; Land O’Lakes, Inc, Central – 470; Shum Foods, Inc, East Central – 450; American Dairy Brands, Southeast – 425; Wisconsin Cheeseman, Inc., South – 424; AMPI, South – 400; Alto Dairy Cooperative, Southeast – 400; Grande Cheese Co., Southeast – 370; Swiss Miss, West Central – 365.

What Some of the Top 10 Firms Produce: Grande Cheese Company in Wisconsin specializes in fresh and aged Italian cheeses as well as pizza cheese. Land O’Lakes is a farmer-owned cooperative that offers agricultural supplies, food production, and business services. It markets dairy-based products for consumers, foodservice professionals, and food manufacturers. In addition to butter, margarines, and cheese products, they also make food ingredients, such as butter blends, dry cheese powders for prepared foods, seasonings blends, dry cheese powders, and dairy-based seasoning blends for snack foods.

Industry Challenges and Recommendations: The U.S. experienced record dairy exports in 2004. This was due to strong world markets for skim milk solids, whey, and lactose. However,

the trade deficit continued downward as high-price cheese imports were five times greater than exports. A worldwide increase of milk production will rise slightly from 2.4% to 3.0% in 2005.³²

Changes in processing and distribution have restructured dairy markets in the last 50 years. Technology has improved quality and consistency, but while bettering economies of scale it has also stifled “product differentiation.”³³ Additionally, lower “transportation costs have led to integration of local markets into regional or even national markets . . . [and] rapid capital flows and ownership changes have altered the objectives of dairy marketing and distribution firms. Investment decisions on the farm seem to be based less on prior experience in the industry than on new factors such as investment opportunities, market pressures to expand production, and recognition of the declining role of government in the industry.”³⁴ Ultimately, all of these have led to greater commoditization of the industry. Mergers and acquisitions will continue to play a part in this industry, as will cooperatives to ensure volume and quality and, therefore, profit in this commodities market. Some differentiation for niche markets is available with organic, fat-content options, and non-BST (bovine somatotrophic growth hormone) products. There are additional opportunities for proprietary firms manufacturing yogurt, ice cream, cheeses, and sour cream

California surpassed Wisconsin as the No. 1 dairy state in 1993 for all dairy products except cheese. Wisconsin still leads in cheese production, 25% of domestic production.³⁵

Associated Industry Cluster—3115 Dairy Product Manufacturing

Supplier Industries for Typical Regional Industry		Supplier Industries for Typical National Industry	
FR	Farms	3222	Converted Paper Product Manufacturing
42*	Wholesale Trade	3119	Other Food Manufacturing
3115	Dairy Product Manufacturing	3112	Grain and Oilseed Milling
3332	Industrial Machinery Manufacturing	5411	Legal Services
4931	Warehousing and Storage	3113	Sugar and Confectionery Product Manufacturing
484*	Truck Transportation	481*	Air Transportation
3324	Boiler, Tank, and Shipping Container Manufacturing	3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3261	Plastics Product Manufacturing	5419	Other Professional, Scientific, and Technical Services
		5324	Commercial and Industrial Machinery and Equipment Rental and Leasing
		8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

³² Edward V. Jesse and William D. Dobson, U.S. Dairy Trade Situation and Outlook, Babcock Institute Discussion Paper No. 2005-1, p. 7. See babcock.cals.wisc.edu/downloads/dp/2005_01.en.pdf

³³ U. S. Dairy Product Markets Restructuring, Agricultural Outlook, February 1998, p. 17. See www.ers.usda.gov/publications/agoutlook/jan1998/ao248e.pdf

³⁴ U. S. Dairy Product Markets Restructuring, pp. 17-20

³⁵ Malinda Miller, Commodity Dairy Profile, AGMRC, Iowa State University, May 2005, p. 1. See www.agmrc.org/agmrc/commodity/livestock/dairy/commoditydairyprofile.htm

Consumer Industries for Typical Regional Industry

3115	Dairy Product Manufacturing
722*	Food services and drinking places
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing

5.3.2 NAICS 321 Wood Product Manufacturing (Complete)

Definition: Industries in the Wood Product Manufacturing subsector manufacture wood products, such as lumber, plywood, veneers, wood containers, wood flooring, wood trusses, manufactured homes (i.e. mobile home), and prefabricated wood buildings. The production processes of the Wood Product subsector include sawing, planing, shaping, laminating, and assembling of wood products starting from logs that are cut into bolts, or lumber that then may be further cut, or shaped by lathes or other shaping tools. The lumber or other transformed wood shapes may also be subsequently planed or smoothed, and assembled into finished products, such as wood containers. The Wood Product Manufacturing subsector includes establishments that make wood products from logs and bolts that are sawed and shaped, and establishments that purchase sawed lumber and make wood products. With the exception of sawmills and wood preservation establishments, the establishments are grouped into industries mainly based on the specific product manufactured.

- *3211 Sawmills and Wood Preservation*
- *3212 Veneer, Plywood, and Engineered Wood Product Manufacturing*
- *3219 Other Wood Product Manufacturing*

Export Changes: Like the food manufacturing industry, wood products manufacturing has undergone tremendous transformation in the new global economy. Specific technological issues are discussed later in this Section. Wisconsin’s wood product exports show these changes from 2002 to 2004:

United States Exports (Origin of Movement - Total) Via Wisconsin								
NAICS Code: 321, Wood Product Manufacturing								
YTD Comparison: January - December								
		U.S. Dollar			% Share			% Change
Rank	Country	2002	2003	2004	2002	2003	2004	2004/2003
	World	81,840,546	87,478,319	95,258,811	100	100	100	8.89
1	Canada	55,172,322	57,471,431	59,127,366	67.41	65.7	62.07	2.88
2	China	2,459,508	6,876,666	7,997,417	3.01	7.86	8.4	16.3
3	United Kingdom	6,398,939	5,658,595	5,385,452	7.82	6.47	5.65	-4.83
4	Japan	2,013,301	2,914,361	3,974,290	2.46	3.33	4.17	36.37
5	Mexico	1,844,532	2,229,322	3,518,304	2.25	2.55	3.69	57.82

Source: Harris InfoSource database, 2005.

Observations: The State’s most impressive growth figures were in the much smaller dollar value markets, Japan, Mexico, and China, but it is important to understand what product lines

propelled these figures upward in so short a time. It is equally important to understand what caused the loss of revenues from the U.K. Accounting for these shifts may allow the State's industries to develop recouping strategies or new market creations.

Gross Product: \$1,428,940,000 – Rank 5th of 13

Employment: 26,050 – Rank 4th of 13

Top 10 Firms by Region and Employment in That Region: Weather Shield Mfg., Inc., Central – 2,500; Kolbe & Kolbe Millwork Co. Inc., Central – 1,600; Hurd Millwork Co. Inc., Central – 1,000; Jeld-Wen Window & Doors, North – 700; Wick Building Systems, North – 600; Lincoln Products, Central – 500; Design Homes Inc., South – 450; Andersen Corp., West Central I – 400; Semling-Menke Co., Central – 375; Weather Shield Mfg. Inc., North – 311.

What Some of the Top 10 Firms Produce: Hurd Millwork Co. manufactures wood frames and doors; Wick Building Systems in the North Region “specializes in prefabricated housing and buildings, including convenience stores, storage buildings and sheds, churches, and retail outlets.”³⁶

Industry Challenges and Recommendations: The wood products manufacturing industry is a globally competitive commodity. Softwoods from Russia and the Nordic states and Canada compete directly with those from Wisconsin. Furniture is very labor intensive, resulting in China taking the low road and selling through big outlets—IKEA, Target, and Walmart. The high road, like that taken in Maine, which certifies sustainable forests and is shifting from softwoods to hardwoods, is difficult and, like other, new niche products, requires opening new outlet channels, which is an added cost burden.

As a result, dramatic declines in U.S. sales have occurred in Europe. “U.S. plywood shipments to Europe topped one billion square feet in 1997. Last year [authored June 22, 2003], by contrast, they fell to just 12 million feet, a drop of almost 99 percent. This has been due in large measure to rising imports from South America.” The author attributes the displacement of U.S. and Canadian plywood sales to Europe to (1) the increase in the dollar's real exchange value against currencies of our 36 most important trading partners; and (2) the increase in production capacity by other countries, especially China, which now is second only to the U.S. in production footage.³⁷

The use of engineered wood products is increasing worldwide, especially in China. And, finally, “to the extent that opportunities will exist, we must recognize that they will not be wholesale, but rather opportunities for products more carefully tailored to specific market and customer needs.” He cites orientated strand board, now used primarily for structural sheathing, will be improved and used in specialty and value-added markets.³⁸

In the long run, the wood industry's success will depend upon its ability to become a knowledge-based industry. This will create an integrated approach to meet terms of client satisfaction, value recovery, environmental impact, health and safety, job quality, etc. One study suggests a number of expert systems and decision-aiding tools to move toward “a form of totally integrated process control that will give managers the power to respond to market opportunities and value

³⁶ Wick Building Systems, Inc., Hoover's Web site. See www.hoovers.com/wick-building/--ID__105697--/free-co-factsheet.xhtml

³⁷ Dave Rogoway, Presented at the Forst Products Society Annual Meeting June 22, 2003, Bellvue, WA. Pp. 1-3. See www.apawood.org/level_d.cfm?story=1066

³⁸ Rogoway, pp. 4.

optimization without losing sight of other factors, particularly cost control.³⁹ The author sees the following as critical to the wealth creation in the industry, particularly to increasing demands by customers for better products and services. The named topics are quoted, without their accompanying descriptive details, to suggest the scope of the technological challenges:

1. Image processing to analyze forest stands and characterize the resource (primary sector)
2. Supply chain utilization to integrate all supply inputs (all sectors)
3. External and internal scanning techniques for logs and lumber (all sectors)
4. Automatic identification of individual softwood species (softwood lumber industry)
5. Smart debarking system to optimize lumber recovery and chip quality (primary sector)
6. Technology to sort lumber into categories of comparable dryability (all sectors)
7. Computer-assisted vision systems to automate quality control and wood matching operations (lumber and value-added products)
8. Automation of equipment adjustment and tool changes (all sectors)
9. Kiln controller to optimize drying cycle for individual load and exterior characteristics (all sectors)
10. Integrated systems to grade wood products on-line (softwood lumber and engineered wood products)
11. Expert systems and simulators to transfer technology to managers and operators (all sectors)
12. Integrated on-line quality control and process control (all sectors)
13. Commercial products to turn bark from a liability into an asset (primary sector)
14. Application of synthetic fibers to the reinforcement of engineered wood products
15. Adhesives for reduced manufacturing costs and improved performance (value-added products)
16. Powder coatings to eliminate solvents in the finishing of appearance wood products

³⁹ Forest Industries: Breakthrough Technologies, Industry Canada, pp. 2-3. See strategis.ic.gc.ca/epic/internet/infif.nsf/en/fb01468e.html

17. Finishing system for no-maintenance exterior wood products (appearance wood products)

18. Biological treatments to improve the treatability of wood products (treated wood products)

19. Genetic engineering to produce naturally durable wood products

20. Develop new products – to diversify production when commodities suffer from intense competition, as a way of compensating for restrictions in wood supply, or as a means of adding value to existing product lines by accessing niche markets.⁴⁰

Associated Industry Clusters—322 Wood Products Manufacturing (Complete)

There are three driver industries in Wisconsin that comprise wood products manufacturing: sawmills and wood preservation (NAICS 3211); veneer, plywood, and engineered wood products manufacturing (NAICS 3212); and other wood product manufacturing (NAICS 3219). The industry clusters associated with each of these three drivers follow below.

Associated Industry Cluster—3211 Sawmills and Wood Preservation

Supplier Industries for Typical Regional Industry		Supplier Industries for Typical National Industry	
1133	Logging	FH	Fishing, Hunting, Etc.
3211	Sawmills and Wood Preservation	484*	Truck Transportation
42*	Wholesale Trade	3219	Other Wood Product Manufacturing
484*	Truck Transportation	3259	Other Chemical Product and Preparation Manufacturing
4821	Rail Transportation	3212	Veneer, Plywood, and Engineered Wood Product Manufacturing
3251	Basic Chemical Manufacturing		
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance		
Consumer Industries for Typical Regional Industry			
3221	Pulp, Paper, and Paperboard Mills		
4821	Rail Transportation		
2360	Construction of Buildings		
3219	Other Wood Product Manufacturing		
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing		
2380	Specialty Trade Contractors		
2370	Heavy and Civil Engineering Construction		

⁴⁰ Forest Industries: Breakthrough Technologies, pp. 2-9.

Associated Industry Cluster—3212 Veneer, Plywood, and Engineered Wood Product Manufacturing

Supplier Industries for Typical Regional Industry		Supplier Industries for Typical National Industry	
1133	Logging	3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
42*	Wholesale Trade	3323	Architectural and Structural Metals Manufacturing
3211	Sawmills and Wood Preservation	FH	Fishing, Hunting, Etc.
484*	Truck Transportation	3241	Petroleum and Coal Products Manufacturing
3219	Other Wood Product Manufacturing	3255	Paint, Coating, and Adhesive Manufacturing
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	3321	Forging and Stamping
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	3261	Plastics Product Manufacturing
3251	Basic Chemical Manufacturing		
Consumer Industries for Typical Regional Industry			
3219	Other Wood Product Manufacturing		
2360	Construction of Buildings		
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing		
3221	Pulp, Paper, and Paperboard Mills		
2380	Specialty Trade Contractors		
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing		
3391	Medical Equipment and Supplies Manufacturing		

Associated Industry Cluster—3219 Other Wood Product Manufacturing

Supplier Industries for Typical Regional Industry		Supplier Industries for Typical National Industry	
42*	Wholesale Trade	3323	Architectural and Structural Metals Manufacturing
3211	Sawmills and Wood Preservation	3222	Converted Paper Product Manufacturing
484*	Truck Transportation	3274	Lime and Gypsum Product Manufacturing
3219	Other Wood Product Manufacturing	3359	Other Electrical Equipment and Component Manufacturing
3272	Glass and Glass Product Manufacturing	3141	Textile Furnishings Mills
1133	Logging	3352	Household Appliance Manufacturing
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	3279	Other Nonmetallic Mineral Product Manufacturing

Supplier Industries for Typical Regional Industry

3261	Plastics Product Manufacturing
3363	Motor Vehicle Parts Manufacturing
3325	Hardware Manufacturing
4821	Rail Transportation
3353	Electrical Equipment Manufacturing

Supplier Industries for Typical National Industry

3255	Paint, Coating, and Adhesive Manufacturing
3399	Other Miscellaneous Manufacturing

Consumer Industries for Typical Regional Industry

3219	Other Wood Product Manufacturing
3221	Pulp, Paper, and Paperboard Mills
42*	Wholesale Trade
FR	Farms
2360	Construction of Buildings
3272	Glass and Glass Product Manufacturing
4931	Warehousing and Storage
621b*	Other ambulatory health care services
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
2380	Specialty Trade Contractors

5.3.3 NAICS 322 Paper Manufacturing (Complete)

Definition: Industries in the Paper Manufacturing subsector make pulp, paper, or converted paper products. The manufacturing of these products is grouped together because they constitute a series of vertically connected processes. More than one is often carried out in a single establishment. There are essentially three activities. The manufacturing of pulp involves separating the cellulose fibers from other impurities in wood or used paper. The manufacturing of paper involves matting these fibers into a sheet. Converted paper products are made from paper and other materials by various cutting and shaping techniques and include coating and laminating activities.

- 3221 *Pulp, Paper, and Paperboard Mills*
- 3222 *Converted Paper Product Manufacturing*

Export Changes: Wisconsin’s paper products exports showed these changes from 2002 to 2004:

United States Exports (Origin of Movement - Total) Via Wisconsin								
NAICS Code: 322, Paper Manufacturing								
YTD Comparison: January - December								
Rank	Country	U.S. Dollar			% Share			% Change
		2002	2003	2004	2002	2003	2004	2004/2003
	World	528,315,412	563,186,987	664,923,606	100	100	100	18.06
1	Canada	359,296,306	362,776,711	403,712,802	68.01	64.41	60.72	11.28
2	Mexico	55,724,771	69,634,107	103,806,840	10.55	12.36	15.61	49.07

United States Exports (Origin of Movement - Total) Via Wisconsin								
NAICS Code: 322, Paper Manufacturing								
YTD Comparison: January - December								
Rank	Country	U.S. Dollar			% Share			% Change
		2002	2003	2004	2002	2003	2004	2004/2003
3	United Kingdom	11,303,271	13,248,922	19,036,973	2.14	2.35	2.86	43.69
4	France	2,897,259	5,339,377	14,352,741	0.55	0.95	2.16	168.81
5	Taiwan	8,123,209	9,221,385	11,010,200	1.54	1.64	1.66	19.4

Source: Harris InfoSource database, 2005.

Observations: Overall, these are very encouraging figures for Wisconsin’s paper exports, given the difficulty the industry has had with a weak dollar and ongoing consolidation. The anomaly of 169% growth in exports to France needs to be parsed to learn precisely what accounted for it, as do the robust figures for Mexico and the U.K. Overall, the paper industry is struggling, so success in niche markets abroad perhaps accounts for these growth figures.

Gross Product: \$5,035,080,000 Rank 1st of 13

Employment: 46,220 Rank 2nd in 13

Top 10 Firms by Region and Employment in That Region: Georgia-Pacific Corp., East Central – 3,000; Domtar Industries Inc., Central – 1,400; Kimberly-Clark Corp. East Central – 1,200; International Paper, East Central – 1,000; Georgia-Pacific Cor., East Central – 785; International paper De Pere s, Central – 650; Weyerhaeuser Co., Central – 350; Stora Enso North America, Central – 350; International paper De Pere, East Central – 300; Stora Enso North America, Central – 300.

What Some of the Top 10 Firms Produce: High end paper products for printing, paper pulp, light weight packaging papers, writing papers, towels and facial tissues.

Industry Challenges and Recommendations: Competition in paper and allied products is increasing rapidly from producers in many developing countries that have cost and raw materials advantages, such as Indonesia and Malaysia. “Domestic sales have stagnated (up 1.5 to 2 percent) over the last 5 years.” Therefore, the industry has turned to exports. Export commodities include wood pulp, recovered paper, paper and paperboard, and converted paper and paperboard products. Long-term prospects are for very slow growth, but again, specialized new applications, such as the use of folding cartons for soaps, pharmaceutical and medicinal products, alcoholic and soft drink beverages, and fast and frozen foods – especially for companies seeking environmentally preferable packaging (rather, say, than plastics) – may open high-road opportunities.

Wisconsin, for example, is No. 1 in exports of facial tissues, table clothes and napkins, toilet paper and sanitary napkins and tampons, and a major producer of coated and uncoated papers, with over 15% of the U.S. total.

Associated Industry Cluster—3221 Pulp, Paper, and Paperboard Mills

<u>Supplier Industries for Typical Regional Industry</u>		<u>Supplier Industries for Typical National Industry</u>	
3221	Pulp, Paper, and Paperboard Mills	3241	Petroleum and Coal Products Manufacturing
42*	Wholesale Trade	8112	Electronic and Precision Equipment Repair and Maintenance

Supplier Industries for Typical Regional Industry

1133	Logging
484*	Truck Transportation
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3211	Sawmills and Wood Preservation
3251	Basic Chemical Manufacturing
4821	Rail Transportation

Supplier Industries for Typical National Industry

3112	Grain and Oilseed Milling
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing
3222	Converted Paper Product Manufacturing
8111	Automotive Repair and Maintenance
3219	Other Wood Product Manufacturing
2380	Specialty Trade Contractors
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing

Consumer Industries for Typical Regional Industry

3221	Pulp, Paper, and Paperboard Mills
3222	Converted Paper Product Manufacturing

Associated Industry Cluster—3222 Converted Paper Product Manufacturing

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
484*	Truck Transportation
3261	Plastics Product Manufacturing
3132	Fabric Mills
3221	Pulp, Paper, and Paperboard Mills
3259	Other Chemical Product and Preparation Manufacturing
3222	Converted Paper Product Manufacturing

Supplier Industries - Typical National Industry

3313	Alumina and Aluminum Production and Processing
3251	Basic Chemical Manufacturing
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3255	Paint, Coating, and Adhesive Manufacturing
3329	Other Fabricated Metal Product Manufacturing
4821	Rail Transportation
5418	Advertising and Related Services
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3231	Printing and Related Support Activities
3321	Forging and Stamping

Consumer Industries - Typical Regional Industry

3121	Beverage Manufacturing
3221	Pulp, Paper, and Paperboard Mills
3116	Animal Slaughtering and Processing
622*	Hospitals
3231	Printing and Related Support Activities
8121	Personal Care Services
3222	Converted Paper Product Manufacturing
3261	Plastics Product Manufacturing
3115	Dairy Product Manufacturing
722*	Food services and drinking places

5.3.4 NAICS 325—Chemical Manufacturing

The Chemical Manufacturing subsector is based on the transformation of organic and inorganic raw materials by a chemical process and the formulation of products. This subsector distinguishes the production of basic chemicals that comprise the first industry group from the production of intermediate and end products produced by further processing of basic chemicals that make up the remaining industry groups.

This subsector does not include all industries transforming raw materials by a chemical process. It is common for some chemical processing to occur during mining operations. These beneficiating operations, such as copper concentrating, are classified in Sector 21, Mining. Furthermore, the refining of crude petroleum is included in Subsector 324, Petroleum and Coal Products Manufacturing. In addition, the manufacturing of aluminum oxide is included in Subsector 331, Primary Metal Manufacturing; and beverage distilleries are classified in Subsector 312, Beverage and Tobacco Product Manufacturing. As in the case of these two activities, the grouping of industries into subsectors may take into account the association of the activities performed with other activities in the subsector.

- *NAICS 3256 Soap, Cleaning Compound, and Toilet Preparation Manufacturing*

Definition: This industry comprises establishments primarily engaged in manufacturing and packaging soap and other cleaning compounds, surface active agents, and textile and leather finishing agents used to reduce tension or speed the drying process and establishments primarily engaged in preparing, blending, compounding, and packaging toilet preparations, such as perfumes, shaving preparations, hair preparations, face creams, lotions (including sunscreens), and other cosmetic preparations.

Export Changes: The changes in exports for Wisconsin, again, are only at the NAICS 3-digit level, 325, Chemical Manufacturing, so these exports may understate or overstate how the single Wisconsin driver, NAICS 3256—Soap, Cleaning Compound, and Toilet Preparation Manufacturing—is doing globally.

United States Exports (Origin of Movement - Total) Via Wisconsin								
NAICS Code: 325, Chemical Manufacturing								
YTD Comparison: January - December								
Rank	Country	U.S. Dollar			% Share			% Change
		2002	2003	2004	2002	2003	2004	2004/2003
	World	589,793,200	585,331,646	638,795,212	100	100	100	9.13
1	Canada	191,469,089	209,785,247	227,865,996	32.46	35.84	35.67	8.62
2	Mexico	43,892,534	61,662,460	59,135,957	7.44	10.53	9.26	-4.1
3	France	44,192,196	42,334,470	48,116,685	7.49	7.23	7.53	13.66
4	Germany	58,258,989	31,259,723	39,414,527	9.88	5.34	6.17	26.09
5	Japan	42,419,175	46,602,228	38,484,547	7.19	7.96	6.02	-17.42

Source: Harris InfoSource database, 2005.

Observations: This is a mixed set of figures for the NAICS 3256 manufacturing segment. What happened to the Japanese and Mexican markets compared to those of Germany and France should be examined, although none of the revenue contributions of these four countries compare to those of Canada, the State's largest importer in this industry.

Gross Product: \$613,490,000 Rank 11th of 13

Employment: 3,880 Rank 11th of 13

Top 10 Firms by Region and Employment in That Region: S.C. Johnson & Son Inc., Southeast – 1,259; Northern Labs Inc., Southeast – 250; Kleen Test Products Inc., Southeast – 185; US Chemical Corp., Southeast – 150; General Converters & Assemblers, Southeast – 100; Northern Labs Inc., Southeast – 80; Degussa Goldschmidt Corp., South – 75; Top Brass Inc., East Central – 60.

What Some of the Top 10 Firms Produce: The C. S. Johnson Company in Racine produces “storage, air care, personal care and insect control. It markets such well-known brands as WINDEX®, PLEDGE®, GLADE®, SHOUT®, ZIPLOC®, EDGE® and RAID®.”⁴¹ Northern Labs makes specialty cleaning preparations for consumers and manufacturers, and some of its commercial “products may have unique packaging or handling requirements, or they may require explosion-proof processing and filling. Northern Labs is ISO 9001:2000 certified and produces drug products under FDA Good Manufacturing Practices.”⁴²

Industry Challenges and Recommendations: This driver industry is a segment of the chemical industry. It is the only one projected to add jobs (reported June 2004.)⁴³ It is also the only one of the seven segments that is geared primarily and directly toward consumers. It includes firms that make soaps, detergents, cleaning preparations, as well as cosmetics and toiletries, including perfume, lotion, and toothpaste. Households and businesses use these cleaning products in many different ways.⁴⁴

The chemical industry's output is expected to grow, but employment will decline some 17% over the 2002-2012 period, excluding pharmaceuticals and medicine.

There are several factors that will influence chemical industry employment, such as more efficient production processes and increased plant automation, the state of the national and world economy, company mergers and consolidation, increased foreign competition, the shifting of production activities to foreign countries, and environmental health and safety concerns and

⁴¹ New Ads Feature Widely-Used Brands Made by One-of-a-Kind Company, C. S. Johnson Web site. See www.scjohnson.com/family/fam_pre_pre_news.asp?art_id=149.

⁴² Northern Labs, Inc. Web site. See www.northernlabs.com/html/aboutUs.htm

⁴³ Chemical Manufacturing, Pharmaceutical and Medicine Manufacturing, U.S. Department of Labor, Bureau of Labor Statistics, p. 10. See www.bls.gov/oco/cg/cgs008.htm.

⁴⁴ Chemical Manufacturing, Pharmaceutical and Medicine Manufacturing, p. 2.

legislation. Another trend in the chemical industry is the rising demand for specialty chemicals.⁴⁵

An opportunity for expansion of the Soaps, Cleaning Compound, and Toilet Preparation industry may stem from renewed concerns about chemicals in the environment. These may “spur producers to create chemicals with byproducts that are fewer or less dangerous, or that can be recycled or disposed of cleanly.”⁴⁶

Associated Industry Cluster—3256 Soap, Cleaning Compound, and Toilet Preparation Manufacturing

<u>Supplier Industries - Typical Regional Industry</u>		<u>Supplier Industries - Typical National Industry</u>	
3251	Basic Chemical Manufacturing	3222	Converted Paper Product Manufacturing
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	3241	Petroleum and Coal Products Manufacturing
42*	Wholesale Trade	3324	Boiler, Tank, and Shipping Container Manufacturing
3261	Plastics Product Manufacturing	5418	Advertising and Related Services
484*	Truck Transportation	3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
4931	Warehousing and Storage	3272	Glass and Glass Product Manufacturing
3255	Paint, Coating, and Adhesive Manufacturing	5151	Radio and Television Broadcasting
5417	Scientific Research and Development Services	3231	Printing and Related Support Activities
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	5411	Legal Services
3259	Other Chemical Product and Preparation Manufacturing	5111	Newspaper, Periodical, Book, and Directory Publishers
<u>Consumer Industries - Typical Regional Industry</u>			
FR	Farms		
622*	Hospitals		
3119	Other Food Manufacturing		
3261	Plastics Product Manufacturing		
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing		
623*	Nursing and residential care facilities		
5617	Services to Buildings and Dwellings		
3251	Basic Chemical Manufacturing		
3115	Dairy Product Manufacturing		

⁴⁵ Chemical Manufacturing, Except Pharmaceutical and Medicine Manufacturing, International Profit Associates, p. 6. See www.internationalprofitassociates.net/stats/Chemicals.asp

⁴⁶ Gulf Coast Workforce Board, The WorkSource, December 7, 2004, meeting minutes, p. 47. See www.theworksource.org/1general/BoardPacket/December2004.pdf

5.3.5 NAICS 327—Non-Metallic Product Manufacturing

Definition: The Nonmetallic Mineral Product Manufacturing subsector transforms mined or quarried nonmetallic minerals, such as sand, gravel, stone, clay, and refractory materials, into products for intermediate or final consumption. Processes used include grinding, mixing, cutting, shaping, and honing. Heat often is used in the process and chemicals are frequently mixed to change the composition, purity, and chemical properties for the intended product. For example, glass is produced by heating silica sand to the melting point (sometimes combined with cullet or recycled glass) and then drawn, floated, or blow molded to the desired shape or thickness. Refractory materials are heated and then formed into bricks or other shapes for use in industrial applications.

The Nonmetallic Mineral Product Manufacturing subsector includes establishments that manufacture products, such as bricks, refractories, ceramic products, and glass and glass products, such as plate glass and containers. Also included are cement and concrete products, lime, gypsum and other nonmetallic mineral products including abrasive products, ceramic plumbing fixtures, statuary, cut stone products, and mineral wool. The products are used in a wide range of activities from construction and heavy and light manufacturing to articles for personal use.

Mining, beneficiating, and manufacturing activities often occur in a single location. Separate receipts will be collected for these activities whenever possible. When receipts cannot be broken out between mining and manufacturing, establishments that mine or quarry nonmetallic minerals, beneficiate the nonmetallic minerals, and further process the nonmetallic minerals into a more finished manufactured product are classified based on the primary activity of the establishment. A mine that manufactures a small amount of finished products will be classified in Sector 21, Mining. An establishment that mines and whose primary output is a more-finished manufactured product will be classified in the Manufacturing Sector.

Excluded from the Nonmetallic Mineral Product Manufacturing subsector are establishments that primarily beneficiate mined nonmetallic minerals. Beneficiation is the process whereby the extracted material is reduced to particles that can be separated into mineral and waste, the former suitable for further processing or direct use. Beneficiation establishments are included in Sector 21, Mining.

- *3272 Glass and Glass Product Manufacturing*

This industry comprises establishments primarily engaged in manufacturing glass and/or glass products. Establishments in this industry may manufacture glass and/or glass products by melting silica sand or cullet, or purchasing glass

Export Changes: The changes in exports for Wisconsin, again, are only at the NAICS 3-digit level, 327, Nonmetallic Mineral Product Manufacturing, so these export data may understate or overstate how the single Wisconsin driver, NAICS 3272—Glass and Glass Product Manufacturing—is doing globally.

United States Exports (Origin of Movement - Total) Via Wisconsin								
NAICS Code: 327, Nonmetallic Mineral Product Manufacturing								
YTD Comparison: January – December								
Rank	Country	U.S. Dollar			% Share			% Change
		2002	2003	2004	2002	2003	2004	2004/2003
	World	56,486,022	57,190,747	58,747,808	100	100	100	2.72
1	Canada	25,557,194	24,372,650	28,064,080	45.25	42.62	47.77	15.15
2	France	6,784,933	6,841,362	8,695,287	12.01	11.96	14.8	27.1
3	Mexico	3,376,854	4,663,424	3,412,686	5.98	8.15	5.81	-26.82
4	Germany	2,059,699	3,297,435	3,324,022	3.65	5.77	5.66	0.81
5	Denmark	1,725,546	1,352,201	2,120,429	3.05	2.36	3.61	56.81

Source: Harris InfoSource data, 2005.

Observations: When growth numbers are a mix of losses and gains as they are for this export segment, it is essential to do an analysis of the product lines that account for the losses and gains. Where is Mexico now getting these products? What accounts for the growth in the markets in Denmark, France, and Canada? The degree to which the industry can account for these shifts may suggest marketing strategies, niche products to pursue, and other elements to help grow this industry segment.

Gross Product: \$220,010 Rank 13th of 13

Employment: 3,640 Rank 12th of 13

Top 10 Firms by Region and Employment in That Region: Cardinal IG, South – 500; Cardinal IG , West Central II – 350; Cardinal CG, South – 350; Saint-Gobain Containers Inc, Southeast – 325; Lamplight Farms Inc., Southeast – 300; Oldcastle Glass Wausau, Central – 300; Cardinal FG*, West Central I – 250; Cardinal FG, South – 242; All-Glass Aquarium Co., Southeast – 200 (a branch); All-Glass Aquarium, Southeast – 200 (HQs).

What Some of the Top 10 Firms Produce: Cardinal CG manufactures IG – insulating and laminated glass; CG – coated glass; FG – float and tempered glass for premium residential windows.⁴⁷ All-Glass Aquarium is the largest producer of aquariums, terrariums, and related lighting systems and furniture in the United States.⁴⁸ Oldcastle Glass “specializes in hurricane-resistant glazing . . . for the . . . rapidly growing market for impact-resistant windows along the Gulf and Atlantic Coasts.”⁴⁹

⁴⁷ CABEC Vendors—Cardinal Coated Glass Division, California Association of Building Energy Consultants Web site. See www.cabec.org/cardinalcg.php

⁴⁸ Central Garden & Pet, Investor Relations, March 23, 2003. See www.centralgardenandpet.com/ireye/ir_site.zhtml?ticker=cent&script=410&layout=7&item_id=393851

⁴⁹ Wausau, Wisconsin Now Home to New Oldcastle Glass® Laminating Line, U.S> Glass News Network. See www.usgmn.com/newsausau071204.htm

Industry Challenges and Recommendations: This industry includes (1) flat glass and/or laminated glass; (2) pressed, blown, or shaped glass; (3) glass packaging; and (4) remelted, pressed, blown, or shaped purchased glass.⁵⁰ One company recycles sludges, sediments, and soils into environmentally inert product—glass aggregate—which is used in ceramic floor tile, abrasives, concrete additives, asphalt paving and chip seal, and roofing shingles.⁵¹

In the general case,

Future growth of glass as a material will be influenced by properties that increase durability, promote energy savings and enhance visibility and aesthetics. At the same time new architectural designs, improved multi-functionality in buildings, and newly coated products are increasing the role of glass. New glass products to be processed, more end products and safety glass require better capacity, process control and flexibility from the equipment and machinery.⁵²

The need for improved processing is also tied to consumer demands for shorter delivery times. “Shortening delivery times requires better performance from every glass-processing machine in every glass processing plant.” Therefore, glass processing calls for a more integrated chain. “Efficient production builds on advanced glass handling and cutting. Glass processors must be able to pre-process different glass sizes and types and in high capacity processes, the changeover times must be shortened to a minimum. These capabilities require flexible cutting, drilling, grinding and beveling machinery and equipment.”⁵³ Overall, “integrated production lines are the answer for future challenge of glass processors willing to meet the needs of growing glass processing industry.”⁵⁴

Associated Industry Cluster—3272 Glass and Glass Product Manufacturing

Supplier Industries - Typical Regional Industry	Supplier Industries - Typical National Industry
3272 Glass and Glass Product Manufacturing	3222 Converted Paper Product Manufacturing
42* Wholesale Trade	3271 Clay Product and Refractory Manufacturing
484* Truck Transportation	8113 Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3261 Plastics Product Manufacturing	2123 Nonmetallic Mineral Mining and Quarrying
3251 Basic Chemical Manufacturing	3335 Metalworking Machinery Manufacturing
3255 Paint, Coating, and Adhesive Manufacturing	3219 Other Wood Product Manufacturing
	3279 Other Nonmetallic Mineral Product Manufacturing
	2380 Specialty Trade Contractors
	8112 Electronic and Precision Equipment Repair and Maintenance
	4821 Rail Transportation

⁵⁰ Glass and Glass Product Manufacturing in the US, Hoover’s, p. 1. See
⁵¹ Glass Aggregate Uses, Minergy, p. 1. See /www.minergy.com/products/productmain.htm
⁵² Glass Processing, International Glass Review, Autumn 2004, p. 1. See
www.internationalglassreview.com/default.asp?Page=1&SID=465218&ISS=12488
⁵³ Glass Processing, International Glass Review, Autumn 2004, p. 1.
⁵⁴ Glass Processing, p. 2.

Consumer Industries - Typical Regional Industry

3272	Glass and Glass Product Manufacturing
3323	Architectural and Structural Metals Manufacturing
3261	Plastics Product Manufacturing
722*	Food services and drinking places
622*	Hospitals
8111	Automotive Repair and Maintenance
3366	Ship and Boat Building
5417	Scientific Research and Development Services
3219	Other Wood Product Manufacturing
2360	Construction of Buildings

5.3.6 NAICS 331—Primary Metal Manufacturing

Industries in the Primary Metal Manufacturing subsector smelt and/or refine ferrous and nonferrous metals from ore, pig or scrap, using electrometallurgical and other process metallurgical techniques. Establishments in this subsector also manufacture metal alloys and superalloys by introducing other chemical elements to pure metals. The output of smelting and refining, usually in ingot form, is used in rolling, drawing, and extruding operations to make sheet, strip, bar, rod, or wire, and in molten form to make castings and other basic metal products.

Primary manufacturing of ferrous and nonferrous metals begins with ore or concentrate as the primary input. Establishments manufacturing primary metals from ore and/or concentrate remain classified in the primary smelting, primary refining, or iron and steel mill, industries regardless of the form of their output. Establishments primarily engaged in secondary smelting and/or secondary refining recover ferrous and nonferrous metals from scrap and/or dross. The output of the secondary smelting and/or secondary refining industries is limited to shapes, such as ingot or billet, that will be further processed. Recovery of metals from scrap often occurs in establishments that are primarily engaged in activities, such as rolling, drawing, extruding, or similar processes.

Excluded from the Primary Metal Manufacturing subsector are establishments primarily engaged in manufacturing ferrous and nonferrous forgings (except ferrous forgings made in steel mills) and stampings. Although forging, stamping, and casting are all methods used to make metal shapes, forging and stamping do not use molten metals and are included in Subsector 332, Fabricated Metal Product Manufacturing. Establishments primarily engaged in operating coke ovens are classified in Industry 32419, Other Petroleum and Coal Products Manufacturing.

- *NAICS 3315 Foundries*

Definition: This industry group comprises establishments primarily engaged in pouring molten metal into molds or dies to

form castings. Establishments making castings and further manufacturing, such as machining or assembling, a specific manufactured product are classified in the industry of the finished product. Foundries may perform operations, such as cleaning and deburring, on the castings they manufacture. More involved processes, such as tapping, threading, milling, or machining to tight tolerances, that transform castings into more finished products are classified elsewhere in the manufacturing sector based on the product being made.

Establishments in this industry group make castings from purchased metals or in integrated secondary smelting and casting facilities. When the production of primary metals is combined with making castings, the establishment is classified in 331 with the primary metal being made.

Export Changes: The changes in exports for Wisconsin, again, are only at the NAICS 3-digit level, 331, Primary Metal, so these export data may understate or overstate how the single Wisconsin driver, NAICS 3315—Foundries—is doing globally.

United States Exports (Origin of Movement - Total) Via Wisconsin								
NAICS Code: 331, Primary Metal Manufacturing								
YTD Comparison: January - December								
		U.S. Dollar			% Share			% Change
Rank	Country	2002	2003	2004	2002	2003	2004	2004/2003
	World	95,709,250	108,745,102	145,268,217	100	100	100	33.59
1	Canada	41,972,262	56,096,139	51,912,574	43.85	51.58	35.74	-7.46
2	China	906,107	1,514,117	36,301,823	0.95	1.39	24.99	2,297.56
3	Mexico	10,536,695	16,675,528	13,914,085	11.01	15.33	9.58	-16.56
4	Belgium	2,566,344	3,423,873	4,941,211	2.68	3.15	3.4	44.32
5	Singapore	916,090	2,236,111	3,658,660	0.96	2.06	2.52	63.62

Source: Harris InfoSource database, 2005.

Observations: As in other sectors, anomalies such as growth figures of 2,297% for China in this sector warrant accounting for, as do the equally impressive growths in exports to Singapore and Belgium. And losses from Mexico and Canada may also suggest trends in Wisconsin’s export lines in this sector.

Gross Product: \$1,079,230,000 Rank 7th of 13

Employment: 17,790 Rank 5th of 13

Top 10 Firms by Region and Employment in That Region: ThyssenKrupp Inc., East Central – 4,000; J.L. French Corp., Southeast – 1,200; Neenah Foundry Co., East Central – 850; Grede Foundries, Inc., South – 825; Brillion Iron Works Inc., East Central – 800; Waupaca Foundry Inc., East Central – 750; Madison-Kipp Corp., South – 600; EST Co., Southeast – 500; Signicast Corp. Southeast – 500

What Some of the Top 10 Firms Produce: Madison-Kipp “produces castings in aluminum and zinc for the most demanding applications, including automotive, high pressure applications, agriculture, electronics, and telecommunications,”⁵⁵ while Neenah Foundry makes municipal manhole covers, catch basin inlets and covers, tree grates, and numerous other cast products.⁵⁶

Industry Challenges and Recommendations: Foundry exports are included in the export classifications system articles of iron or steel and, therefore, do not appear among Wisconsin’s top ten exported products. All articles of iron or steel totaled \$171,304,291,000 and ranked 8th of the 10 categories.

Pig iron or iron alloys and aluminum and other nonferrous metals are poured into molds to make castings that produce water pipe and fittings, railway car wheels, hydrants, ingots, grinding balls, and many other forms that may later be machined into finished parts. The barriers to growth include overseas competition, difficulty finding people to do the hard work, new laws governing ergonomics, worker’s compensation, rising health care costs, predictable and consistent quality, and competition from powder metallurgy, fabrications, and plastics.⁵⁷

Altogether, in a report prepared for the State of Pennsylvania, the key challenges to the metalcasting industry were these:

Increase *market development* activities to improve market share in current markets, recapture lost markets and increase the rate of new market developments

Develop *materials technologies* to improve the variety, integrity and performance of cast metal products, and advanced *manufacturing technologies* to increase productivity, reduce lead time and energy.

Develop and foster advanced *energy efficiency* technologies and the *availability* of reasonably priced energy.

Develop *environmental technologies* to significantly improve pre- and post-consumer recycling, further develop beneficial re-use options for foundry by-products and to significantly reduce waste streams.

Renew emphasis on *human resources, education, and training* to attract sufficient talent to the industry, and to keep present employees current with the latest technologies and techniques.

Encourage *partnerships and collaborations* to combine the experience, resources, and knowledge available in public and private sector organizations.⁵⁸

⁵⁵ Madison-Kipp Corporation Web site. See www.madison-kipp.com/

⁵⁶ Neenah Catalogs online, Neenah Foundry Company Web site. See www.nfco.com/literature/index.html

⁵⁷ Foundry Executives Share Viewpoints on Casting Technology Trends, Engineered Foundry Systems, p. 2. See www.moderncasting.com/archive/WebOnly/1202/Essay_1202.asp

⁵⁸ Pennsylvania Industries of the Future: Metalcasting Roadmap Resource Document, 2003, p. 4. See www.dep.state.pa.us/dep/deputate/pollprev/techservices/paiof/7000-UK-DEP2835%20Metal%20Casting%20Vision%202003.pdf

Associated Industry Cluster—3315 Foundries

3315 Foundries

<u>Supplier Industries - Typical Regional Industry</u>		<u>Supplier Industries - Typical National Industry</u>	
42*	Wholesale Trade	3314	Nonferrous Metal (except Aluminum) Production and Processing
484*	Truck Transportation	3315	Foundries
5419	Other Professional, Scientific, and Technical Services	3311	Iron and Steel Mills and Ferroalloy Manufacturing
3335	Metalworking Machinery Manufacturing	2122	Metal Ore Mining
3328	Coating, Engraving, Heat Treating, and Allied Activities	3329	Other Fabricated Metal Product Manufacturing
3313	Alumina and Aluminum Production and Processing	3222	Converted Paper Product Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	3321	Forging and Stamping
3332	Industrial Machinery Manufacturing	2123	Nonmetallic Mineral Mining and Quarrying
		3279	Other Nonmetallic Mineral Product Manufacturing
		3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
<u>Consumer Industries - Typical Regional Industry</u>			
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing		
3363	Motor Vehicle Parts Manufacturing		
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing		
3331	Agriculture, Construction, and Mining Machinery Manufacturing		
3329	Other Fabricated Metal Product Manufacturing		
3325	Hardware Manufacturing		

5.3.7 NAICS 332 Fabricated Metal Product Manufacturing (Partial)

Definition: Industries in the Fabricated Metal Product Manufacturing subsector transform metal into intermediate or end products, other than machinery, computers and electronics, and metal furniture or treating metals and metal formed products fabricated elsewhere. Important fabricated metal processes are forging, stamping, bending, forming, and machining, used to shape individual pieces of metal; and other processes, such as welding and assembling, used to join separate parts together. Establishments in this subsector may use one of these processes or a combination of these processes.

- *3321 Forging and Stamping*
- *3322 Cutlery and Handtool Manufacturing*

- 3325 Hardware Manufacturing
- 3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
- 3329 Other Fabricated Metal Product Manufacturing

Export Changes: Wisconsin has five statewide drivers of the 9 industries in the 3-digit NAICS code, 332, Fabricated Metal Product Manufacturing. Here are the export figures for global activity from 2002 to 2004 at the 3-digit level:

United States Exports (Origin of Movement - Total) Via Wisconsin								
NAICS Code: 332, Fabricated Metal Product Manufacturing								
YTD Comparison: January - December								
Rank	Country	U.S. Dollar			% Share			% Change
		2002	2003	2004	2002	2003	2004	2004/2003
	World	381,119,904	352,939,008	422,332,369	100	100	100	19.66
1	Canada	146,528,295	123,731,070	154,529,373	38.45	35.06	36.59	24.89
2	Mexico	63,956,780	65,181,803	80,062,798	16.78	18.47	18.96	22.83
3	Belgium	23,446,096	13,097,824	20,798,739	6.15	3.71	4.92	58.8
4	China	6,358,150	12,728,507	20,645,228	1.67	3.61	4.89	62.2
5	Germany	27,793,918	33,021,562	20,535,208	7.29	9.36	4.86	-37.81

Source: Harris InfoSource database, 2005.

Observations: These are very healthy growth figures for this industry sector, except for the loss to Germany. Industry leaders suggest that knowing what product lines marketed over what period for what special purposes or projects might suggest some future directions for manufacturers in this segment. So, the challenge is to isolate what particular fabricated products led to these gains.

Gross Product: \$4,045,760,000 Rank 3rd of 13

Employment: 42,810, Rank 3rd of 13

Top 10 Firms by Region and Employment in That Region: Kohler Co., Southeast – 7,510; Mirro Co., Southeast – 1,000; Polaris Industries Co., West Central I- 800; Landish Co. Inc., Southeast – 704; Master Lock Co., Southeast – 600; Husco International Inc., Southeast – 600; Northern Engraving Co. (branch), West Central II – 539; Northern Engraving Corp. (parent), West Central II – 500; Simplicity Manufacturing Inc., Southeast – 500; Strattec Security Corp., Southeast – 500.

What Some of the Top 10 Firms Produce: Kohler Co., makes high-end baths, whirlpools, showers, toilets, lavatories and faucets, custom showering products, and plumbing products for the residential and commercial markets.⁵⁹ In contrast, Strattec Security's "principal activity is to design, develop, manufacture and market mechanical and electro-mechanical locks and related access-control products for global automotive manufacturers . . . supplying . . . products for the heavy truck, recreational vehicle, marine and industrial markets. The principal products of the Group are locks and keys for cars and trucks. The products include locks with simple electrical

⁵⁹ Kohler Design Center Press Room, Kohler Design Center Web site. See www.us.kohler.com/pr/designcenter-pr.jsp?pr=6

switch devices and more sophisticated devices such as resistive elements, radio frequency identification elements . . .”⁶⁰

Industry Challenges and Recommendations: “Fabricated metal products manufacturing is benefiting from the same forces behind the recovery of machinery manufacturing. Here is another industry group whose fortunes are closely linked to the capital investment cycle and relative exchange rates. Therefore, a continuing global economic recovery, coupled with a weaker U.S. dollar, augurs well for this industry. Job growth in the fabricated metals products industries was encouraging in 2004. We expect that to continue and for the group to add more than 180 thousand jobs over the next eight years.”⁶¹

Associated Industry Cluster—3321 Forging and Stamping

3321 Forging and Stamping

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
42*	Wholesale Trade	3323	Architectural and Structural Metals Manufacturing
484*	Truck Transportation	3313	Alumina and Aluminum Production and Processing
3363	Motor Vehicle Parts Manufacturing	3314	Nonferrous Metal (except Aluminum) Production and Processing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	3329	Other Fabricated Metal Product Manufacturing
3321	Forging and Stamping	3222	Converted Paper Product Manufacturing
3311	Iron and Steel Mills and Ferroalloy Manufacturing	3335	Metalworking Machinery Manufacturing
3335	Metalworking Machinery Manufacturing	5419	Other Professional, Scientific, and Technical Services
3312	Steel Product Manufacturing from Purchased Steel	8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
		517*	Telecommunications
		3259	Other Chemical Product and Preparation Manufacturing
Consumer Industries - Typical Regional Industry			
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing		
3369	Other Transportation Equipment Manufacturing		
3344	Semiconductor and Other Electronic Component Manufacturing		

⁶⁰ Strattec Security Corporation, Business.Com Directory. See www.business.com/directory/automotive/parts_and_accessories/electronic_systems_and_components/safety_and_security_systems/strattec_security_corporation/profile/

⁶¹ Richard W. Judy, “Who is Manufacturing Tomorrow’s Jobs Different Outlooks for Different Industries”, Workforce Associates, Inc., February 2005, pp. 2. See editor.ne16.com/htmleditor/viewonline.asp?FileID=12007

Consumer Industries - Typical Regional Industry

3363	Motor Vehicle Parts Manufacturing
3322	Cutlery and Handtool Manufacturing
8111	Automotive Repair and Maintenance
3312	Steel Product Manufacturing from Purchased Steel
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
3315	Foundries
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing

Associated Industry Cluster—3322 Cutlery and Handtool Manufacturing

<u>Supplier Industries - Typical Regional Industry</u>	<u>Supplier Industries - Typical National Industry</u>
42* Wholesale Trade	3311 Iron and Steel Mills and Ferroalloy Manufacturing
484* Truck Transportation	3329 Other Fabricated Metal Product Manufacturing
3261 Plastics Product Manufacturing	3321 Forging and Stamping
3231 Printing and Related Support Activities	3222 Converted Paper Product Manufacturing
3313 Alumina and Aluminum Production and Processing	483* Water Transportation
3259 Other Chemical Product and Preparation Manufacturing	3315 Foundries
5418 Advertising and Related Services	3322 Cutlery and Handtool Manufacturing
8113 Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	3241 Petroleum and Coal Products Manufacturing
2380 Specialty Trade Contractors	3312 Steel Product Manufacturing from Purchased Steel
	3252 Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing

Consumer Industries - Typical Regional Industry

2370	Heavy and Civil Engineering Construction
6244	Child Day Care Services
2360	Construction of Buildings
722*	Food services and drinking places
3322	Cutlery and Handtool Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
624*	Social assistance, except child day care services

Consumer Industries - Typical Regional Industry

- 3333 Commercial and Service Industry Machinery Manufacturing

- 3325 Hardware Manufacturing

- 3399 Other Miscellaneous Manufacturing

Associated Industry Cluster—3325 Hardware Manufacturing

Supplier Industries - Typical Regional Industry

- 42* Wholesale Trade

- 3261 Plastics Product Manufacturing
- 484* Truck Transportation
- 3353 Electrical Equipment Manufacturing
- 3325 Hardware Manufacturing
- 3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing

Supplier Industries - Typical National Industry

- 3311 Iron and Steel Mills and Ferroalloy Manufacturing

- 3321 Forging and Stamping
- 3222 Converted Paper Product Manufacturing
- 3315 Foundries
- 3322 Cutlery and Handtool Manufacturing
- 3314 Nonferrous Metal (except Aluminum) Production and Processing

- 3326 Spring and Wire Product Manufacturing
- 3312 Steel Product Manufacturing from Purchased Steel

- 3313 Alumina and Aluminum Production and Processing

- 5419 Other Professional, Scientific, and Technical Services

Consumer Industries - Typical Regional Industry

- 3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing

- 3325 Hardware Manufacturing
- 3391 Medical Equipment and Supplies Manufacturing
- 2360 Construction of Buildings
- 8111 Automotive Repair and Maintenance
- 3324 Boiler, Tank, and Shipping Container Manufacturing

- 3261 Plastics Product Manufacturing
- 3219 Other Wood Product Manufacturing

- 3372 Office Furniture (including Fixtures) Manufacturing

- 3399 Other Miscellaneous Manufacturing

Associated Industry Cluster—3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing

Supplier Industries - Typical Regional Industry	
42*	Wholesale Trade
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
5415	Computer Systems Design and Related Services
3335	Metalworking Machinery Manufacturing
3325	Hardware Manufacturing
3326	Spring and Wire Product Manufacturing
484*	Truck Transportation

Supplier Industries - Typical National Industry	
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3312	Steel Product Manufacturing from Purchased Steel
3315	Foundries
3314	Nonferrous Metal (except Aluminum) Production and Processing
3313	Alumina and Aluminum Production and Processing
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing
5419	Other Professional, Scientific, and Technical Services
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

Consumer Industries - Typical Regional Industry	
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3363	Motor Vehicle Parts Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3329	Other Fabricated Metal Product Manufacturing
GVSL*	State and Local Government
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3321	Forging and Stamping
3118	Bakeries and Tortilla Manufacturing

Associated Industry Cluster—3329 Other Fabricated Metal Product Manufacturing

Supplier Industries - Typical Regional Industry	
5415	Computer Systems Design and Related Services
42*	Wholesale Trade
3259	Other Chemical Product and Preparation Manufacturing
484*	Truck Transportation
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing

Supplier Industries - Typical National Industry	
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3313	Alumina and Aluminum Production and Processing
3221	Pulp, Paper, and Paperboard Mills
3222	Converted Paper Product Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	3315	Foundries
3251	Basic Chemical Manufacturing	3323	Architectural and Structural Metals Manufacturing
3329	Other Fabricated Metal Product Manufacturing	3314	Nonferrous Metal (except Aluminum) Production and Processing
3328	Coating, Engraving, Heat Treating, and Allied Activities	3312	Steel Product Manufacturing from Purchased Steel
5411	Legal Services	3211	Sawmills and Wood Preservation
3261	Plastics Product Manufacturing		
3321	Forging and Stamping		
3231	Printing and Related Support Activities		
3335	Metalworking Machinery Manufacturing		
Consumer Industries - Typical Regional Industry			
8114	Personal and Household Goods Repair and Maintenance		
713*	Other amusement, gambling, and recreation industries		
3369	Other Transportation Equipment Manufacturing		
7139	Other Amusement and Recreation Industries		
2123	Nonmetallic Mineral Mining and Quarrying		
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance		
5616	Investigation and Security Services		
3329	Other Fabricated Metal Product Manufacturing		
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing		
2122	Metal Ore Mining		

5.3.8 NAICS 333 Machinery Manufacturing (Partial)

Definition: Industries in the Machinery Manufacturing subsector create end products that apply mechanical force, for example, the application of gears and levers, to perform work. Some important processes for the manufacture of machinery are forging, stamping, bending, forming, and machining that are used to shape individual pieces of metal. Processes, such as welding and assembling are used to join separate parts together. Although these processes are similar to those used in metal fabricating establishments, machinery manufacturing is different because it typically employs multiple metal forming processes in manufacturing the various parts of the machine. Moreover, complex assembly operations are an inherent part of the production process.

- *3331 Agricultural, Construction, and Mining Machinery Manufacturing*
- *3332 Industrial Machinery Manufacturing*

- 3333 Commercial and Service Industrial Machinery Manufacturing
- 3335 Metalworking Machinery Manufacturing
- 3339 Other General Purpose Machinery Manufacturing

Export Changes: Wisconsin has five statewide drivers of the nine 4-digit industries under NAICS code 333, Machinery Manufacturing. Here is how the State fared at the 3-digit level with exports from 2002 to 2004:

United States Exports (Origin of Movement - Total) Via Wisconsin								
NAICS Code: 333, Machinery Manufacturing								
YTD Comparison: January - December								
Rank	Country	U.S. Dollar			% Share			% Change
		2002	2003	2004	2002	2003	2004	2004/2003
	World	2,978,712,644	3,217,463,021	3,714,962,788	100	100	100	15.46
1	Canada	1,065,237,883	1,120,157,296	1,363,092,404	35.76	34.81	36.69	21.69
2	Belgium	142,862,911	164,450,857	210,036,449	4.8	5.11	5.65	27.72
3	Australia	135,790,004	165,839,036	193,390,690	4.56	5.15	5.21	16.61
4	Mexico	148,988,111	155,700,643	186,561,273	5	4.84	5.02	19.82
5	China	97,719,722	100,167,268	171,539,249	3.28	3.11	4.62	71.25

Source: Harris InfoSource database, 2005.

Observations: Again, as in the preceding sector, Fabricated Metal Products, Wisconsin is experiencing impressive growth in all its top 5 export countries, and even for the U.S. as a whole. Canada accounts for roughly a third of the exports in this category, so its increase of nearly 22% is significant. Again, the utility of these figures is in learning what particular product lines in Machinery Manufacturing generated these numbers and whether or not they appear to be a trend or the result of several large, one-time purchases.

Gross Product: \$4,127,840,000 Rank 2nd of 13

Employment: 53,540 Rank 1st of 13

Top 10 Firms by Region and Employment in That Region: CNH Global, Southeast – 4,000; Oshkosh Truck Corp. (parent), East Central – 1,700; John Deere & Co., Southeast – 1,500; Miller Electric Mfg Co., East Central – 1,200; Paper Converting Machine Co., East Central – 1,000; Hutchinson Technology Inc., West Central I – 1,000; Alliance Laundry Systems LLC, Southeast – 950; Oshkosh Truck Co. (branch), East Central – 723; Bucyrus International Inc., Southeast – 700; QuadTech, Southeast – 700.

What Some of the Top 10 Firms Produce: CNH Global product lines include manufacture of agricultural and construction equipment. It sells internationally under the following brand names: Case, Case IH, Fiatallis, Fiat-Hitachi, Link-Belt earth-moving equipment, New Holland, New Holland Construction, O&K and Steyr.⁶² In contrast, Hutchinson Technologies manufactures

⁶² CNH Announces Industrial Consolidation Actions To Strengthen Competitive Position. See [/www.cnh.com/media/detail.asp?id=135459582001](http://www.cnh.com/media/detail.asp?id=135459582001)

hard drive suspension assemblies which are to “control the critical flying height of the head above the disk. Flying height is one of the major determinants of disk drive storage capacity.”⁶³

Industry Challenges and Recommendations: The Business Library at Penn State University describes two distinct categories of general purpose machinery:

General Purpose Machines: possess functions beneficial in a variety of applications in several industries because they are able to perform multiple tasks.

Ventilation, heating, air conditioning, and commercial refrigeration

Metal working machinery

Engine, turbine, and power transmission equipment

Other general purpose machinery manufacturing

Special Purpose Machines: operate on a specific application within a particular industry. The particular industries break down into three distinct sectors:

Agricultural Machinery

Construction and Mining Machinery

Industrial Machinery⁶⁴

Among Wisconsin’s drivers, “Industrial Machinery is Wisconsin’s single largest export industry and its second most productive in terms of dollars of exports produced per employee.”⁶⁵ In 2000, Machinery exports were \$3.6 billion, 34.3% of all exports. It is 11th among U.S. states, with 2.26% of the national total. One quarter of this total is from engines and parts, where Wisconsin is the leading U.S. producer of outboard and second largest producer of inboard boat motors. It is also the leading producer of natural gas powered and the fifth largest of engines over 1000cc. Exporters include: Briggs & Stratton, Generac, Harley Davidson, Tecumseh, Waukesha Engine, Chrysler, Siemens, Fairbanks-Morse, OMC, and Kohler.⁶⁶

In other sectors, Automatic Data Processing Equipment and Parts; Centrifuges, Centrifugal Dryers and Filtering & Purifying Machinery; Pumps, Air Conditioning & Refrigeration Equipment; and many others, volumes have remained small and the variety large so that skilled hand work, rather than information, is a major input. But, that is slowly changing.⁶⁷

In a report from The Center for World Affairs and the Global Economy at the University of Wisconsin-Madison, the author, Professor Donald A. Nichols, bases his prediction on the future of Machinery Manufacturing in Wisconsin on the assumption that the costs of information—technology, branding and consumer, business management, etc.—and their linkage through

⁶³ Hutchinson Technologies Web site. See www.htch.com/products.asp

⁶⁴ Christopher Maruca, Capital and Machinery Manufacturing Industry Guide: Industry Overview, William and Joan Schreyer Business Library, Penn State University Libraries, p. 4. See www.libraries.psu.edu/business/industryguides/capitalgoods/default.htm

⁶⁵ Louis Janowski, Wisconsin’s Export Industries—Analysis and Recommendations, Wisconsin Department of Commerce, p. 8. See www.wisconsin.edu/summit/archive/2001/papers/janowski.pdf

⁶⁶ Louis Janowski, pp. 8-9.

⁶⁷ Louis Janowski, pp. 9-13.

information networks will lead to substantial consolidation of the industry. Taken together, it is this group of inputs, all based on information, that define the new economy.⁶⁸

Nichols explains that, “An important feature of the new economy is that there are enormous economies of scale in the field of information. An investment in technology is just as expensive if it will be used to produce one thousand or two thousand tractors, but the cost of the invention per tractor will be half as large if the production is twice as large.”⁶⁹ Therefore, he continues, “Wisconsin’s machinery manufacturers will be a target for foreign buyers who need to spread their technology costs over a larger volume of production. . . . consolidation can be expected to accelerate in the future.”⁷⁰

Nichols believes that consolidation “is probably the force that lies behind the purchase of many of our machinery companies by foreign manufacturers. This force is likely to accelerate with the increasing importance of information as an input.”⁷¹

He concludes this about the machinery manufacturing sector:

Machinery is likely to develop into an industry where a few large firms in each industry have assembly operations on all continents, but a headquarters in one of them. To become a local assembler is to accept a role that is likely to diminish in importance in coming years. Wisconsin’s strategy should be to see that the corporate headquarters and the research function remain here for a large percentage of its firms. Far better for Wisconsin, for example if Case had bought New Holland than that New Holland bought Case. Far better for Wisconsin, for example, if Giddings and Lewis had purchased the machine tool division of Thyssen than that Thyssen bought Giddings and Lewis. How to retain corporation headquarters in Southeast Wisconsin remains part of the challenge of the new economy to Wisconsin manufacturing.⁷²

Associated Industry Cluster—3331 Agricultural, Construction, and Mining Machinery Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
42*	Wholesale Trade	3311	Iron and Steel Mills and Ferroalloy Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	3262	Rubber Product Manufacturing
484*	Truck Transportation	3315	Foundries
3261	Plastics Product Manufacturing	3323	Architectural and Structural Metals Manufacturing

⁶⁸ Donald A. Nichols, *Wisconsin Manufacturing in the Global Economy: Its Past, Present and Future*, Center for World Affairs and the Global Economy, University of Wisconsin –Madison, October 2000, p. 9. See www.wisconsin.edu/summit/archive/2000/papers/pdf/nichols.pdf

⁶⁹ Donald A. Nichols, p. 10.

⁷⁰ Donald A. Nichols, p. 11.

⁷¹ Donald A. Nichols, p. 13.

⁷² Donald A. Nichols, p. 13.

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
3363	Motor Vehicle Parts Manufacturing	51Info*	Information services
3329	Other Fabricated Metal Product Manufacturing	3241	Petroleum and Coal Products Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing	3321	Forging and Stamping
3359	Other Electrical Equipment and Component Manufacturing	3339	Other General Purpose Machinery Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	3255	Paint, Coating, and Adhesive Manufacturing
5413	Architectural, Engineering, and Related Services	3312	Steel Product Manufacturing from Purchased Steel
3331	Agriculture, Construction, and Mining Machinery Manufacturing		
3353	Electrical Equipment Manufacturing		

Consumer Industries - Typical Regional Industry	
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
FR	Farms
8114	Personal and Household Goods Repair and Maintenance
3331	Agriculture, Construction, and Mining Machinery Manufacturing
2123	Nonmetallic Mineral Mining and Quarrying
5617	Services to Buildings and Dwellings
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
GVSL*	State and Local Government
8111	Automotive Repair and Maintenance
2111	Oil and Gas Extraction

Associated Industry Cluster—3332 Industrial Machinery Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
42*	Wholesale Trade	3328	Coating, Engraving, Heat Treating, and Allied Activities
3332	Industrial Machinery Manufacturing	3311	Iron and Steel Mills and Ferroalloy Manufacturing
3261	Plastics Product Manufacturing	3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
5415	Computer Systems Design and Related Services	3322	Cutlery and Handtool Manufacturing
3312	Steel Product Manufacturing from Purchased Steel	3321	Forging and Stamping
3344	Semiconductor and Other Electronic Component Manufacturing	3279	Other Nonmetallic Mineral Product Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	3315	Foundries
484*	Truck Transportation	3255	Paint, Coating, and Adhesive Manufacturing
3251	Basic Chemical Manufacturing	3359	Other Electrical Equipment and Component Manufacturing
3329	Other Fabricated Metal Product Manufacturing	3339	Other General Purpose Machinery Manufacturing
3353	Electrical Equipment Manufacturing		

Consumer Industries - Typical Regional Industry	
3132	Fabric Mills
3115	Dairy Product Manufacturing
3255	Paint, Coating, and Adhesive Manufacturing
3231	Printing and Related Support Activities
3344	Semiconductor and Other Electronic Component Manufacturing
3332	Industrial Machinery Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3221	Pulp, Paper, and Paperboard Mills
3251	Basic Chemical Manufacturing
3133	Textile and Fabric Finishing and Fabric Coating Mills

Associated Industry Cluster—3333 Commercial and Service Industrial Machinery Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
42*	Wholesale Trade	5415	Computer Systems Design and Related Services
3344	Semiconductor and Other Electronic Component Manufacturing	3311	Iron and Steel Mills and Ferroalloy Manufacturing
3353	Electrical Equipment Manufacturing	3272	Glass and Glass Product Manufacturing
484*	Truck Transportation	3328	Coating, Engraving, Heat Treating, and Allied Activities
3261	Plastics Product Manufacturing	3359	Other Electrical Equipment and Component Manufacturing
3333	Commercial and Service Industry Machinery Manufacturing	3255	Paint, Coating, and Adhesive Manufacturing

Supplier Industries - Typical Regional Industry

3327 Machine Shops, Turned Product, and
Screw, Nut, & Bolt Manufacturing

Supplier Industries - Typical National Industry

3334 Ventilation, Heating, Air-Conditioning, and
Commercial Refrigeration Equipment
Manufacturing

3222 Converted Paper Product Manufacturing

3329 Other Fabricated Metal Product
Manufacturing

5411 Legal Services

Consumer Industries - Typical Regional Industry

2370 Heavy and Civil Engineering Construction

2360 Construction of Buildings

8113 Commercial and Industrial Machinery and
Equipment (except Automotive and
Electronic) Repair and Maintenance

3333 Commercial and Service Industry
Machinery Manufacturing

8111 Automotive Repair and Maintenance

Associated Industry Cluster—3335 Metalworking Machinery Manufacturing**Supplier Industries - Typical Regional Industry**

42* Wholesale Trade

3261 Plastics Product Manufacturing

3353 Electrical Equipment Manufacturing

2380 Specialty Trade Contractors

5415 Computer Systems Design and Related
Services

3335 Metalworking Machinery Manufacturing

484* Truck Transportation

3327 Machine Shops, Turned Product, and
Screw, Nut, & Bolt Manufacturing

517* Telecommunications

3344 Semiconductor and Other Electronic
Component Manufacturing

3336 Engine, Turbine, and Power Transmission
Equipment Manufacturing

Supplier Industries - Typical National Industry

3314 Nonferrous Metal (except Aluminum)
Production and Processing

3311 Iron and Steel Mills and Ferroalloy
Manufacturing

3315 Foundries

3321 Forging and Stamping

3255 Paint, Coating, and Adhesive Manufacturing

3279 Other Nonmetallic Mineral Product
Manufacturing

3339 Other General Purpose Machinery
Manufacturing

3329 Other Fabricated Metal Product
Manufacturing

3323 Architectural and Structural Metals
Manufacturing

5324 Commercial and Industrial Machinery and
Equipment Rental and Leasing

5412 Accounting, Tax Preparation, Bookkeeping,
and Payroll Services

Consumer Industries - Typical Regional Industry

3315 Foundries

3327 Machine Shops, Turned Product, and
Screw, Nut, & Bolt Manufacturing

Consumer Industries - Typical Regional Industry

3335	Metalworking Machinery Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3363	Motor Vehicle Parts Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3321	Forging and Stamping
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3261	Plastics Product Manufacturing
3369	Other Transportation Equipment Manufacturing
3272	Glass and Glass Product Manufacturing

Associated Industry Cluster—3339 Other General Purpose Machinery Manufacturing

Supplier Industries - Typical Regional Industry	Supplier Industries - Typical National Industry		
42*	Wholesale Trade	3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
3339	Other General Purpose Machinery Manufacturing	3311	Iron and Steel Mills and Ferroalloy Manufacturing
5415	Computer Systems Design and Related Services	3326	Spring and Wire Product Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	3323	Architectural and Structural Metals Manufacturing
3261	Plastics Product Manufacturing	3315	Foundries
3359	Other Electrical Equipment and Component Manufacturing	3321	Forging and Stamping
3353	Electrical Equipment Manufacturing	3314	Nonferrous Metal (except Aluminum) Production and Processing
484*	Truck Transportation	3329	Other Fabricated Metal Product Manufacturing
3259	Other Chemical Product and Preparation Manufacturing	3363	Motor Vehicle Parts Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	3255	Paint, Coating, and Adhesive Manufacturing
3335	Metalworking Machinery Manufacturing		
3344	Semiconductor and Other Electronic Component Manufacturing		

Consumer Industries - Typical Regional Industry

5324	Commercial and Industrial Machinery and Equipment Rental and Leasing
FR	Farms
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
2211	Electric Power Generation, Transmission and Distribution
2212	Natural Gas Distribution

Consumer Industries - Typical Regional Industry

8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
532*	General and consumer goods rental except video tapes and discs
2360	Construction of Buildings
3328	Coating, Engraving, Heat Treating, and Allied Activities
3231	Printing and Related Support Activities

5.3.9 NAICS 335—Electrical Equipment, Appliance, and Electrical Component Manufacturing

Definition: Industries in the Electrical Equipment, Appliance, and Component Manufacturing subsector manufacture products that generate, distribute, and use electrical power. Electric Lighting Equipment Manufacturing establishments produce electric lamp bulbs, lighting fixtures, and parts. Household Appliance Manufacturing establishments make both small and major electrical appliances and parts. Electrical Equipment Manufacturing establishments make goods, such as electric motors, generators, transformers, and switchgear apparatus. Other Electrical Equipment and Component Manufacturing establishments make devices for storing electrical power (e.g., batteries), for transmitting electricity (e.g., insulated wire), and wiring devices (e.g., electrical outlets, fuse boxes, and light switches).

- *3353 Electrical Equipment Manufacturing*

Export Changes: Wisconsin has 2 statewide drivers of the four-digit industries found in NAICS code 335, Electrical Equipment, Appliance, and Electrical Component Manufacturing: Electrical Equipment Manufacturing (3353) and Other Electrical Equipment and Component Manufacturing (3359). Here are the figures for export activity at the 3-digit level from 2002 to 2004:

United States Exports (Origin of Movement - Total) Via Wisconsin								
NAICS Code: 335, Electrical Equipment, Appliance, and Component Manufacturing								
YTD Comparison: January – December								
Rank	Country	U.S. Dollar			% Share			% Change
		2002	2003	2004	2002	2003	2004	2004/2003
	World	519,287,580	548,560,875	653,287,439	100	100	100	19.09
1	Canada	155,859,525	158,244,294	178,666,001	30.01	28.85	27.35	12.91
2	Mexico	79,104,889	67,337,260	92,238,037	15.23	12.28	14.12	36.98
3	United Kingdom	33,493,504	36,701,896	41,099,290	6.45	6.69	6.29	11.98
4	China	11,695,356	14,686,123	23,913,451	2.25	2.68	3.66	62.83
5	Bangladesh	11,332,910	10,502,759	21,128,654	2.18	1.91	3.23	101.17

Source: Harris InfoSource database, 2005.

Observations: Canada accounts for a little over 25% of the total export purchases in this industry, and its growth is nearly 13%. Of interest are the much smaller revenues but much larger growth percentages for Bangladesh, China, and Mexico. As in other sectors with healthy growth figures, these warrant a closer look at the product level. Which ones are bringing in these revenues and growths?

Gross Product: \$2,800,570,000 Rank 4th of 13

Employment: 16,190 Rank 7th of 13

Top 10 Firms by Region and Employment in That Region: Rockwell Automation, Southeast – 4,000; Briggs & Stratton Power Products, Southeast – 850; Marathon Electric and The American Motor Co., Central – 750; McMillan Electric Co., West Central I – 650; Kohler Power Systems Group, Southeast – 600; Cherry Electrical Products, Southeast – 600; Cooper Power Systems, Southeast – 550; Rockwell Automation, South 550; AMETEK/Lamb Electric Inc., Southeast – 550; DRS Power & Control Techs Inc., Southeast – 500.

What Some of the Top 10 Firms Produce: Cherry Electrical Products manufactures snap-action switches for “the appliance, office equipment and industrial markets. Solid state sensing devices . . . [as well as] computer keyboards . . . [with specialty keyboards that use] . . . magnetic strip, smart card, or bar code readers for use in point-of-sale and reservation desk applications. Cherry Automotive division produces tactile switch modules, packaged assemblies and systems for interior use, weather exposed and under-the-hood functions. Cherry armrest assemblies include switches that control power windows, seats, locks and mirrors. Their electronic controls are used to operate power sunroofs, convertible tops and memory seats.”⁷³

Briggs & Stratton “is the world’s largest producer of air-cooled gasoline engines for outdoor power equipment. The Company designs, manufactures, markets and services these products for original equipment manufacturers worldwide. In addition, the Company’s wholly owned subsidiary Briggs & Stratton Power Products Group, LLC, is a leading designer, manufacturer and marketer of portable generators, pressure washers and related accessories.”⁷⁴

Industry Challenges and Recommendations: Electrical Machinery was 8.2% of the state’s export total in 2000. This was 26th among U.S. states and only .58% of the U.S. total of \$148.3 billion. Wisconsin exports were up 8.9% in 2000, U.S. exports up 22%. “Wisconsin’s single largest export product in this category is in power supplies for automated data processing units with \$104.4 in exports or 2.47% of the U.S. total [in 2000].”⁷⁵ Wisconsin is a worldwide competitor in many niche HS 85 products [Electrical Machinery], e.g., electric transformers, #10 with \$106 million in exports or 3.19% of U.S. total [in 2000], generators, electric motors, switches, and welding equipment. These products compete at the top of the line but are vulnerable to lower cost producers worldwide.⁷⁶

⁷³ About Cherry Electrical Products. See www.globalspec.com/supplier/profile/CherryElectricalProducts

⁷⁴ “Briggs & Stratton Corporation to Acquire Simplicity Manufacturing; Transaction Aligns Engine Manufacturer with Producer of High End Consumer and Commercial Lawn and Garden Equipment,” Simplicity News Room, June 2, 2004. See www.simplicitymfg.com/news_room_12.php

⁷⁵ Louis Janowski, p. 15.

⁷⁶ Louis Janowski, p. 2.

In the general case, Electrical Equipment Manufacturing has become truly global, and it is difficult to characterize many companies and their products as American or foreign. The movement of foreign companies to manufacture some goods in the United States does not change the fact that many products are being designed in one country, manufactured in another, and assembled in a third. The rapid pace of innovation demands newer and faster products and applications. This places a heavy requirement on research & development, which continually produces cheaper products with more desirable features, i.e. commoditization. Therefore, investments may return huge results for a short period of time, but they are also dispersed in small companies competing against high risks.⁷⁷

Associated Industry Cluster—3353 Electrical Equipment Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
42*	Wholesale Trade	3255	Paint, Coating, and Adhesive Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing	3311	Iron and Steel Mills and Ferroalloy Manufacturing
3353	Electrical Equipment Manufacturing	3321	Forging and Stamping
3261	Plastics Product Manufacturing	3314	Nonferrous Metal (except Aluminum) Production and Processing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	3315	Foundries
484*	Truck Transportation	3271	Clay Product and Refractory Manufacturing
3359	Other Electrical Equipment and Component Manufacturing	3329	Other Fabricated Metal Product Manufacturing
3241	Petroleum and Coal Products Manufacturing	3323	Architectural and Structural Metals Manufacturing
5413	Architectural, Engineering, and Related Services	3312	Steel Product Manufacturing from Purchased Steel
4931	Warehousing and Storage	3221	Pulp, Paper, and Paperboard Mills
Consumer Industries - Typical Regional Industry			
3351	Electric Lighting Equipment Manufacturing		
3353	Electrical Equipment Manufacturing		
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing		
517*	Telecommunications		
2360	Construction of Buildings		
3399	Other Miscellaneous Manufacturing		
3255	Paint, Coating, and Adhesive Manufacturing		
2211	Electric Power Generation, Transmission and Distribution		
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing		

⁷⁷ Computer and Electronic Product Manufacturing, Bureau of Labor Statistics, U.S. Department of Labor, pp. 1-2. See [/www.bls.gov/oco/cg/cgs010.htm](http://www.bls.gov/oco/cg/cgs010.htm)

**Consumer Industries - Typical Regional
Industry**

3325 Hardware Manufacturing

5.3.10 NAICS 3359 Other Electrical Equipment and Component Manufacturing

Definition: This industry group comprises establishments manufacturing electrical equipment and components (except electric lighting equipment, household-type appliances, transformers, switchgear, relays, motors, and generators).

Gross Product: \$869,630,000 Rank 9th of 13

Employment: 5,040 Rank 10th of 13

Top Ten Firms by Region and Employment in That Region: Honeywell Access Systems, Southeast – 1,254; Gardner Bender Inc., Southeast – 500; Cherry Electronics Corp., Southeast – 450; Rayovac Corp. (parent), South – 425; Cooper Power Systems, Southeast – 420; Rayovac Corp. (branch), South -350; APW Mayville, Southeast – 315; Creation Technologies, Southeast – 300; Hamlin, Southeast – 300; Federal Prison Industries Inc., South – 300.

What Some of the Top 10 Firms Produce: Gardner Bender, Inc.’s product line includes wire connecting products, conduit bending devices, hand tools, testers, insulated staples, wire strippers, and wire management products.⁷⁸ APW Mayville products include “Frames, Enclosures, Indoor and Outdoor Cabinets, Equipment mounting shelves and Chassis . . . [and the] **Brands:** [IMnet ®](#) [IMserv ®](#) **Products:** DataCom, Audio, Video, Broadcast, Racks (19" and 24") and accessories; large, high tolerance frames for semiconductors; Frames, racks, shelves for telecommunications.”⁷⁹

Industry Observations: This category includes batteries, fiber optic cables, wiring devices, carbon and graphite products, and other miscellaneous electrical equipment and components. The value of Wisconsin’s shipments (in 1997) was \$863,388,000, which was 2.07% of the U.S. total value of all shipments. It then employed 3,827 workers, which by comparison to the 2002 employment figure, 5,040, implies slow growth. This, like NAICS 3353 Electrical Equipment and Component Manufacturing may be attributable to globalization of the industry as a whole.⁸⁰

Associated Industry Cluster—3359 Other Electrical Equipment and Component Manufacturing

Supplier Industries - Typical Regional Industry	Supplier Industries - Typical National Industry
42* Wholesale Trade	3272 Glass and Glass Product Manufacturing
484* Truck Transportation	3344 Semiconductor and Other Electronic Component Manufacturing
3261 Plastics Product Manufacturing	3252 Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing

⁷⁸ Gardner Bender, Inc. Website. See www.gardnerbender.com/

⁷⁹ APW Mayville Website. See www.apw.com/aboutAPW/manufacturing/mayville.jsp

⁸⁰ Industry Statistics Sampler: NAICS 3359, Other Electrical Equipment and Component Manufacturing,” U.S. Census Bureau, 2002 Census, pp. 1-2.

4931 Warehousing and Storage

3241 Petroleum and Coal Products
Manufacturing

3314 Nonferrous Metal (except Aluminum)
Production and Processing

3359 Other Electrical Equipment and Component
Manufacturing

3221 Pulp, Paper, and Paperboard Mills

3259 Other Chemical Product and Preparation
Manufacturing

3279 Other Nonmetallic Mineral Product
Manufacturing

3311 Iron and Steel Mills and Ferroalloy
Manufacturing

Consumer Industries - Typical Regional Industry

3221 Pulp, Paper, and Paperboard Mills

3344 Semiconductor and Other Electronic
Component Manufacturing

3363 Motor Vehicle Parts Manufacturing

2360 Construction of Buildings

3261 Plastics Product Manufacturing

3333 Commercial and Service Industry
Machinery Manufacturing

3332 Industrial Machinery Manufacturing

3339 Other General Purpose Machinery
Manufacturing

3331 Agriculture, Construction, and Mining
Machinery Manufacturing

3315 Foundries

5.3.11 NAICS 336—Transportation Equipment Manufacturing—NAICS 336

Definition: Industries in the Transportation Equipment Manufacturing subsector produce equipment for transporting people and goods. Transportation equipment is a type of machinery. An entire subsector is devoted to this activity because of the significance of its economic size in all three North American countries.

Establishments in this subsector utilize production processes similar to those of other machinery manufacturing establishments - bending, forming, welding, machining, and assembling metal or plastic parts into components and finished products. However, the assembly of components and subassemblies and their further assembly into finished vehicles tend to be a more common production process in this subsector than in the Machinery Manufacturing subsector.

NAICS has industry groups for the manufacture of equipment for each mode of transport - road, rail, air and water. Parts for motor vehicles warrant a separate industry group because of their importance and because parts manufacture requires less assembly, and the establishments that manufacture only parts are not as vertically integrated as those that make complete vehicles.

Land use motor vehicle equipment not designed for highway operation (e.g., agricultural equipment, construction equipment, and materials handling equipment) is classified in the appropriate NAICS subsector based on the type and use of the equipment.

- *3362 Motor Vehicle Body and Trailer Manufacturing*
- *3369 Other Transportation Equipment Manufacturing*

Export Changes: Wisconsin has 2 statewide drivers in the listing of 7 for 3-digit NAICS code, Transportation Equipment Manufacturing: Motor Vehicle Body and Trailer Manufacturing (3362) and Other Transportation Equipment Manufacturing (3369). The 2002 to 2004 global export data appears below:

United States Exports (Origin of Movement - Total) Via Wisconsin								
NAICS Code: 336, Transportation Equipment Manufacturing								
YTD Comparison: January - December								
Rank	Country	U.S. Dollar			% Share			% Change
		2002	2003	2004	2002	2003	2004	2004/2003
	World	1,108,515,601	1,374,288,045	1,518,503,002	100	100	100	10.49
1	Canada	754,246,144	888,853,711	1,013,413,922	68.04	64.68	66.74	14.01
2	Mexico	59,331,932	77,031,033	82,767,791	5.35	5.61	5.45	7.45
3	United Kingdom	38,144,469	74,051,676	55,855,842	3.44	5.39	3.68	-24.57
4	Germany	12,038,989	28,225,263	37,840,169	1.09	2.05	2.49	34.06
5	Japan	22,570,910	36,763,895	31,412,356	2.04	2.68	2.07	-14.56

Source: Harris InfoSource database, 2005.

Challenges and Recommendations: The similarities among sectors with somewhat large losses and moderate to impressive gains suggests that further probing of the product lines is necessary to infer any trends. Canada accounts for two-thirds of this important export market, and its growth figure of 14% is the most important one here in terms of revenue. But why the U.K and Japan fell off and Germany came on with high growth warrant investigation at the product-specific level.

5.3.11.1 NAICS 3362 Motor Vehicle Body and Trailer Manufacturing

Definition: This industry comprises establishments primarily engaged in (1) manufacturing motor vehicle bodies and cabs or (2) manufacturing truck, automobile and utility trailers, truck trailer chassis, detachable trailer bodies, and detachable trailer chassis. The products may be sold separately or may be assembled on purchased chassis and sold as complete vehicles.

Gross Product: \$313,080,000 Rank 12th of 13

Employment: 3,220 Rank 12th of 13

Top 10 Firms by Region and Employment in That Region: General Motors Corp., South - 4,800; Pierce Manufacturing Inc., East Central - 1,500; Seagrave Fire Apparatus LLC, East Central - 420; Stoughton Trailers Inc. (branch), South - 350; Karavan Trailers Inc., Southeast - 250; LDV Inc., Southeast - 200; Dueco Inc., Southeast - 200; Stoughton LLC (single), South - 180; Morgan Corp., South - 150; Marion Body Works, Inc., East Central - 150.

What Some Top 10 Firms Produce: Dueco Inc., . . . specializes in the final stage manufacturing of aerial lifts, digger derricks, cranes, and custom bodies . . . [as well as] . . . Loader Backhoes, Excavators, Wheel Loaders, Pullers and Tensioners, Trailers, Conductor Handling Equipment,

and a variety of other equipment and parts.”⁸¹ Morgan Corporation is “the country's largest manufacturer of Class 3 to 7 dry freight and refrigerated truck bodies, Morgan is also a recognized leader in customized building of curtainsiders, furniture / moving bodies, walk-in bodies, cut-a-way van bodies and stake / platform bodies.”⁸²

Associated Industry Cluster—3362 Motor Vehicle Body and Trailer Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
3363	Motor Vehicle Parts Manufacturing	3329	Other Fabricated Metal Product Manufacturing
42*	Wholesale Trade	3311	Iron and Steel Mills and Ferroalloy Manufacturing
484*	Truck Transportation	3361	Motor Vehicle Manufacturing
3362	Motor Vehicle Body and Trailer Manufacturing	3313	Alumina and Aluminum Production and Processing
3272	Glass and Glass Product Manufacturing	3321	Forging and Stamping
3312	Steel Product Manufacturing from Purchased Steel	3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
3211	Sawmills and Wood Preservation	3359	Other Electrical Equipment and Component Manufacturing
5413	Architectural, Engineering, and Related Services	3262	Rubber Product Manufacturing
3261	Plastics Product Manufacturing	3325	Hardware Manufacturing
4931	Warehousing and Storage	3369	Other Transportation Equipment Manufacturing
3219	Other Wood Product Manufacturing		

Consumer Industries - Typical Regional Industry	
3362	Motor Vehicle Body and Trailer Manufacturing
3361	Motor Vehicle Manufacturing
8111	Automotive Repair and Maintenance

5.3.11.2 NAICS 3369 Other Transportation Equipment Manufacturing

Definition: This industry group comprises establishments primarily engaged in manufacturing transportation equipment (except motor vehicles and parts, aerospace products and parts, railroad rolling stock, ship building, and boat manufacturing.)

Gross Product: \$735,740,000 Rank 10th of 13

Employment: 5,320 Rank 9th of 13

Top 10 Companies by Region and Employment in That Region: Trek Bicycle Corp. (parent), Southeast – 800; Harley-Davidson Inc. (parent), Southeast -760; Klein Bicycle Corp., Southeast

⁸¹ Dueco Inc. Website. See www.dueco.com/

⁸² History, Morgan Corporation Website. See www.morgancorp.com/corporate/history.asp?menuGrp=hist

– 500; Harley-Davidson Inc. (branch), Central – 275; Trek Bicycle Corp. (branch), Southeast – 250; Harley-Davidson Motor Co. Inc. (HQs), Southeast – 150; Buel Motorcycle Co., Southeast – 140; Graber Products Inc., South – 100; Pingel Enterprises Inc., Central – 30; Waterford Precision Cycles, Southeast – 20.

What Some Top 10 Firms Produce: Pingel Enterprises, Inc., makes a variety of drag and street performance products for the motorcycle industry: air and electronic shifters, starters, wheel chocks, handlebar controls, apparel, etc. Trek Bicycle Corporation makes bicycles in these categories, with specialty products within each category: bikes for the road, mountain, city and bike path riding, specialty models, and children’s models.⁸³

Industry Observation: Globalization of the combined NAICS 3362 Motor Vehicle Body and Trailer Manufacturing and 3369 Other Transportation Equipment Manufacturing is second only to Chemicals, and ahead of iron and steel and agricultural products, in international trade. In 2002, world exports of automotive products reached a new high of \$630 billion, almost a 10% increase over the prior year. Western and Eastern Europe, the Czech Republic, Hungary, Poland, Slovakia and Turkey, and Asia, led by Japan’s recovery, expanded the most.⁸⁴

One consequence of this rapid globalization is the prompting of innovations in design and processing—creating new models aimed at niche markets. “Customer-driven markets force manufacturers to replace traditional assembly lines with modern systems using computers, robots, and interchangeable tools.” Customized plants put resources in the right place at the right time, allowing manufacturers to change production inputs quickly and accurately.⁸⁵

In 2000, the U.S. had 6,500 manufacturers of motor vehicles and equipment, from small parts plants to huge assembly plants, employing over 1 million workers. The distribution of industry sectors shows the predominance of parts and accessory manufacturing:

Industry Sector	Percent
Total	100%
Motor vehicle parts and accessories	66.1
Truck and bus bodies	12.2
Motor vehicles and car bodies	11.0
Truck trailers	8.5
Motor homes	2.2

The significance of the supply chain in this industry is that motor vehicle and equipment manufacturers “have a major influence on other industries in the economy. They are major consumers of steel, rubber, plastics, glass, and other basic materials, thus creating jobs in industries that produce those materials. The production of motor vehicles spurs employment growth in other industries, including motor vehicle dealerships, automotive repair shops,

⁸³ Trek Bicycle Corp. Website. See www2.trekbikes.com/Bikes/Index.php

⁸⁴ Motor Vehicle Trends affecting component suppliers, International Labour Organization, Geneva, Switzerland, 2005, p. 15.

⁸⁵ Motor Vehicle and Equipment Manufacturing, Bureau of Labor Statistics, U.S. Department of Labor, p. 1. See <http://www.bls.gov/oco/cg/cgs012.htm>

gasoline service stations, highway construction companies, and public transit companies,” among others.⁸⁶

The entire supply chain to the motor vehicle and equipment industry will be adversely affected because “the growing intensity of international and domestic competition has increased cost pressures on manufacturers,”⁸⁷ as the emerging threat to close General Motors’ Janesville plant plays out. The internal divisions among union, non-union, and contract workers are symptoms of that pressure. Domestic growth may be limited by a number of factors: a smaller post baby-boom generation; growing control of market share by foreign producers; increased cost to improve quality and durability; stringent requirements for safety and environmental compliance; and, of course, cyclical swings in the economy.

Associated Industry Cluster—3369 Other Transportation Equipment Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	3311	Iron and Steel Mills and Ferroalloy Manufacturing
42*	Wholesale Trade	3329	Other Fabricated Metal Product Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing	3369	Other Transportation Equipment Manufacturing
484*	Truck Transportation	3314	Nonferrous Metal (except Aluminum) Production and Processing
3363	Motor Vehicle Parts Manufacturing	3262	Rubber Product Manufacturing
3261	Plastics Product Manufacturing	3255	Paint, Coating, and Adhesive Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	5417	Scientific Research and Development Services
4931	Warehousing and Storage	3321	Forging and Stamping
3312	Steel Product Manufacturing from Purchased Steel	3313	Alumina and Aluminum Production and Processing
5413	Architectural, Engineering, and Related Services	5182	Data Processing, Hosting, and Related Services
Consumer Industries - Typical Regional Industry			
3361	Motor Vehicle Manufacturing		
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing		
3362	Motor Vehicle Body and Trailer Manufacturing		
3363	Motor Vehicle Parts Manufacturing		
FR	Farms		
3321	Forging and Stamping		
8111	Automotive Repair and Maintenance		
3331	Agriculture, Construction, and Mining Machinery Manufacturing		
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance		
3366	Ship and Boat Building		

⁸⁶ Motor Vehicle and Equipment Manufacturing, ResumeEdge.com, pp. 3-4.

⁸⁷ Motor Vehicle and Equipment Manufacturing, ResumeEdge.com, p. 10.

5.4 Conclusion

The goal is to improve the competitiveness of Wisconsin's challenged driver industries. But, precisely by what means will require Wisconsin to develop strategies in full collaboration with industry representatives in the State.

Key to this process is an analysis of the strength of the industry clusters for that driver. Strengthening the industry cluster of a given driver will strengthen that driver industry. And, if more existing regional suppliers in the industry cluster can be strengthened or national suppliers introduced, or replaced, they will create more wealth in the region.

Wisconsin will need dedicated intermediaries to conduct this analysis for its manufacturing sectors over the coming months. Only then, will the challenged driver industries be able to form strategies to meet the growing demands of customers for total solutions in the new global economy.

Critical Issues

- Which of Wisconsin's industries grew during the recession? Why? Learning strategies for competitiveness in a recession assures continuous customer service and products, improving the customer's and the manufacturer's top line revenues.
- What manufacturing sectors are growing but need help capturing market share, nationally and globally?
- How can Wisconsin help manufacturers that are struggling, due to their own challenged strategies or cyclical sensitivities?
- How can Wisconsin frankly assess industry viability? Manufacturing sectors with greater concentrations than the national average but with declining sales may be on their way out.
- How can Wisconsin help those companies whose value is being destroyed by the Tier 1 or Tier 2 companies whose own failed strategies are felt down the supply chain?
- Dedicated intermediaries in Wisconsin must conduct an on-the-ground investigation of each industry's and region's unique needs. Only then, can viable economy strategies for manufacturing emerge.
- The new economy is information driven. Wisconsin manufacturers did better than some of their competitors weathering the recession. And, manufacturers' competitive edge in the future will also be information-driven—about national and global trends, their own industry, but most of all, about what their customers really want.

6 Wisconsin's Business Climate

Critical Issues

- What are Wisconsin's strengths?
- What are its weaknesses?
- Where do its opportunities lie?
- What are its threats?

6.1 National Competitiveness

One assessment of national competitiveness was undertaken by The Government Performance Project. It measured the quality of management performance in all 50 states for their handling of Money, People, Infrastructure, and Information, and then awarded each state a grade. Wisconsin received a B-. The state was credited for strong fiscal attributes, i.e. generally solid debt management, strong internal controls, and major efforts at using risk management to limit liabilities. However, balancing spending with revenues failed.

The Project reports that "Through the 1990s, Wisconsin cut income taxes by about \$1.2 billion a year, committed to fund two-thirds of K-12 education at the state levels and oversaw an increase in prison population from 7,000 to about 21,000. Meanwhile, year after year, it relied on surpluses in order to pay for unaffordable long-term increases in its spending. When the economy called a halt to that kind of Ponzi scheme, the state discovered that it was running about \$3.2 billion short."⁸⁸

In the Government Performance Project report, the President of the Wisconsin Taxpayers Alliances, is quoted as saying, ". . . they did a number of things to put the budget in balance on paper but not to fully address the problem." The report offers these examples: "The state transferred hundreds of millions of dollars to the general funds, notably transportation. It restructured its debt to get one-time savings on debt service. And it bonded out money for infrastructure that had historically been paid for with operating revenues."⁸⁹

The chronic budget problems have forced the state to cut back on infrastructure maintenance and information technology. However, in health care coverage, where an overwhelming percentage of employees are union members, the state required them to pay at least a token amount in premiums and gave them a choice among HMOs that made services available. The HMOs kept prices low and saved the state millions of dollars. This same report states that, "Technology is a significant impediment statewide." And, "There's no automated way to compare enterprise-wide HR data or financial data or any other enterprise-wide data," says . . . the state's chief

⁸⁸ Government Performance Project. See www.results.gpponline.org/StateOverview.aspx?id=141

⁸⁹ Government Performance Project. See www.results.gpponline.org/StateOverview.aspx?id=141

information officer, though the state is taking steps to redress the problem “based in part on a consolidation of servers and networks.”⁹⁰

Another attempt to rate business climate, mostly on quality-of-life issues, was completed by the nonprofit Center for Enterprise Development. It used a grading system with 31 outcome measures and 38 policy measures organized into an index framework: Financial Security, Business Development, Homeownership, Health Care, Education, and Tax Policy.⁹¹

Wisconsin earned an overall grade of B on the 2005 Assets and Opportunity Scorecard. In some respects, the state's citizens are better off than the rest of the nation, where nearly one in five American households has zero net worth or is in debt. Wisconsin's 6th-place ranking in households with zero net worth and 9th in asset poverty are encouraging. But despite a relatively high rate of private loans to small businesses (6th), the Badger State is near the bottom of the list when it comes to microenterprise ownership (ranked 50th). Wisconsin is on the right track in terms of education, where it received top-20 rankings in Head Start coverage (11th), completion of two years of college (5th), and both math (15th) and reading (16th) proficiency. The state shines in health care (A), where it received top 10 rankings in all measures. In particular, uninsured low-income children (2nd) and parents (5th) are well-protected from the health care costs that are driving many Americans into bankruptcy.

With policies in place that support asset accumulation, such as an income tax threshold that is higher than most states' and tax credits for low-wage workers, Wisconsin finds itself providing more and improved opportunities for financial security. The state also outperforms many others in terms of education policy with state funding for Head Start, above average per-pupil spending, and strong support for need-based financial aid. Wisconsin should next consider addressing its policies around its minimum wage, microenterprise support, and workforce training.⁹²

And from a third external survey, 392 business executives were asked 52 questions about the Wisconsin business climate. The purpose of the survey was to help the Wisconsin Department of Workforce Development and the Wisconsin Department of Commerce determine how to retain current business and bring in new business, i.e., address the struggle.

Overall, businesses were “happy” in Wisconsin, though the larger firms were less happy. Many were planning *not* to expand in Wisconsin—which reflects responses to MPI’s questionnaire regarding opinions about the projected change in business functions over the next five years. In

⁹¹ Center for Enterprise Development, “Measures,” Assets and Opportunity Scorecard, 2005, p. 1. See www.cfed.org/focus.m?parentid=31&siteid=504&id=509

⁹² Center for Enterprise Development, “Wisconsin,” p. 1. See www.cfed.org/focus.m?parentid=31&siteid=504&id=526&stateid=49

10 categories, all business functions would be diminished in Wisconsin. The principal reason for leaving Wisconsin was high taxes. But, the respondents liked the state's workforce and reported that Wisconsin was a good place to do business and a good place to live.⁹³

6.2 The New Economy

The major focus for Wisconsin is upon the policies and programs that support and enhance the movement from the old to the new economy. The University of Wisconsin-Milwaukee in a newsletter titled "Monitoring Wisconsin" noted that

The new economy is characterized by high technology industries. These, according to the Bureau of Labor Statistics, are industries in which employment in both R&D and in technology-oriented occupations, account for a proportion that is at least twice the average of all industries. The Humphrey Institute definition of the new economy industries excludes employment in R&D and puts the threshold of high-tech occupation concentration at three times the national average. By these definitions, the proportion of employment in high technology industries and occupations in Wisconsin is below the national average.⁹⁴

The newsletter continues Wisconsin's business climate description by looking at The Progressive Policy Institute's 2002 State New Economy Index assessing the degree to which a state's manufacturing sector is embracing high performance and high skill work practices. The Index includes 21 indicators divided into five categories. Based on these five, Wisconsin ranks low, 40th out of the 50 states. It "ranks in the first or second quartile in the education level of manufacturing employment, online manufacturers, workforce education, technology in schools, digital government, online agriculture and industrial investment in R&D. But as far as new business startups, availability of venture capital, employment in fast-growing companies, export-focused manufacturing, managerial, professional, and technical jobs, Wisconsin's performance is not up to par. The overall ranking of Wisconsin is 40 out of 50. Some neighboring states like Illinois (17 out of 50) and Minnesota (13 out of 50) rank well above Wisconsin."⁹⁵

Overall, there is a consistency among opinions and facts from personal interviews and panels, written questionnaires, and statistical analyses about Wisconsin's business climate. They confirm that for manufacturers, the struggle continues.

6.3 Workforce—The Employment Outlook

A major concern of Wisconsin's manufacturers is the waning of a competent replacement workforce. In 3.1, the MPI Group heard that "There is a two-tiered workforce. Older, reliable, hard-working employees are retiring soon. Their potential replacements are not dedicated to the work ethics of their forerunners and are increasingly difficult to hire and retain."

⁹³ Steve Mitchell et al., *Assessing Wisconsin's Business Climate*, Anderson Economic Group, May 9, 2002, p. 1. See www.andersoneconomicgroup.com/Projects/econ_dev/Wisc_DWD/WIDWD_AEGreport.pdf

⁹⁴ *Monitoring Wisconsin*, University of Wisconsin, Milwaukee, Summer 2004, p. 2. See www.uwm.edu/Dept/ISPR/summer04.pdf

⁹⁵ *Monitoring Wisconsin*, Summer 2004, p. 2.

Also, respondents to the MPI online questionnaire indicated their deep concern for the availability of qualified workers. Their answers to two questions appear below.

14. As you consider your industry and business for the next 5 to 10 years, what are the most prominent workforce-related concerns?*

	Frequency	Percent
Availability of skilled, qualified workers	45	61.6%
Healthcare coverage and costs	14	19.2%
Training	4	5.5%
Compensation to workers and compensation levels	4	5.5%
General benefits and insurances	2	2.7%
Other	4	5.5%
Total	73	100.0%

* Open-ended answers grouped by similarity of response where two or more like responses exist.

15. As you consider your industry and business for the next 5 to 10 years, what are the most prominent advantages that the Wisconsin workforce can offer?*

	Frequency	Percent
Work ethic	41	58.6%
Skills/quality of workers	11	15.7%
Manufacturing knowledge/support/education	5	7.1%
Speed to market	2	2.9%
Proximity	2	2.9%
Other	4	5.7%
None	5	7.1%
Total	70	100.0%

* Open-ended answers grouped by similarity of response where two or more like responses exist

Availability of skilled, qualified replacement workers is a concern. Indeed, “Wisconsin is getting grayer. The number of state residents between the ages of 55 and 64 grew more than six times faster than the rest of the population from 2000 to 2003, according to U.S. Census data released today [i.e., September 30, 2004]. Wisconsin lacks the numbers of younger people to replace them in jobs they hold because people are flocking to work in Minneapolis and Chicago, chief economist Terry Ludeman said. State officials expect 70,000 people will turn 65 annually by 2015; by 2030, that number will be about 80,000, he said. Retiring boomers will affect nearly everything. Experienced teachers will be lost. Skilled workers will retire. The nursing industry will be strained. And the state will have to pick up Medicaid tabs like never before. Meanwhile, businesses already struggling with a shortage of skilled workers—particularly in the manufacturing sector—may pull up stakes for other states with larger labor pools, said Jim Pugh, a spokesman for Wisconsin Manufacturers and Commerce, the state’s biggest business group.”⁹⁶

When will this crisis occur? And, what will it do to jobs? The employment outlook in 2003 by the Wisconsin Department of Revenue made this forecast:

⁹⁶ Todd Richmond, State Population Is Getting Grayer: Crisis Looms as Boomers Retire, The Capital Times, September 30, 2004, 1.

Wisconsin employment is forecast to continue to grow during the second half of this year, although at a slightly slower pace than in the first half. Employment is expected to average 1.4% higher in 2004 than in 2003. Wisconsin employment is expected to increase by 1.8% in 2005, 1.6% in 2006 and 1.7% in 2007. Fastest growing sectors will be Professional and Business services and Educational and Health Services. Manufacturing, trade and government employment is expected to increase at slower than average rates.

Employment in Professional and Business Services is forecast to increase by 5.2%, based in part on strong growth in the first half of the year. This sector includes temporary help services where employment appears to be increasing rapidly.

Other sectors expected to show above-average employment growth this year are Construction (2.8%), Education and Health (2.3%) and Leisure and Hospitality (2.0%).

Manufacturing employment is forecast to increase 0.8% this year followed by gains of 2.4% in 2005, 1.7% in 2006 and 1.2% in 2007. While it is reassuring to see employment increasing in this sector, employment gains foreseen for the forecast period, in the range of 2,000 per quarter, are far smaller than the losses experienced in the 2000 to 2003 period.⁹⁷

And, even allowing that projections behind 2005 may be questioned, the Workforce Development, Office of Economic Advisors, thought that the manufacturing outlook for a number of industries would be downward for most, as shown in the following table. The major reasons for decline may be due to outsourcing of jobs to other countries and/or to the improvement in worker efficiencies. “Whatever the cause, job loss in manufacturing may affect the standard of living in Wisconsin as workers move from relatively higher-paying manufacturing jobs to lower-paying services occupations.”⁹⁸

Table 6-1 Manufacturing Employment Outlook in Wisconsin through 2010

Category of Employment*	Estimated Employment 2000	Projected Employment 2010	2000-2010 Lost Jobs	2000-2010 % Change for This Industry
Manufacturing	615,740	603,310	(12,430)	-2.0%
Durable Goods Manufacturing	375,460	36,100	(9,360)	-2.5%
Primary Metal	26,170	23,300	(2,870)	-11.0%
Fabricated Metal	67,790	65,600	(2,190)	-3.2%
Industrial & Commercial Machinery & Computer Equipment	109,410	104,100	(5,310)	-4.9%
Electronic & Electrical Equipment	46,700	44,100	(2,600)	-5.6%
Transportation Equipment	34,240	31,800	(2,440)	-7.1%

⁹⁷ Wisconsin Economic Outlook, Division of Research and Policy, Wisconsin Department of Revenue, September 5, 2004, p. 10.

⁹⁸ Monitoring Wisconsin, University of Wisconsin, Milwaukee, Spring 2004, p. 2. See www.uwm.edu/Dept/ISPR/spring04.pdf

Category of Employment*	Estimated Employment 2000	Projected Employment 2010	2000-2010 Lost Jobs	2000-2010 % Change for This Industry
Instruments & Related Products	17,730	17,300	(430)	-2.4%
Nondurable Goods Manufacturing	240,280	237,210	(3,070)	-1.3%
Food & Kindred Products	67,180	68,300	1,120	1.7%
Paper & Allied Products	52,250	50,800	(1,450)	-2.8%
Printing & Publishing	54,690	53,400	(1,290)	-2.4%
Rubber & Misc. Plastic Products	39,180	40,000	820	2.1%
Transportation, Communications, & Public Utilities	133,600	142,940	9,340	7.0%

*There is no direct conversion of SIC codes, upon which this table is based, and NAICS codes used elsewhere in this report. However, the descriptive categories here are useful for seeing the employment trends in the state.

Source: K. Wells, Wisconsin Projections: 2000-2010, Workforce Development, Office of Economic Advisors, Department of Workforce Development, November 2003, pp. 14-38.

Data Series: Current Employment Statistics, 2001 Benchmark: 2001-2010 Wisconsin Projections
Source: Current Employment Statistics Unit, Bureau of Workforce Information and Projections Unit, Office of Economic Advisors, Wisconsin Department of Workforce Development

6.4 Job Changes

What will happen to jobs when the aging of the workforce, commoditization of low-value industries, the advent of high line products, and increased globalization all coincide? From the changes in the category of industry employment shown in the table above, the changes in jobs can be inferred.

As in the United States as a whole, Wisconsin's economy has fallen since 2000. It declined from 2,839,370 jobs in 2000 by 54,710 to 2,784,660 by 2003, a loss of about 2%. Recovery began in 2004, increasing 1.7%, still less than the losses each year in 2000-2003. It is projected to increase 5.2% above the year 2000 for 2005, 1.7% in 2006, and 1.2% in 2007. Furthermore, between 2000 and 2010, some industries and, consequently, some occupations, will decline, while some industries and some occupations will grow. Primary metal will lose 2,870 jobs; and industrial machinery and equipment, 5,310 jobs. These industrial losses mean occupational losses of 670 team assemblers, 650 cutting, punching, and press setters, operators, and tenders; 460 foundry mold and coremakers; and 460 machinists.⁹⁹

But, lumber and wood products will add 2,780 jobs. And that means 240 more sawing machine setters, operators, and tenders, and 240 more cabinetmakers and bench carpenters. Automation has influenced the rise and fall significantly, from manual to computerized controls. It is

⁹⁹ K. Wells, Wisconsin Projections: 2000-2010, Workforce Development, Office of Economic Advisors, Department of Workforce Development, November 2003, p. 58.

estimated there will be a decline of 3,880 positions for machine tool cutting setters, operators, and tenders, but an increase of 780 jobs for computer control programmers and operators.¹⁰⁰

Other change factors include business practices—shifting tasks from one occupation category to another; global outsourcing—a probable force reducing employment in Wisconsin; changing demographics—aging populations require more health care professionals. Nurses, alone, are projected to add 10,670 jobs during 2000-2010.¹⁰¹

Future needs in statewide employment will be greatest for professional industries—health services, educational services, and business services. These mean occupations for database administrators, chemical engineers, psychologists, social workers, lawyers, teachers, musicians, physicians, pharmacy technicians, nurses. With a growth of over 100,000, they will account for 20% of all jobs.¹⁰²

Next, service industries also show growth, in health, business, and social services, as well as in restaurants and government. These employ nursing aides, orderlies and attendants, food preparation and serving workers, and janitors. With 88,000 new jobs, they will comprise 26% of total employment.¹⁰³

But, in production occupations, concentrated in manufacturing, the largest will be industrial machinery and equipment, fabricated metal products, and food-related products, accounting for 1 in every 3 jobs. The first two categories will lose jobs, while the third will gain—but the net change among these three categories is a loss of 8,500 jobs.

In manufacturing, new jobs will be added in furniture and fixtures (1,500), lumber and wood products (1,500), and food-related products (1,000). The occupations needed by these industries are welders, cutters, solderers, and brazers (1,320), packaging and filling machine operators and tenders (830), and computer-controlled machine tool operators (730).¹⁰⁴ These new jobs call for formal training to maintain and increase productivity. At present, Wisconsin's hours of formal training are consistent with those of competing states. While it may be that Wisconsin's low technology industries do not call for a great deal of training, compared to California's high technology industries, the question of just what knowledge and skills would facilitate the manufacturing industries' competitiveness should be asked.

And, 14 of Wisconsin's technical college districts did just that. On January 31, 2005, the Moraine Park Technical College, one of the 14, published, "Manufacturing Solution 1: Summary of Data," a report written for the 14 Wisconsin technical colleges (WTCS). They administered surveys to manufacturers across the state, receiving 978 responses from manufacturing employers who represented 127,000 Wisconsin employees. This is a summary of their pertinent findings.

Change in Employment Levels Over the Next Two Years

¹⁰⁰ K. Wells, p. 58.

¹⁰¹ K. Wells, p. 60.

¹⁰² K. Wells, p. 67.

¹⁰³ K. Wells, p. 67.

¹⁰⁴ K. Wells, pp. 67-68

Nearly two-thirds of the employers surveyed anticipated hiring more employees in the next two years, while less than 5% anticipated a decrease. In total, the 29 companies who projected a decrease in employment anticipate losing 547 employees over the next two years. In contrast, the 524 employers anticipating hiring new employees claim they will bring in nearly 8,700 jobs within the next two years.¹⁰⁵

Average Typical Hourly Wage

Nearly 50% of the jobs will pay \$8 - \$12 per hour. The next 38% will pay \$12 - \$16 per hour. And, a remaining 10% will earn more than \$16 per hour.¹⁰⁶

How Could the WTCS or Other Agency Help with Your Hiring and Training Needs?

This was an open-ended question which received about 780 responses. They ranged broadly from very precise needs to ambiguous comments. However, there was a discernible agreement among the employers that these were their major foreseeable hiring and training needs.

Work Life—Basically, good, solid work ethic behavior

Basic Shop Skills—Especially in electrical and mechanical areas, re-enforced by apprenticeships

Advanced Shop Skills—CNC, CAD, CMAN, etc.

Entry-level Management Skills—Team building, LEAN manufacturing principles, Six Sigma, LEAN/Sigma

Continuing On-the-job Training—Through Technical College/Employer collaboration

Trained Hirers—To find and retain qualified workforce

Continuing Spanish Language Vocational Training—Pre- and post-employment development of English competence¹⁰⁷

Anticipated Expansion

Approximately two-thirds of the respondents planned to expand their product lines in the next two years. They expected to achieve that expansion equally through (1) the use of new technology, (2) diversification, and (3) entrance into other markets.¹⁰⁸

Beneficial Training

¹⁰⁵ Moraine Park Technical College, Manufacturing Solution 1: Summary of Data, DRAFT, January 31, 2005, p. 3.

¹⁰⁶ Moraine Park Technical College, p. 4.

¹⁰⁷ Moraine Park Technical College, pp. 5-25.

¹⁰⁸ Moraine Park Technical College, p. 42.

Respondents were asked what types of training would be beneficial in helping their organization to be more productive, export their product, or employ more technology. Interpersonal Communication and Managerial Supervisory Skills rounded out the top two most desired types of training.¹⁰⁹

Regional Approach for Business Collaboration

A “regional approach” means joint purchasing, joint training, business development, vendor sharing, cluster councils, and other shared services. Almost 40% of the respondents favored these collaborative activities to individual efforts.¹¹⁰

Preference for Learning about Training Options

Contrarily, “respondents prefer to learn about available training options either by contacting the College or University themselves, or by referrals from friends/colleagues. “And, after that primary connection, they turn to trade organizations and the internet.”¹¹¹

Again, these statewide findings appear to be consistent with those from other sources, namely MPI’s in-person interviews and online surveys, manufacturing studies in other states, and numerous U.S. perspectives. Later Sections on Wisconsin’s seven economic regions include written responses to these same topics by individual region. The agreement by regions with the statewide perspective on future manufacturing needs in Wisconsin is nearly identical.

What will it take to win the struggle? Richard W. Judy from Workforce Associates, Inc., deduces from these trends that “American manufacturing companies that prosper in the early 21st century will most likely produce goods that display one or more of the following characteristics:

They are high-tech, high value-added products that are competitive in global markets.

They are knowledge-intensive in the sense that a large portion of their value stems from their intellectual property component.

They target niche markets that are less vulnerable to off-shore competition.

They are produced at a **total** cost that enables their producers to compete successfully in national and international markets.

Recently developed intellectual property is especially important in their design and/or production.

They are produced in close proximity to customers or suppliers.

¹⁰⁹ Moraine Park Technical College, p. 44.

¹¹⁰ Moraine Park Technical College, p. 64

¹¹¹ Moraine Park Technical College, p. 72.

Their production requires intimate customer knowledge on the part of the producer.

The companies that develop them are close to and interact with a major university or other research center.

They are subject to rapid innovation, i.e. the time cycle from product conception, through design and manufacture, to replacement is short.

Political factors dictate that production should be within the U.S. (This is one of the reasons why Japanese auto manufacturers locate in this country.)

It is uneconomical to import them because international transportation costs are too high.

Logistics and/or customer service by the manufacturer are so closely associated with the physical product that the customer sees them as a joint value proposition.¹¹²

For reaching these goals, Wisconsin has some handicaps to consider.

6.5 Education and Training

Both the MPI Panel and questionnaire revealed that Wisconsin's manufacturers believe they will have difficulty in hiring and retaining not only the numbers of replacements workers they need but also in finding those with the appropriate skills and work ethic to undertake the move toward a new economy. The answers to questions #17 and #18 of the online questionnaire show that in one category or another the emphasis is on better and greater workplace skills, before employment, and continuing education after employment.

17. What changes, if any, would you like to see in the Wisconsin higher education system to better meet the long-term needs of your industry and firm in the state?*

	Frequency	Percent
Technical education and/or process education	13	21.0%
Basic skills: math, language, writing, etc.	5	8.1%
Encourage manufacturing careers	5	8.1%
Better understanding of industry/business needs	4	6.5%
Lean skills	4	6.5%
Internships/work experiences	4	6.5%
Work ethic	3	4.8%
High-school technical emphasis	3	4.8%
Manufacturing technologies/IT	3	4.8%
Soft skills (including listening)	2	3.2%
Business skills	2	3.2%
Other	10	16.1%

¹¹² Richard W. Judy, Who Is Manufacturing Tomorrow's Jobs?, Workforce Associates, Inc., February 2005, pp.4-5. See editor.ne16.com/html/editor/viewonline.asp?FileID=12007

	Frequency	Percent
None	4	6.5%
Total	62	100.0%

* Open-ended answers grouped by similarity of response where two or more like responses exist.

18. Describe any innovative workforce attraction or development programs that you would like to see expanded in Wisconsin?*

	Frequency	Percent
Apprenticeships/internships	8	18.2%
Manufacturing introductory/encouraging programs	5	11.4%
Basic skills training	5	11.4%
Lower healthcare costs/healthcare buying coops	4	9.1%
More affordable training options	4	9.1%
Tax credits, money for training	3	6.8%
Lean training	3	6.8%
WMEP programs/partnering	2	4.5%
Business best practices	2	4.5%
Other	8	18.2%
Total	44	100.0%

* Open-ended answers grouped by similarity of response where two or more like responses exist.

And, their answers to questions about the degree of urgency show their leaning from complacency toward concern for replacement workers with adequate skills.

19. As you consider your business plans for the next 5 to 10 years, please rate the following workforce factors on a scale of 1 to 5:

Entry-level labor: Skill-level

	Frequency	Percent
1 - No Problem	4	5.3%
2	8	10.7%
3 – Neutral	19	25.3%
4	30	40.0%
5 - Major Problem	13	17.3%
Not applicable	1	1.3%
Total	75	100.0%

Semiskilled production labor: Skill-level

	Frequency	Percent
1 - No Problem	1	1.3%
2	6	8.0%
3 – Neutral	22	29.3%
4	28	37.3%
5 - Major Problem	15	20.0%
Not applicable	3	4.0%
Total	75	100.0%

Entry-level managerial labor: Skill-level

	Frequency	Percent
1 - No Problem	2	2.7%
2	9	12.2%
3 – Neutral	28	37.8%
4	24	32.4%
5 - Major Problem	9	12.2%
Not applicable	2	2.7%
Total	74	100.0%

Skilled or technical labor: Skill-level

	Frequency	Percent
1 - No Problem	1	1.4%
2	4	5.4%
3 – Neutral	22	29.7%
4	27	36.5%
5 - Major Problem	19	25.7%
Not applicable	1	1.4%
Total	74	100.0%

Professional managerial labor: Skill-level

	Frequency	Percent
1 - No Problem	4	5.4%
2	7	9.5%
3 – Neutral	26	35.1%
4	24	32.4%
5 - Major Problem	11	14.9%
Not applicable	2	2.7%
Total	74	100.0%

Further details about their viewpoints on worker availability and costs are in the regions Sections, 7 through 13, as the last item in each regional summary. It may be that jobs are

declining and replacement workers are not yet in high demand, but the warning signs are apparent.

Just what skills will be needed? Some general impressions can be gained by reviewing the individual comments made by executives responding to the full questionnaire, especially to the open-ended questions. Since exact corporate identities are not given in the comment attributions, further, on-the-ground exploration of skill needs will be helpful for each industry by region to provide clear directions to the education, research, and business service institutions supporting manufacturing in Wisconsin.

The most disturbing barrier, manufacturers report, to securing needed workers is the broken image of manufacturing in the state. High school students disdain this future, avoid even discussing it with their colleagues, and accept manufacturing jobs apparently with reluctance. Employers are seeking help to change that image. It seems possible that new, high-paying jobs in a new economy will begin to brighten that outlook. Therefore, such a goal might go hand-in-hand with developing very close relationships with the academic and research support systems in the state.

Manufacturers do have a high regard for higher education and technical facilities in Wisconsin. And, as shown by the measures of Wisconsin's business climate earlier in this Section, the State is educationally very competitive.

The state has extensive educational facilities that offer technical, scientific, and engineering education, as well as research and support of Wisconsin's manufacturing industries at its various Web sites, education and research facilities, Wisconsin technology links, Technology Zone Program, private sector R&D resources, and links to business assistance and economic development organizations.

The Federal Government also has an active role in helping manufacturers throughout the country address globalization. The U.S. Department of Commerce's Technology Administration established the National Institute of Standards and Technology to network the nationwide Manufacturing Extension Partnership. These not-for-profit centers, in nearly 350 locations, provide "small- and medium-sized manufacturers expertise and services tailored to their most critical needs, which range from process improvements and worker training to business practices and applications of information technology."¹¹³

The Wisconsin Manufacturing Extension Partnership has three regional centers and seven field offices serving in the northeast, southeast, and southwest quadrants of the state. It works in coordination with the Northwest Wisconsin Manufacturing Outreach Center.

6.6 Costs of Doing Business in Wisconsin

All interviews, surveys, and studies mentioned earlier in this Study identify Wisconsin's high costs as a major concern in the business climate. The MPI Group respondents said, "Taxes of all

¹¹³ WorkPlace Training—Manufacturing Extension Partnerships, p. 1. See www.wptraining.com/meps.html
The National Manufacturing Extension Partnerships are linked through the National Institute of Standards Technology in the U.S.> Department of Commerce.

types are exorbitant in Wisconsin, compared to border and other competitor states.” And, there was an “inability to contain manufacturing costs, due to spiraling health care, liability insurance, on-the-job training, and new machinery and technology costs.” There is some question about how objective these opinions are when specifically pertaining to manufacturing costs, as opposed to personal income, and quality-of-life factors—as presented earlier in this Section—with some business executives unhappy about business, but happy with life in Wisconsin. Some statistical analyses may help answer the question.

6.6.1 Taxes

One measure that compares state taxes is the “State Business Climate Index,” which is prepared by the nonprofit Tax Foundation. This organization is widely recognized as one that provides an amalgam of business and personal taxes in its evaluation. The Index is a measure of how each state’s tax laws affect economic performance. It is a “composite of five equally weighted tax measures: the corporate income tax, the individual income tax, the sales and gross receipts tax, the unemployment insurance tax, and the state’s fiscal balance. These five indexes are themselves composites of more than 100 separate variables.

For Wisconsin, the first measure, the corporate income tax weighs the economic impact of state corporate income tax laws in place at the beginning of the year. It places Wisconsin 20th out of the 50 states (the closer to one, the lower the taxes). The individual income tax measures the economic impact of state and county individual income tax laws in place at the beginning of the year. Wisconsin is 32nd out of 50. On the sales and gross receipts tax, which also measures the state and county sales tax law influence on the state’s economy, Wisconsin is 31st of 50 states. The unemployment insurance tax gives Wisconsin another 31st rating. And, the fiscal balance measure ranks the state in 44th place. The table below shows how Wisconsin’s tax climate compares with those of the other eight competitor states.

Table 6-2 State Business Tax Climate Index, Wisconsin and the Eight Competing States, 2004

State	Rank in U.S. (The closer to 1, the better the business climate)
Wisconsin	41
California	38
Illinois	23
Indiana	12
Michigan	36
Minnesota	48
Ohio	29
Tennessee	15
Texas	4

Source: Tax Foundation, “State Business Tax Climate Index, 2004,” Table 6. See www.TaxFoundation.org

By contrast, it is informative to look at the top 10 (most friendly) and bottom 10 (least business friendly) states by business tax climate:

In 2004, the ten states that are deemed to have entered 2004 with the most business-friendly tax systems are South Dakota, Florida, Alaska, Texas, New Hampshire, Nevada, Wyoming, Colorado,

Washington, and Oregon. On the other end of the spectrum, the ten tax systems least hospitable to business in 2004 are found in Hawaii, New York, Minnesota, West Virginia, Rhode Island, Vermont, Kentucky, Arkansas, Maine, and Wisconsin.¹¹⁴

The Wisconsin Department of Commerce publishes the following summary of the state's taxes. Businesses can examine comparable tax rates in other states as they consider the economic benefits of continuing their manufacturing business or establishing new business in Wisconsin. The Department of Commerce web site includes numerous hot links to help companies assess the overall business climate in the state:

Table 6-3 Major Wisconsin Taxes of Interest to Business

Tax	Rate
Corporate Income (flat rate)	7.9%
Apportionment Formula (to become 100% based on sales beginning in 2005):	
Sales	50%
Property	25%
Payroll	25%
Sales/Use	5%
Manufacturing machinery	Exempt
Pollution controls equipment	Exempt
Materials consumed	Exempt
Manufacturing energy	100% Tax Credit
Property Tax (full value state average rate)	2.211%
Computer equipment	Exempt
Manufacturing machinery & equipment	Exempt
Manufacturing inventories	Exempt
Merchant's inventories	Exempt
Pollution controls equipment	Exempt
Unemployment Compensation	
New employers (3 yrs.), payroll < than \$500,000	3.05%
New employers (3 yrs.), payroll > than \$500,000	3.25%
Base	\$10,500
Minimum/Maximum	0.00%-9.75%
FUTA penalty	0%
Workers Compensation	
Average in manufacturing	\$4.43/\$100.00
Personal Income	
\$ 0-\$10,630	4.6%
\$10,631-\$132,259	6.15%
\$132,260-\$153,249	6.5%
\$153,250 +	6.75%
60% Capital gains exclusion	

Source: Wisconsin Department of Commerce, Major Taxes of Interest to Business, p. 1. See www.commerce.state.wi.us/BD/MT-FAX-0709.html

¹¹⁴ Wendy P. Warcholik, Ph.D., et al., "State Business Tax Climate Index, Background Paper No. 45, Tax Foundation, pp. 2-3. See www.taxfoundation.org/research/show/78.html

A useful adjunct to this table is the Wisconsin Forward commentary on business taxes available at their web site. It is quoted below:

Business Taxes & Costs

- **Wisconsin business taxes are lower than those in 35 other states.** That's the conclusion of a 1999 study by the Federal Reserve Bank of Boston¹¹⁵ that measures more than 15 taxes that can affect corporate profits. For a summary of the report, see [State Business Taxes Below U.S. Average](#)¹¹⁶
- **Wisconsin ranks fourth lowest in the nation in business taxes as a percent of all state and local taxes.** . . . business tax changes that have been made in every biennial legislative session since the early 1970s. For a summary of Wisconsin taxes, see [Major Taxes of Interest to Business](#).¹¹⁷ Here is an overview of Wisconsin's business tax structure:

Corporate Income Tax

Businesses that are incorporated in Wisconsin and foreign corporations that have nexus with the state are subject to a 7.9% tax on the income of the corporation. That flat 7.9% rate has not been changed in the past 20 years.

. . . Wisconsin will soon become even less taxing for companies that conduct business in more than one state. Beginning in 2005, an apportionment formula based solely on the sales factor (as opposed to the current property/payroll/sales formula) will be phased in over a 3-year period. The change will result in corporate income tax savings of more than \$45 million for Wisconsin companies.

Available credits against corporate income tax include research credits for both capital investments and noncapital expenditures related to R&D as well as a credit for sales tax paid on fuel and electricity used directly in manufacturing operations.

For . . . the beneficial impact of recent corporate tax improvements, see the [10 State Paper Industry Tax Comparison](#)¹¹⁸

Worker's Compensation

Wisconsin's Worker's Compensation premium rates are among the lowest in the country. During the 1990s, rates declined by 33% resulting in more than \$1 billion in savings for Wisconsin companies. Since then, rates have continued to decline with the

¹¹⁵ Robert Tannenwald and Nicholas Turner, Interstate Fiscal Disparity in State Fiscal Year 1999, No. 04-4, Federal Reserve Bank of Boston. See <http://www.bos.frb.org/economic/ppdp/index.htm>

¹¹⁶ See www.jsonline.com/news/state/nov04/275862.asp

¹¹⁷ See <http://commerce.wi.gov/BDdocs/BD-FAX-0709.pdf>

¹¹⁸ See www.forwardwi.com/forward_docs/uploaded_documents/why_wisconsin/corp_tax_burden-paper.pdf

most recent [4.15% overall decrease](#)¹¹⁹ in rate level taking effect Oct. 1, 2004.

. . . The national Worker's Compensation Research Institute has concluded that Wisconsin has "the lowest rate of requests for litigation of any state we have studied" because "management and labor control the system through a labor and management advisory council." Wisconsin's Worker's Compensation rates typically provide significant savings over those of neighboring states as illustrated by a [Four State Comparison](#)¹²⁰

Unemployment Compensation

Wisconsin pioneered unemployment insurance in the United States more than 70 years ago . . . *Employers paid the lowest possible unemployment compensation (U.C.) taxes in 2004 for the 13th straight year.* The average Wisconsin employer in 2003 paid 2.2% of taxable wages in U.C. taxes, well below the U.S. average. Employers pay U.C. taxes on the first \$10,500 of wages paid annually to each employee.

Property Tax

All property located in the state, except personal furnishings, clothing and property for which there is a specific exemption, is subject to taxation. Manufacturing, telecommunication and utility properties are assessed by the Department of Revenue while all other property is assessed by the municipal assessor. Exemptions from property tax include:

- Machinery and equipment used in manufacturing
- Merchants' and manufacturers' inventories
- Computer equipment
- Pollution abatement equipment

Sales/Use Tax

Wisconsin imposes a 5% tax on the sale or use of tangible personal property that is not specifically exempted from the tax as well as some services. Counties have the option of imposing a 0.5% local sales and use tax on the same items and 58 of Wisconsin's 72 counties have done so. See [Sales Tax Rate by County](#)¹²¹ for the complete list.

The use tax is a tax on the use, consumption, or storage of property in the state and applies to property brought into the state without payment of sales taxes.

¹¹⁹ See www.dwd.state.wi.us/wc/insurance/2004_comp_rates.htm

¹²⁰ See www.dwd.state.wi.us/wc/insurance/2004_comp_rates.htm

¹²¹ See www.dor.state.wi.us/faqs/pcs/taxrates.html#txrate11

Exemptions from the sales and use tax include:

- Manufacturing machinery and equipment
- Manufacturers' raw materials
- Pollution abatement, waste treatment and recycling equipment
- Fuel and electricity used in manufacturing

Individual Income Tax

Wisconsin's individual income tax, to a large extent, conforms to the federal personal income tax base. The tax rates are shown in this chart of [Individual Income Tax Rates](#).¹²² [See the hotlink footnoted below.]

Since 2001, all individual income tax brackets have been indexed each year based on the consumer price index.

Wisconsin also offers these tax benefits to individual taxpayers to encourage investment in the state:

- 60% exclusion for long-term capital gains (a provision that saved Wisconsin taxpayers \$180 million in FY02)
- 100% exclusion of the capital gains from the sale of stock in eligible Wisconsin small businesses if held for 5 years or more
- 100% exclusion for intergenerational transfers of farming and business assets¹²³

Wisconsin is a high tax state. It is ranked the 5th highest tax rate of the 50 states. “The top five states where the tax burden as a percent of income is the highest are: Maine (13.0%), New York (12.0%), Hawaii (11.5%), Rhode Island (11.5%), and Wisconsin (11.4%). The United States average is 10.1%.¹²⁴ Another report confirms this ranking: “Compared to other states, Badger taxes were fifth highest in the nation . . .”¹²⁵

This is not necessarily an inhibitor of manufacturing, since “a low-tax environment may not attract and retain employers if public services are substandard and regulation ineffective. For example, a tax reduction undertaken to attract businesses may add to the deficit or force service cuts, and these changes may have second-round effects on economic activity and residents’ well-being.”¹²⁶ In fact, a low-tax state might have low-level services, to the extent that no one would wish to live, much less work there. All survey studies reveal that those manufacturers questioned in Wisconsin like the labor force, their ethics, and the place where they live. Ultimately, it is people who make the decisions about where they will locate and the trade-offs, not policy makers.

¹²² See www.dor.state.wi.us/faqs/pccs/taxrates.html#1a

¹²³ Forward Wisconsin, Business Taxes & Costs, pp. 103. See www.forwardwi.com/forward_docs/category.php?category_id=39

¹²⁴ Taxes by State, Retirement Information Center, p. 5. See www.retirementliving.com/RLtaxes.html

¹²⁵ New fed figures show true tax ranks, Wisconsin Taxpayers Alliance, No. 15, July 28, 2004, p. 2. See www.wistax.org/facts/2004nnffsstrr15.pdf

¹²⁶ Katharine L. Bradbury et al., The Effects of State and Local Public Policies on Economic Development: An Overview, New England Economic Review, March/April 1997, p. 11. See www.bos.frb.org/economic/neer/neer1997/neer297a.pdf

However, there is a great difference among the states in their *capacity* to tax.

The governments of many states, through no fault of their own, must work relatively hard to provide the services needed by those who reside, work, travel, and vacation within their borders. For example, some have a high proportion of low-income residents, who need cash assistance, special education, and extensive health care. Others have a high concentration of school-age children, who need primary and secondary education. Such states have high fiscal need, that is, they face conditions that increase the cost of delivering state and local services or augment the scope of services they must provide.¹²⁷

But, in Wisconsin, there may be another reason for the state’s manufacturers to imply that its taxes are excessive, compared to other states. How many of the state’s companies are subchapter S, as opposed to a C corporation? “For tax purposes, the S corporation has a single tax imposed at the shareholder level while a C corporation has a tax imposed both at the corporate level and then again when the corporation makes a distribution to the shareholders.”¹²⁸ If Wisconsin’s industries are subchapter S corporations, the owners may be paying *income* taxes on their corporate earnings. Whereas, if they are C corporations, that person, who is not an owner, may pay taxes on his payroll income only. Thus, it might appear to a small business Subchapter S corporation that Wisconsin taxes are very high. And, the majority Wisconsin manufacturers are small.

In fact, they are. Compared to the state’s competitors, Wisconsin has the highest percentage of corporate parents under \$100 million in value – 82%.

Table 6-4 Approximate Annual Revenue of the Plant’s Corporate Parent, 2004 Survey

Revenue	WI	CA	IL	IN	MI	MN	OH	TN	TX	Other States	All Plants
Less than \$100 million	82.4%	62.5%	63.6%	50.0%	59.4%	65.5%	45.5%	35.7%	31.3%	50.4%	53.5%
\$100 million-\$499 million	8.8%	10.4%	21.2%	31.6%	21.9%	13.8%	18.2%	7.1%	31.3%	15.8%	16.8%
\$500 million-\$999 million		2.1%	6.1%	5.3%	3.1%	10.3%	9.1%	14.3%	12.5%	5.2%	5.6%
\$1 billion-\$5 billion	8.8%	12.5%	3.0%	7.9%	9.4%		5.5%	35.7%	12.5%	14.4%	11.9%
\$5.1 billion-\$10 billion		4.2%		5.3%	6.3%	3.4%	14.5%	7.1%	6.3%	6.0%	5.9%
More than \$10 billion		8.3%	6.1%			6.9%	7.3%		6.3%	8.2%	6.5%
All Plants	100%	100%	100%	100%	100%	100%	100%	200%	100%	100%	100%

Source: Source: The MPI Group, “Profiles,” from manufacturing surveys in the United States, 2004. Proprietary data, p. 4.

¹²⁷ Robert Tannenwald, Fiscal Disparity Among the States Revisited, New England Economic Review, July/August 1999, p. 1. See www.bos.frb.org/economic/neer/neer1999/neer499a.pdf

¹²⁸ Wisconsin S Corporation Advantages and Disadvantages: Wisconsin S Corporation and Asset Protection, Small Business Solutions, American Incorporators, Ltd., p. 1. See www.residual-rewards.com/wisconsin-s-corporation.html

There are advantages and disadvantages to both corporate structures. But, from a tax viewpoint, the status of individual driver industries may uncover the reality of taxes as a barrier to the new economy.

6.6.2 Insurance

Wisconsin's insurance rates compare favorably with those of Illinois, Michigan, and Minnesota in various industries, though comparable figures were not provided for Ohio and Indiana by the Wisconsin Department of Workforce Development. The table titled 2004 Insurance Rates Comparisons (Rates represent actual cost per \$100 of payroll) in the Appendix compare the dollar rates for a number of Wisconsin's driver industries. Wisconsin's business category insurance rates are lowest in almost all categories, and as an average the lowest of the comparison states. Wisconsin averaged \$5.08 per \$100 of payroll, compared to \$9.31 for Illinois, \$6.71 for Michigan, and \$7.77 for Minnesota.

6.6.3 Worker's Compensation

Wisconsin reduced its worker's compensation insurance premiums in October 2004 by 4.15% in recognition of the importance of competitive rates for attracting and retaining business. Overall its rates have fallen 33% since 1994. See the table in the Appendices titled "A Comparison of Worker's Compensation Premium Rates (Rates represent actual cost per \$100 payroll)." It compares Wisconsin's rates over a number of industries with those rates of Illinois, Michigan, and Minnesota.¹²⁹ In the majority of industries, Wisconsin's rates were lowest, and, as an average, its rates were also lowest: \$3.75 per \$100 of payroll, compared to \$6.92 for Illinois, \$5.14 for Michigan, and \$4.71 for Minnesota.

6.6.4 Worker's Benefits

There are a number of workforce issues related to benefits that are of major concern to Wisconsin's manufacturers who are trying to compete globally. Consider this summary perspective:

Americans now retire earlier, live longer, and use more medical care than any previous generation – all of which increases the financial resources necessary to assure a secure retirement. Yet individual savings are falling, and many workers contribute minimal amounts to their 401(k) plans. Social Security, which was not designed to provide full retirement benefits, is less able to meet retirement needs. Although many workers are well prepared for retirement, others are unlikely to be able to meet their retirement needs.¹³⁰

The problem was dramatized in early June 2005 when "General Motors said it would eliminate 25,000 jobs by 2008—in part because of the cost of its healthcare commitments, now amounting to about \$1,500 per car." Economist Ned Hill, who is working with MPI on the Wisconsin Manufacturing Study, noted that "trouble in the auto industry is also spreading to the auto-parts

¹²⁹ Wisconsin Department of Commerce, A Comparison of Worker's Compensation Premium Rates, p. 1. See www.commerce.state.wi.us/BD/MT-FAX-0711.html

¹³⁰ Daniel E. Fuerst, Defined Benefit Pension Plans: Creating Value for Your Employees and Employers, p. 2. See www.mmc.com/views2/Fuerst200404.pdf

suppliers, such as Delphi, which are also carrying significant pension and health care costs for young retirees. He cites Delphi's \$150-per-hour manufacturing cost as opposed to China's \$1-per-hour cost for auto parts."¹³¹

However, the problem is certainly not restricted to General Motors. It goes "well beyond GM and the other automakers: Some of the Nation's steelmakers, airlines, and old-line manufacturers—and even some municipalities—are also carrying legacy costs—and may face similar layoffs." The problem for, say, a supplier to an industry driver, such as Janesville to General Motors, is that the supplier is trapped by the driver. If a driver industry does not respond to customer needs, its sales will decline, and its suppliers will also lose business. At Janesville, "which makes the Chevy Tahoe and Suburban and GMC Yukon and Yukon XL, recent news speculated that GM plans to produce the next generation of SUVs at the plant. New vehicles could include hybrid gas-electric models, according to reports."¹³²

GM announced in January 2004 that it will spend \$175 million to upgrade the plant, while "The State of Wisconsin is providing GM with an incentive package valued at \$5 million. The package includes: a \$2 million grant from the Department of Commerce, a \$1 million grant from the Department of Workforce Development, and \$1 million grant from the Department of Administration to help with the acquisition of new energy-efficient technology, and a \$1 million grant from the Wisconsin Technical College System to provide training to workers."¹³³

Here, we see the costs of shifting from the old economy to the new economy being supported by the taxpayers, rather than the industry's customers. In the future, it is less likely that governmental subsidies will be used to save the Old Economy but, instead, will turn to strategies for turning to the higher paying new economy, which has the greater opportunity for providing appropriate retirement and health care benefits.

6.6.5 Utilities

All projections in this Study predated \$70/barrel for oil and probably did not foresee energy costs higher than that. These impose pressures on manufacturing that may differ by driver industry, the cluster, and the state. Products of great weight, states in very cold or very warm climates, industries with long supply and/or delivery lines, high energy processes, different purchasing policies—have already dictated product, manufacturing, and marketing changes. Foreign companies are relocating into the U.S. to avoid some of these costs, airline industries are collapsing, auto companies are improving fuel efficiency, and renewable energy industries are burgeoning. Already, there are substantial differences in electricity and natural gas costs among Wisconsin and the eight competing states, as Table 6-13 shows. The increasing cost of energy in the manufacturing process will require increasing attention to the structuring of cluster industries.

¹³¹ Ron Scherer, Rising benefits burden, Christian Science Monitor, June 9, 2005, pp. 2-3. See www.csmonitor.com/2005/0609/p01s01-usec.html

¹³² Ron Scherer, p. 2.

¹³³ GM Will Spend \$175 Million to Upgrade Janesville Plant, The Business Journal, January 28, 2004, p. 1. See milwaukee.bizjournals.com/milwaukee/stories/2004/01/26/daily20.html

Table 6-5 Utility Costs for Wisconsin, the Eight Competing States, & the U.S. (\$ per Million BTUs)

State	Electricity		Natural Gas	
	Commercial	Industrial	Commercial	Industrial
Wisconsin	\$17.82	\$11.85	\$6.26	\$5.40
California	\$28.91	\$20.94	\$7.71	\$5.42
Illinois	\$20.57	\$14.62	\$6.75	\$5.69
Indiana	\$17.67	\$11.16	\$5.60	\$4.88
Michigan	\$23.36	\$14.93	\$4.62	\$3.73
Minnesota	\$18.84	\$13.40	\$5.90	\$4.38
Ohio	\$21.93	\$12.82	\$6.74	\$4.91
Tennessee	\$18.69	\$11.98	\$6.58	\$4.90
Texas	\$20.11	\$12.96	\$5.56	\$3.97
U.S. Average	\$21.52	\$13.60	\$6.57	\$4.71

Source: Karim Khan, State-by-State Utility Review: Find out How Expensive Electricity and Natural Gas Are in the States You're Considering, Business Facilities, pp. 1-3. See www.facilitycity.com/busfac/bf_03_06_cover.asp

6.6.6 Infrastructure

A review of the suppliers to the driver industries in Section 5 demonstrates the obvious—transportation is absolutely essential to the transfer of supplies and products. It is a key factor in managing costs for all components of the industry clusters. MPI’s survey of manufacturers indicates satisfaction with the state’s extensive highways, airports, railroads, waterways, and urban transits. Or, at least now it is “no problem.”

One exception, however, may be the inadequacy of air transport from areas in Wisconsin other than the Milwaukee location. A general criterion for global travel is how much of North America can be covered in a one-day round trip business visit. Departures and arrivals from commuter lines to international airports to final destinations can extend travel times, their costs, make for longer delivery schedules, and thereby weakening competitiveness. If Wisconsin wished to become more friendly to global investment, it might look at ways to increase the number of direct flights within the state to other business centers where global markets are competing.

The energy infrastructure, on the other hand, is of concern to Wisconsin. Unlike California, with a massive alternative energy program, Wisconsin does not appear yet to have included extensive energy concerns in its planning strategies. A focus on transportation and improvements in controlling and lowering costs would benefit every industry, not just manufacturing.

Globalization also requires competitors to provide robust e-commerce capability through company Web sites that are sophisticated adjuncts to their marketing strategies. This means that drivers, industry clusters, and their consumers should all be readily accessible to each other through state-of-the-art broadband access. This is essential in a global economy where all successful product lines will be information based. Integration of information systems is critical to maintain transparent and accurate information exchange with suppliers and customers worldwide.

How do Wisconsin's driver industries measure up to this new global standard in communication? What needs to be done to make them leaders in meeting the demands of customers who want a new level of service and value bundled around the product?

6.6.7 Regulatory Environment

One of the difficulties for manufacturers in Wisconsin is determining who is regulating what, where, and when? The answers appear to differ everywhere. The Brookings Institute claims that "Competitive regions move with alacrity to seize opportunities, mobilize coalitions, and organize resources to pursue common goals. They are flexible and fast." But, Wisconsin's competitive regions *are* fragmented by many local governments, which regulate them. Fragmentation confounds planners and also increases the cost of government because competing jurisdictions duplicate infrastructure.¹³⁴

The Brookings Institute compiled a list from 2002 records to illustrate the sheer numbers of government entities in the 10 states with the greatest number of general purpose governments at the county, municipality, town, and township levels.

Table 6-6 Top 10 States with the Greatest Number of General Governments, 2002

State	General Governments in 2002	Rank in U.S.
Illinois	2,824	1
Minnesota	2,734	2
Pennsylvania	2,633	3
Ohio	2,338	4
Kansas	2,030	5
Wisconsin	1,922	6
Michigan	1,858	7
North Dakota	1,745	8
Indiana	1,666	9
New York	1,602	10

Source: The Brookings Institution, "Behind the Trends: Historical and Policy Influences," Back to Prosperity: A Competitive Agenda for Renewing Pennsylvania, Center on Urban and Metropolitan Policy, p. 66. See www.brookings.edu/pennsylvania

From another perspective, if we look at Wisconsin and the eight competitor states from the standpoint of the number of general governments per capita, we see the following:

Table 6-7 General Governments per Capita in the Top Ten States

State	General Govern-ments, 2002	Population (as of April 2000)	General Govern-ments per Capita
Wisconsin	1,922	5,363,675	1 per 2,790
California	532	33,094,915	1 per 62,208
Illinois	2,824	12,419,293	1 per 4,397
Indiana	1,666	5,220,031	1 per 3,133
Michigan	1,858	9,938,444	1 per 5,349
Minnesota	2,734	4,919,479	1 per 1,799
Ohio	2,338	11,353,140	1 per 4,855

¹³⁴ The Brookings Institution, "Behind the Trends: Historical and Policy Influences," Back to Prosperity: A Competitive Agenda for Renewing Pennsylvania, Center on Urban and Metropolitan Policy, pp. 66-67. See www.brookings.edu/pennsylvania

Tennessee	441	5,106,393	1 per 11,579
Texas	1,450	20,851,820	1 per 14,380

Source: U.S. Census Bureau, Government Organization: 2002 Census of Governments, Tables 3 and 6, Vol. 1, No. 1. Issued December 2002. See www.census.gov/prod/2003pubs/gc021x1.pdf

With respect to its primary competitor states, Wisconsin is second to Minnesota in the number of general governments per capita. What this means for manufacturing in Wisconsin is that officials must spend time that other competitor states don't in creating consensus on taxes, zoning, and other factors that businesses consider when deciding to come to a state or to leave it. Looking for cooperative solutions for attracting new business or making the cost of doing business less for existing companies takes time, and time can be a decisive factor in a company's production planning and product roll-out. Government fragmentation is costly in its redundancy, but it can also discourage continued or new business investments if it obstructs business' capacity to respond quickly to markets and their changing needs.

Other regulatory concerns emerged in the MPI Panel and survey participants, who noted that federal labor regulations, environmental compliance—especially in the paper industry—and tort liability were also part of the business climate that in some cases stifled the freedom they would like to have from these add-on costs. They were not specific about exactly what was troublesome, but it could be useful to determine how manufacturers respond to the proposed Assembly Bill 277 and 278, claiming to reform the regulatory climate while upholding important environmental protections.

6.6.8 Exports

Wisconsin's shipments to its top ten export partners for 2003 and 2004 are shown in the following table. (Exports to many other countries are included on the data files of the CD ROM and Web site access provided by the MPI Group; some have very large percent changes, although of relatively small dollar value.) What were the products? And, why were there substantial changes? These could be fruitful areas to explore.

Table 6-8 Wisconsin's Top Ten Export Countries, 2003-2004 (Current \$)

Top Ten Destinations	2003	2004
Canada	\$4,349,326,335	\$4,856,673,803
Mexico	\$788,032,717	\$1,064,413,517
Japan	\$788,032,717	\$624,626,959
China	\$548,227,736	\$583,303,312
United Kingdom	\$493,975,548	\$517,304,040
Germany	\$448,464,025	\$460,588,169
France	\$371,092,749	\$364,564,630
Belgium	\$262,652,736	\$330,802,889
Australia	\$279,936,693	\$325,525,193
South Korea	\$258,387,441	\$273,018,118
Total All Countries	\$11,509,835,058	\$12,706,343,147

Source: Source of Data: Source of data: US Census Bureau, Foreign Trade Division prepared by WISER.

Source: Wisconsin Department of Commerce, Wisconsin Export Data, pp. 1-2. See www.commerce.state.wi.us/IE/IE-ExportData.html. And Excel spreadsheet for all product categories from 1996-2004 is available at the site via hot link.

6.6.9 International Trade Issues

Nevertheless, in spite of these promising figures for Wisconsin and other states, the U.S.'s international trade balance is in trouble. In a report prepared by Jeremy Leonard et al. for the National Association of Manufacturers, the author points out that the international trade balance has shifted sharply to the detriment of U.S. manufacturers. Since 1997, exports relative to gross domestic product have stagnated, while imports have risen dramatically, mainly due to trade with China and Mexico. The trade deficit increased from \$31 billion in 1991 to \$418 in 2002, and it is approaching \$650 billion for 2005.

In an attempt to discover where the trade barriers and opportunities might lie, the National Association of Manufacturers looked at the overhead costs of nine of its largest trading partners and those of the United States. The overhead cost index for the U.S. on raw cost was 24.30, while the nine partners average 19.30—Germany the highest at 29.60, and China the lowest at 3.50. The table below also displays corporate, employee benefits, tort, natural gas, and pollution abatement costs of the nine partners as greater or lesser than those same costs in the United States.

Table 6-9 Effect of Key “Overhead Costs” on Raw Cost Index of Nine Largest U.S. Trade Partners, 2002 (in U.S. dollars per hour)

	United States	Avg., 9 Partners	Canada	Mexico	Japan	China	Germany	United Kingdom	South Korea	Taiwan	France
Raw cost Index	24.30	19.30	27.57	8.11	16.92	5.34	29.60	28.30	23.96	16.41	26.50
Corporate tax Rate	-	-5.6%	-3.4%	-6.0%	2.0%	-15.0%	-0.4%	-10.0%	-10.3%	-15.0%	-5.7%
Employee Benefits	-	-5.5%	-4.8%	-9.4%	-9.4%	-12.6%	3.6%	-5.1%	9.0%	-11.5%	10.7%
Tort Costs	-	-3.2%	-3.1%	N/A	-3.3%	N/A	-0.7%	-3.4%	N/A	N/A	-1.3%
Natural Gas Cost	-	-0.5%	-6.0%	-2.3%	12.5%	-2.3%	0.6%	2.1%	4.1%	15.3%	-4.2%
Pollution Abatement	-	-3.5%	-2.8%	N/A	-2.3%	N/A	-2.4%	-3.0%	N/A	N/A	-1.5%
Manufacturing production costs relative to the United States accounting for differences in overhead costs (dollars per hour)											
Effective Cost Index	24.30	16.02	22.46	6.19	16.64	3.50	29.77	23.14	22.67	12.85	25.77

Source: Author's calculations based on data in subsequent tables and charts

Note: Data for tort costs and regulatory compliance costs are limited to the industrialized partners. Conservative assumptions have been made in estimating the missing values, as described in later sections. Thus, the absence of these data likely understates the overall cost advantage of U. S. trading partners.

Source: Jeremy A. Leonard, et al., How Structural Costs Imposed on U.S. Manufacturers Harm Workers and Threaten Competitiveness, Manufacturers Alliance/MAPI, prepared for the Manufacturing Institute, National Association of Manufacturers (NAM) and the Manufacturers Alliance (MAPI), 2003, p. 2. See www.nam.org/s_nam/bin.asp?CID=89&DID=227525&DOC=FILE.PDF

Leonard et al. interpret that the most critical obstacles to U.S. manufacturing are these:

Excessive corporate taxation

Escalating costs of health and pension benefits

Escalating costs of actual or threatened tort litigation

Escalating compliance costs for regulatory mandates, particularly those related to workplace safety, pollution abatement, and corporate governance

Rising energy costs, particularly natural gas (they did not foresee in 2002 that oil would be upwards of \$70/barrel in the next few years)¹³⁵

These are the same costs cited earlier in this Section by MPI's Panel and survey members and the backup statistics. In short, the problems with manufacturing costs within the state extrapolate to the costs of doing business outside of the state.

If Wisconsin's future is in global participation, then these costs become important.

In addition to concentrating on the principal drivers and their clusters, it may be useful to think also about the size of these firms. Stated earlier, Wisconsin, among the nine competing states, has the largest number of drivers that are small. Therein may lie an opportunity where technical support they cannot afford could be provided by outside agencies for some major change toward the new economy.

The U.S. Trade Administration reports from the Department of Commerce's Exporter Data Base that, of the 238,284 companies that exported goods in 2001, 89 percent of them were small businesses with fewer than 100 employees, 5.7 percent were medium-sized companies of 100 to 500 employees, and just 3 percent were comprised of companies of 500 or more employees. The report elaborates on the composition of U.S. export companies with these facts.

- Large firms account for a majority of exports, 70%
- Small- and medium-sized companies comprise roughly 30% of U.S. exports
- Small- and medium-sized revenues rose 77% from 1992 to 2001
- The number of small- and medium-sized businesses grew twice as fast as the number of large company exporters between 1992-2001
- The number of small- and medium-sized companies rose 250% from 1987-2001
- More than two-thirds of the U.S. exporters have fewer than 20 employees.¹³⁶

Small firms have some advantages over larger ones—greater flexibility to respond to change, greater independence—but they also are vulnerable when lower in the supply chain to the vicissitudes of the economy's effect on their Tier 1 and Tier 2 customers: so goes their business, so goes that of the smaller businesses. And, as mentioned earlier, the Subchapter S owner may

¹³⁵ Jeremy A. Leonard et al., How Structural Costs Imposed on U.S. Manufacturers Harm Workers and Threaten Competitiveness, Manufacturers Alliance/MAPI, prepared for the Manufacturing Institute of the National Association of Manufacturers, 2003, p. 1. See www.nam.org/s_nam/bin.asp?CID=89&DID=227525&DOC=FILE.PDF

¹³⁶ U. S. Department of Commerce, "Summary Graphs," Small & medium-Sized Exporting Companies: A Statistical Handbook: Results from the Exporter Data Base, pp. 6-11. See www.ita.doc.gov/td/industry/otea/docs/SMEseminar.pdf

feel doubly taxed because of how business and personal income are treated under S Corp regulations.

So, what are the prospects of encouraging more small firms to become identified with specific industry clusters? As suppliers, their growth can spur the drivers' growth. And, in turn, if the drivers grow, the suppliers grow. Wealth will be created in Wisconsin. This is one of the challenges and opportunities that Wisconsin, especially, must address as the home to a preponderance of small manufacturing firms.

6.6.10 What Are Wisconsin's Strengths, Weaknesses, Opportunities, and Threats?

First, let's hear, again, what Wisconsin manufacturers are saying. What they say may provide some insight into their awareness of the struggle they are in to leave the old economy and join the new economy and what they know or need to know to move successfully through that transition.

At the MPI Panel in Milwaukee on May 17, 2005, manufacturers stated their ideas about barriers to competitive growth, changes to be made, and policies and programs in place that had been helpful. (MPI has a complete transcript of the session.)

- Manufacturing has a poor image professionally; therefore, it is difficult to attract and then retain high quality labor.
- Taxes of all types are exorbitant in Wisconsin, compared to border and other competitor states.
- Inability to contain manufacturing costs, due to spiraling health care, liability insurance, on-the-job training, and new machinery and technology costs.
- A two-tiered workforce. Older, reliable, hard-working employees are retiring soon. Their potential replacements are not dedicated to the work ethics of their forerunners and are increasingly difficult to hire and retain.

To improve their competitive position, both in domestic and foreign exports, they advocated these changes.

- Reinstate the state tax incentives to encourage the purchase of new equipment and higher technology.
- Subsidize automated manufacturing.
- Provide state-funded on-the-job training, especially for new employees.
- Guarantee freedom from product, workplace, and environmental liability.
- Improve planning to relocate new business in Wisconsin, especially in the southwest.
- Aid in linking to new export distribution channels.

- Overcome ethnic language blocks through pre-employment training or English classes to provide more high quality workers.

The panel, however, recognized state policies and programs that had been helpful to their manufacturing progress.

- The Wisconsin Manufacturing Extension Partnership has contributed notably to their present well-being.
- Lean Manufacturing practices made significant contributions to containing costs.
- The engineering schools are producing excellent employees.
- Wisconsin’s quality-of-life has been a powerful attraction to the state’s superior workforce.
- Adding value to exported products to gain a competitive edge over prices.
- Restructuring of hiring and employee management practices, enhancing individual growth, first, before company growth.

The written survey of Wisconsin executives also reflected concerns about labor, ranking five tiers of employees with respect to cost, availability, and skill. Respondents ranked these items as either “4” (a problem) or “5” (a major problem):

**Percent of On-Line Respondents Who Identified
Labor Issue as a Problem (4) or a Major Problem (5)**

	Cost	Availability	Skill
Entry-level	28.0	62.7	57.3
Semi-skilled production	38.7	66.7	57.3
Skilled/technical	60.0	76.0	62.3
Entry-level management	28.4	40.5	44.6
Professional management	45.4	51.4	47.3

These data identify skilled / technical labor as the most critical labor problem for manufacturers across all three dimensions. The cost of semi-skilled labor is viewed as a problem for employers, and is a reflection of global competitive pressures. Interestingly, nearly half of the employers indicated that the cost of professional managers was a challenge.

These manufacturers, however, listed by percent of effort the strategies they would undertake to encourage profitable growth over the next five years:

Strategy	Percent Effort
Improved operations (e.g. speed, cost, quality, delivery)	81.3%
New products	56.0%
New product markets or distribution channels	56.0%

New features/services on existing products	50.7%
Enhanced service and support	48.0%
Increased customization of products and services by staff	42.7%
Enter new geographic markets	40.0%

They reported that their major trends toward improving competitiveness are primarily three. Two-thirds of the companies indicated they were “very likely” to purchase new equipment over the next five years. But, they are not going to reduce their outsourcing, which, once more, might mean that some of the business functions will leave Wisconsin to go to those new sources. And, approximately 75% of these are going to emphasize Lean Manufacturing and Lean and Six Sigma methodologies to improve their competitiveness, with which they have already experienced great success.

Again, the survey did not generate the methods by which these goals would be undertaken. But, if the California prediction holds, then a good portion of these strategies might be reached through offshore “basic” operations and onshore “customized” production.

The California Bay Area Economic Forum, which came to that conclusion, made these requests to improve California’s competitiveness:

We ask manufacturers to thoroughly assess the full costs and benefits of offshoring, recognizing that it is not a panacea, and to strive for world-class productivity levels. We ask the government to relieve excessive burdens on California manufacturers, help build the vocational skills needed to ensure they are competitive, and promote the state as a competitive site for manufacturing. We ask both to join in a vision with short-, medium-, and long-term goals and monitor them with a scorecard.¹³⁷

Finally, the Council on Competitiveness responded to this question, “How Can Manufacturers Compete?” In its report it stated bluntly, “Innovation will be the single most important factor in determining America’s success through the 21st century.”¹³⁸ Referring specifically to manufacturing, the report pointed out that, “manufactured products remain the primary currency of world trade.” It reemphasized this report’s main thrust—to innovate—by saying, “We should begin to design and implement a new foundation for high-performance production. This means deploying new manufacturing technologies as fast as they become available. It means integrating new designs, processes, and materials in a modular fashion. It means adopting new human, organizational, financial and policy models for a robust future for manufacturing in America.”¹³⁹

In Wisconsin, the statewide business climate is the broad milieu of threats, weaknesses, strengths, and opportunities in which the drivers and their clusters operate—but, they are

¹³⁷ Bay Area economic Forum, pp. 2-3.

¹³⁸ Council on Competitiveness, “Introduction,” InnovateAmerica, December 2004, p. 5. See www.compete.org/pdf/NII_Final_Report.pdf

¹³⁹ Council on Competitiveness, “3. Infrastructure—A Platform for the Future,” InnovateAmerica, p. 45. See www.compete.org/pdf/NII_Final_Report.pdf

different for each of its seven economic regions. And, that's where to look next for Wisconsin's manufacturing future.

Critical Issues

- Wisconsin needs to address once and for all manufacturers' perceptions about tax and regulatory burdens. Significant disparities should be addressed to policy makers.
- The State must find innovative ways to address the critical labor issues it faces: a labor pool that does not respect manufacturing as a career path; a lack of trained replacement workers for those retiring; well educated and skilled workers; diminishing numbers of available employees; a challenged work ethic among younger workers; and health care and pension benefit costs that are driving a wedge between labor and management.
- Energy costs will continue to rise, and in the absence of a robust federal alternative energy plan, Wisconsin should, as California and other states are doing, work on its own strategies for alternatives to fossil fuels for energy cost containment, not only for its manufacturers' own applications but also in new global product lines.
- In the new economy, information is power. Customers will pay for the products and services that solve their problems, that shorten their to-do lists. Wisconsin manufacturers who adjust to this reality will prosper.
- Dedicated intermediaries in the State are needed to work continuously with manufacturers to stay abreast of global trends in the industry, the economy, evolving customer needs and demands. Those intermediaries must have the best, most current information available at their disposal and get it into the hands of Wisconsin's manufacturers. With it, management can continuously update its strategies and action plans, transforming the information into new wealth in the state, defining Wisconsin as the premier manufacturing state in meeting customer needs in the new economy.

7 Central Region

7.1 Introduction

Driver industry and industry cluster analyses were conducted for each of the seven economic regions in the State of Wisconsin. This section provides a summary of the findings from the analysis for the Central Region, as well as detailed information related to each of the regional driver industries identified. For the purposes of this analysis, the Central Region is defined to include the counties of Adams, Clark, Langlade, Lincoln, Marathon, Portage, Taylor, Waushara, and Wood.

The next sub-section provides an overview and summary of the findings from the analyses conducted. This is followed by detailed descriptions of each of the regional driver industries and their associated industry cluster. Next, perspectives on the state of manufacturing in the region appear in tabular form. And, finally, Wisconsin's manufacturing executives identify key issues affecting them in the region..

7.2 Summary of Regional Driver Industries & Industry Clusters

The driver analysis for the Central Region identified 15 regional driver industries. These industries include:

- 3114 Fruit and Vegetable Preserving and Specialty Food Manufacturing
- 3115 Dairy Product Manufacturing
- 3121 Beverage Manufacturing
- 3211 Sawmills and Wood Preservation
- 3212 Veneer, Plywood, and Engineered Wood Product Manufacturing
- 3219 Other Wood Product Manufacturing
- 3221 Pulp, Paper, and Paperboard Mills
- 3322 Cutlery and Handtool Manufacturing
- 3325 Hardware Manufacturing
- 3329 Other Fabricated Metal Product Manufacturing
- 3339 Other General Purpose Machinery Manufacturing
- 3353 Electrical Equipment Manufacturing
- 3362 Motor Vehicle Body and Trailer Manufacturing
- 3369 Other Transportation Equipment Manufacturing
- 3371 Household and Institutional Furniture and Kitchen Cabinet Manufacturing

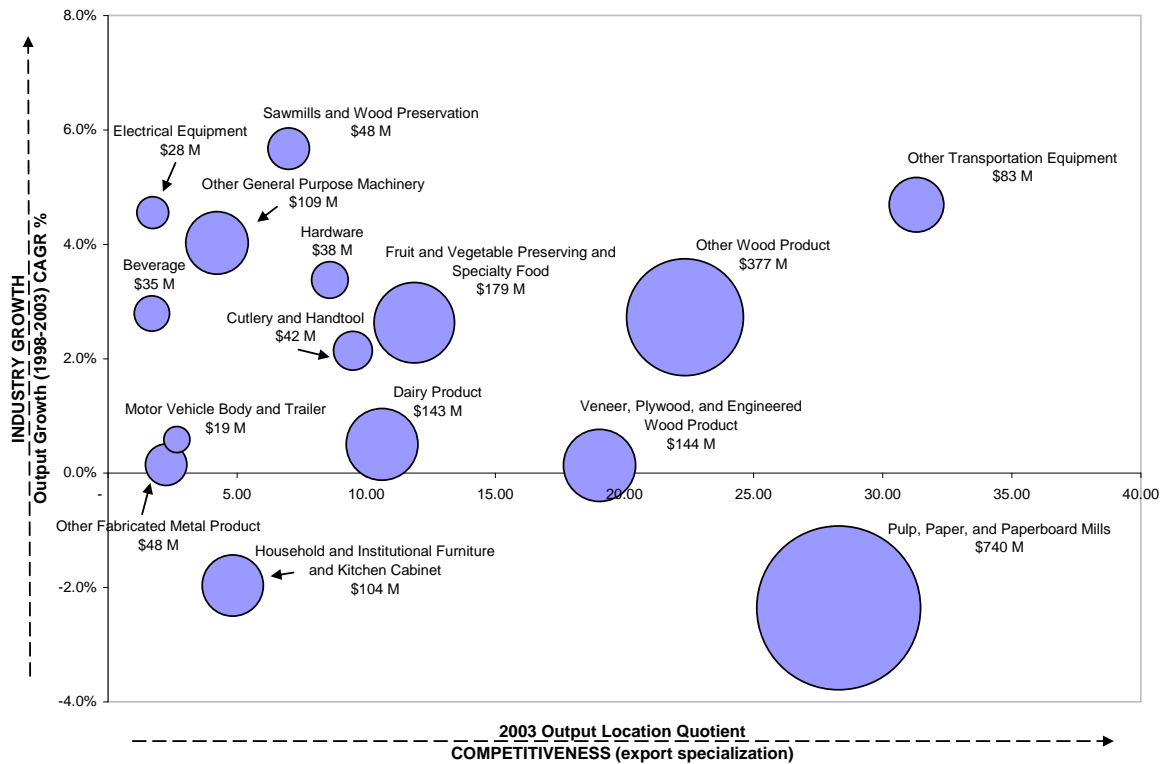
7.2.1 How Are the Central Region's Driver Industries Doing?

This chart shows the relative economic health of driver industries measured by two factors – their “competitiveness” in terms of export orientation or specialization on the X axis (horizontal), and their “growth” on the Y axis (vertical). Competitiveness is measured in terms of the output location quotients which is a ratio of the industry's concentration in the region compared to the industry's concentration nationally. In general, a location quotient above 1 indicates that the industry is more concentrated in the region than it is nationally. This concentration suggests that the industry exports its product from the region and that the region offers competitive advantages to the industry over other areas throughout the country. An industry is increasingly more

competitive as it moves to the right on the X axis. And the more competitive it is, the more it sells goods outside of its own region, thereby generating money for the region in which it operates.

Industry growth is measured in terms of compound annual growth rates over the last five years and is shown on the Y axis. An industry is growing faster as it moves upward from zero; it is declining if it is below zero. The area (size) of each circle represents the gross product of each industry and indicates the industry's relative size as compared to the other industries. Through this picturing of all of the region's drivers in one perspective, a sense of the overall strategies and services that will be needed in that region begins to emerge.

Figure 7-1 Overview of the Central Region's Drivers



Interpretation: Here, in the Central Region, it is clear that Pulp, Paper, and Paperboard Mills as an industry is very concentrated, very large, but it is not growing. Household and Institutional Furniture, by contrast, is not very specialized, small, and also not growing. Other Transportation Equipment, in the upper right-hand corner, is also small by gross product, but it is very competitive and growing rapidly. The several companies in the upper left are growing well, but they are not strong competitively. Specific actions could be planned for industries that can be moved up the value chain, either through stimulating growth or increasing competitiveness, or both, individually or by common characteristics.

7.2.2 Driver and Industry Cluster Relationships in the Central Region

For the Study, an industry cluster analysis was conducted for each of the driver industries. The two following tables provide a summary of the results from these analyses and identify regional and national supplier industries that are common to multiple regional driver industries.

The supplier industries identified in the table, “Regional & National Supplier Industries Common to Regional Driver Industries,” are found in the regional economy and provide goods or services to multiple driver industries. Many, in fact, are driver industries themselves. The importance of these industries to the overall competitiveness of the driver industries can not be overstated. By providing quality goods and services to the driver industries, these supplier industries help the regional driver industries produce and deliver the products their consumers demand. Attempts to impact the competitiveness of the industries that supply inputs to multiple regional driver industries can indirectly impact the competitiveness of those driver industries.

Table 7-1 Regional & National Supplier Industries Common to Regional Driver Industries

NAICS	Title	Regional Driver**	Count of Drivers	
			Regional Suppliers	National Suppliers
484*	Truck Transportation		15	15
42*	Wholesale Trade		15	15
3261	Plastics Product Manufacturing		11	13
3211	Sawmills and Wood Preservation	X	6	7
3251	Basic Chemical Manufacturing		5	4
4931	Warehousing and Storage		5	5
3272	Glass and Glass Product Manufacturing		4	5
3219	Other Wood Product Manufacturing	X	4	7
3353	Electrical Equipment Manufacturing	X	4	4
1133	Logging		4	4
3363	Motor Vehicle Parts Manufacturing		3	4
3324	Boiler, Tank, and Shipping Container Manufacturing		3	4
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance		3	8
3212	Veneer, Plywood, and Engineered Wood Product Mfg.	X	3	5
4821	Rail Transportation		3	3
5413	Architectural, Engineering, and Related Services		3	3
3325	Hardware Manufacturing	X	2	4
3331	Agriculture, Construction, and Mining Machinery Mfg.		2	0
3115	Dairy Product Manufacturing	X	2	2
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing		2	3
FR	Farms		2	3
5415	Computer Systems Design and Related Services		2	2
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	X	2	3

*An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

**Not all of a Region's drivers are also suppliers. Those marked with an X are suppliers.

The next table is similar in that it shows industries that supply inputs to multiple driver industries. The difference is that the industries identified in the table “National Supplier Industries Common to Regional Driver Industries,” either do not exist in the region or they are smaller industries that are not likely to be able to provide inputs at a sufficient scale to meet the needs of the driver industries. Attempts to attract or grow these industries within the region may help reduce the import of goods and services by the region’s driver industries.

Table 7-2 National Supplier Industries Common to Regional Driver Industries

NAICS	Title	Count of Drivers National Suppliers
3222	Converted Paper Product Manufacturing	11
3321	Forging and Stamping	9
5419	Other Professional, Scientific, and Technical Services	9
3311	Iron and Steel Mills and Ferroalloy Manufacturing	8
3313	Alumina and Aluminum Production and Processing	8
3323	Architectural and Structural Metals Manufacturing	8
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	7
3255	Paint, Coating, and Adhesive Manufacturing	7
3329	Other Fabricated Metal Product Manufacturing	7
3241	Petroleum and Coal Products Manufacturing	6
3262	Rubber Product Manufacturing	6
3312	Steel Product Manufacturing from Purchased Steel	6
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	6
3221	Pulp, Paper, and Paperboard Mills	5
3314	Nonferrous Metal (except Aluminum) Production and Processing	5
3315	Foundries	5
3359	Other Electrical Equipment and Component Manufacturing	5
3112	Grain and Oilseed Milling	4
3259	Other Chemical Product and Preparation Manufacturing	4
3326	Spring and Wire Product Manufacturing	4
517*	Telecommunications	4
5411	Legal Services	4
3119	Other Food Manufacturing	3
3231	Printing and Related Support Activities	3
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	3
3344	Semiconductor and Other Electronic Component Manufacturing	3
5417	Scientific Research and Development Services	3
5418	Advertising and Related Services	3
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	2
3132	Fabric Mills	2
3141	Textile Furnishings Mills	2
3322	Cutlery and Handtool Manufacturing	2

NAICS	Title	Count of Drivers National Suppliers
3328	Coating, Engraving, Heat Treating, and Allied Activities	2
3335	Metalworking Machinery Manufacturing	2
3339	Other General Purpose Machinery Manufacturing	2
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2
3352	Household Appliance Manufacturing	2
3369	Other Transportation Equipment Manufacturing	2
3399	Other Miscellaneous Manufacturing	2
483*	Water Transportation	2
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	2
5414	Specialized Design Services	2
5619	Other Support Services	2
FH	Fishing, Hunting, etc.	2

*An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

7.2.3 Filtering & Refinement of Quantitative Results

The analysis used to identify driver industries is a quantitative analysis based on secondary data and captures industries that exhibit some form of competitive advantage. While the model is extremely good at identifying regional driver industries, certain results often require qualitative insight to filter and refine the results. One way in which to identify industries either to remove or add as driver industries is to receive local perspectives on the lists of driver industries identified by the model. The following are responses to some of the comments related to the driver industries identified by the quantitative analysis for the Central Region.

First, “Industry 3121: Beverage Manufacturing,” was identified as a driver industry by the quantitative analysis. While overall the industry is small in terms of employment and gross product, it has experienced significant growth in the region.

Second, industries related to building products manufacturing and milling were noted as not being included as drivers. While there is not a specific NAICS industry called “building products,” several industries that could be categorized as manufactures of building products (such as “Industry 3219: Other Wood Product Manufacturing”; “Industry 3221: Pulp, Paper, and Paperboard Mills”; “Industry 3325: Hardware Manufacturing”; and “Industry 3371: Household and Institutional Furniture and Kitchen Cabinet Manufacturing”) are included as regional driver industries.

7.3 Detailed Descriptions of the Regional Driver Industries

7.3.1 Driver Industry Definitions

3114 Fruit and Vegetable Preserving and Specialty Food Mfg.

This industry group includes (1) establishments that freeze food and (2) those that use preservation processes, such as pickling, canning, and dehydrating. Both types begin their production process with inputs of vegetable or animal origin.

31141 Frozen Food Manufacturing

31142 Fruit and Vegetable Canning, Pickling, and Drying

3115 Dairy Product Manufacturing

This industry group comprises establishments that manufacture dairy products from raw milk, processed milk, and dairy substitutes.

31151 Dairy Product (except Frozen) Manufacturing

31152 Ice Cream and Frozen Dessert Manufacturing

3121 Beverage Manufacturing

This industry group includes three types of establishments: (1) those that manufacture nonalcoholic beverages; (2) those that manufacture alcoholic beverages through the fermentation process; and (3) those that produce distilled alcoholic beverages. Ice manufacturing, while not a beverage, is included with nonalcoholic beverage manufacturing because it uses the same production process as water purification.

31211 Soft Drink and Ice Manufacturing

31212 Breweries

31213 Wineries

31214 Distilleries

321 Wood Product Manufacturing (Complete)

Industries in the Wood Product Manufacturing subsector manufacture wood products, such as lumber, plywood, veneers, wood containers, wood flooring, wood trusses, manufactured homes (i.e., mobile home), and prefabricated wood buildings. The production processes of the Wood Product Manufacturing subsector include sawing, planing, shaping, laminating, and assembling of wood products starting from logs that are cut into bolts, or lumber that then may be further cut, or shaped by lathes or other shaping tools. The lumber or other transformed wood shapes may also be subsequently planed or smoothed, and assembled into finished products, such as wood containers. The Wood Product Manufacturing subsector includes establishments that make wood products from logs and bolts that are sawed and shaped, and establishments that purchase sawed lumber and make wood products. With the exception of sawmills and wood preservation

establishments, the establishments are grouped into industries mainly based on the specific products manufactured.

3211 Sawmills and Wood Preservation

3212 Veneer, Plywood, and Engineered Wood Product Manufacturing

3219 Other Wood Product Manufacturing

3221 Pulp, Paper, and Paperboard Mills

This industry group comprises establishments primarily engaged in manufacturing pulp, paper, or paperboard. The manufacturing of pulp involves separating the cellulose fibers from other impurities in wood or used paper. The manufacturing of paper involves matting these fibers into a sheet.

332 Fabricated Metal Product Manufacturing (Partial)

Industries in the Fabricated Metal Product Manufacturing subsector transform metal into intermediate or end products, other than machinery, computers and electronics, and metal furniture or treating metals and metal formed products fabricated elsewhere. Important fabricated metal processes are forging, stamping, bending, forming, and machining, used to shape individual pieces of metal; and other processes, such as welding and assembling, used to join separate parts together. Establishments in this subsector may use one of these processes or a combination of these processes.

3322 Cutlery and Handtool Manufacturing

3325 Hardware Manufacturing

3339 All Other General Purpose Machinery Manufacturing

This industry comprises establishments primarily engaged in manufacturing general purpose machinery (except these groups: ventilation, heating, air-conditioning, and commercial refrigeration equipment; metal working machinery; engines, turbines, and power transmission equipment; pumps and compressors; and material handling equipment).

336 Transportation Equipment Manufacturing (Partial)

Industries in the Transportation Equipment Manufacturing subsector produce equipment for transporting people and goods. Transportation equipment is a type of machinery. An entire subsector is devoted to this activity because of the significance of its economic size in all three North American countries.

Establishments in this subsector utilize production processes similar to those of other machinery manufacturing establishments -

bending, forming, welding, machining, and assembling metal or plastic parts into components and finished products. However, the assembly of components and subassemblies and their further assembly into finished vehicles tends to be a more common production process in this subsector than in the Machinery Manufacturing subsector.

NAICS has industry groups for the manufacture of equipment for each mode of transport - road, rail, air and water. Parts for motor vehicles warrant a separate industry group because of their importance and because parts manufacture requires less assembly, and the establishments that manufacture only parts are not as vertically integrated as those that make complete vehicles.

Land use motor vehicle equipment not designed for highway operation (e.g., agricultural equipment, construction equipment, and materials handling equipment) is classified in the appropriate NAICS subsector based on the type and use of the equipment.

3362 Motor Vehicle Body and Trailer Manufacturing

3369 Other Transportation Equipment Manufacturing

3371 Household and Institutional Furniture and Kitchen Cabinet Manufacturing

This industry group comprises establishments manufacturing household-type furniture, such as living room, kitchen and bedroom furniture and institutional (i.e., public building) furniture, such as furniture for schools, theaters, and churches.

7.3.2 Industry Clusters

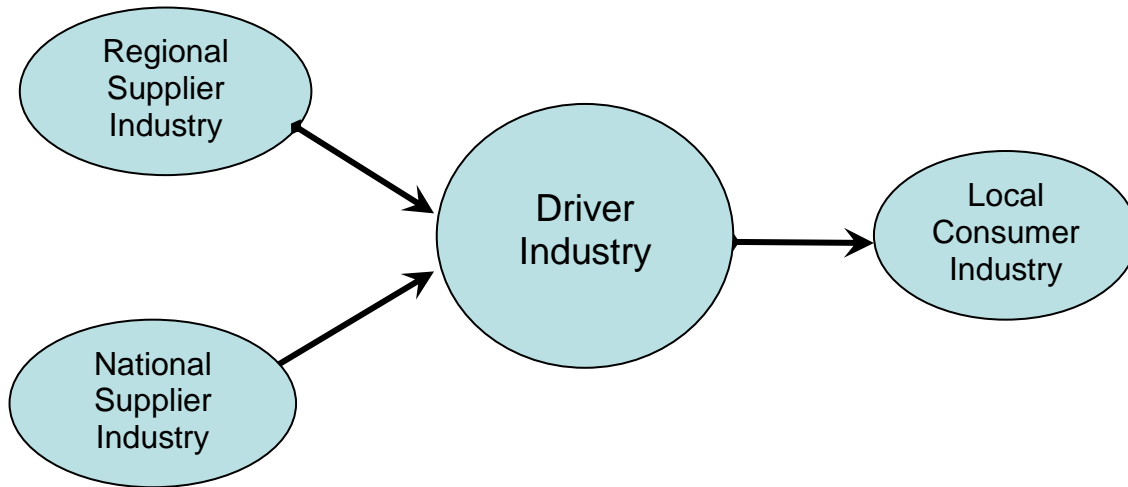
Industries contained within an industry cluster are related to driver industries in three ways, two supplier relationships and one consumer relationship.

Supplier relationships are defined by the backward linkages that a driver industry has with either (1) other regional industries (Regional Suppliers) or (2) industries not located within the region (National Supplier). Both types of supplier relationships are based on linkages identified using information from input-output tables from the IMPLAN model. For supplier relationships with other regional industries, the IMPLAN model is 'regionalized' to reflect the industries that exist within the region. For supplier relationships with industries not located within the region, the national IMPLAN model is used.

For both types of supplier relationships, only the most significant supplier industries are listed. The significance of the supplier industry is based on the relative amount of the driver industry's total outlay that is used to purchase goods or services from the supplier industry. In the case where supplier industries appear in the lists for both types of supplier industries, the specific industry is removed from the list of national supplier industries.

The consumer industries are identified by reversing the relationship used to identify supplier industries. The consumer industries are those industries to which a driver industry sells a significant portion of its total output.

Figure 7-2 Industry Clusters



Industry Clusters

NB: An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

3114 Fruit and Vegetable Preserving and Specialty Food Manufacturing

<u>Supplier Industries for Typical Regional Industry</u>		<u>Supplier Industries for Typical National Industry</u>	
FR	Farms	3222	Converted Paper Product Manufacturing
42*	Wholesale Trade	3272	Glass and Glass Product Manufacturing
3115	Dairy Product Manufacturing	3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
484*	Truck Transportation	3119	Other Food Manufacturing
3116	Animal Slaughtering and Processing	3231	Printing and Related Support Activities
3261	Plastics Product Manufacturing	3112	Grain and Oilseed Milling
4931	Warehousing and Storage	3221	Pulp, Paper, and Paperboard Mills
3324	Boiler, Tank, and Shipping Container Manufacturing	5419	Other Professional, Scientific, and Technical Services
<u>Consumer Industries for Typical Regional Industry</u>			
722*	Food services and drinking places		
3221	Pulp, Paper, and Paperboard Mills		
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing		
622*	Hospitals		
3115	Dairy Product Manufacturing		
623*	Nursing and residential care facilities		

3115 Dairy Product Manufacturing

Supplier Industries for Typical Regional Industry

FR	Farms
42*	Wholesale Trade
3115	Dairy Product Manufacturing
3332	Industrial Machinery Manufacturing
4931	Warehousing and Storage
484*	Truck Transportation
3324	Boiler, Tank, and Shipping Container Manufacturing
3261	Plastics Product Manufacturing

Supplier Industries for Typical National Industry

3222	Converted Paper Product Manufacturing
3119	Other Food Manufacturing
3112	Grain and Oilseed Milling
5411	Legal Services
3113	Sugar and Confectionery Product Manufacturing
481*	Air Transportation
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
5419	Other Professional, Scientific, and Technical Services
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

Consumer Industries for Typical Regional Industry

3115	Dairy Product Manufacturing
722*	Food services and drinking places
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing

3121 Beverage Manufacturing

Supplier Industries for Typical Regional Industry

42*	Wholesale Trade
3324	Boiler, Tank, and Shipping Container Manufacturing
484*	Truck Transportation
3272	Glass and Glass Product Manufacturing

Supplier Industries for Typical National Industry

3119	Other Food Manufacturing
FR	Farms
3261	Plastics Product Manufacturing
3112	Grain and Oilseed Milling
3121	Beverage Manufacturing
3231	Printing and Related Support Activities
3222	Converted Paper Product Manufacturing
3339	Other General Purpose Machinery Manufacturing
5418	Advertising and Related Services
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing

Consumer Industries for Typical Regional Industry

722*	Food services and drinking places
813b*	Civic, social, professional and similar organizations
3111	Animal Food Manufacturing

3211 Sawmills and Wood Preservation

<u>Supplier Industries for Typical Regional Industry</u>		<u>Supplier Industries for Typical National Industry</u>	
1133	Logging	FH	Fishing, Hunting, Etc.
3211	Sawmills and Wood Preservation	484*	Truck Transportation
42*	Wholesale Trade	3219	Other Wood Product Manufacturing
484*	Truck Transportation	3259	Other Chemical Product and Preparation Manufacturing
4821	Rail Transportation	3212	Veneer, Plywood, and Engineered Wood Product Manufacturing
3251	Basic Chemical Manufacturing		
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance		
<u>Consumer Industries for Typical Regional Industry</u>			
3221	Pulp, Paper, and Paperboard Mills		
4821	Rail Transportation		
2360	Construction of Buildings		
3219	Other Wood Product Manufacturing		
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing		
2380	Specialty Trade Contractors		
2370	Heavy and Civil Engineering Construction		

3212 Veneer, Plywood, and Engineered Wood Product Manufacturing

<u>Supplier Industries for Typical Regional Industry</u>		<u>Supplier Industries for Typical National Industry</u>	
1133	Logging	3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
42*	Wholesale Trade	3323	Architectural and Structural Metals Manufacturing
3211	Sawmills and Wood Preservation	FH	Fishing, Hunting, Etc.
484*	Truck Transportation	3241	Petroleum and Coal Products Manufacturing
3219	Other Wood Product Manufacturing	3255	Paint, Coating, and Adhesive Manufacturing
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	3321	Forging and Stamping
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	3261	Plastics Product Manufacturing
3251	Basic Chemical Manufacturing		
<u>Consumer Industries for Typical Regional Industry</u>			
3219	Other Wood Product Manufacturing		

Consumer Industries for Typical Regional Industry

2360	Construction of Buildings
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing
3221	Pulp, Paper, and Paperboard Mills
2380	Specialty Trade Contractors
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing
3391	Medical Equipment and Supplies Manufacturing

3219 Other Wood Product Manufacturing

Supplier Industries for Typical Regional Industry

42*	Wholesale Trade
3211	Sawmills and Wood Preservation
484*	Truck Transportation
3219	Other Wood Product Manufacturing
3272	Glass and Glass Product Manufacturing
1133	Logging
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing
3261	Plastics Product Manufacturing
3363	Motor Vehicle Parts Manufacturing
3325	Hardware Manufacturing
4821	Rail Transportation
3353	Electrical Equipment Manufacturing

Supplier Industries for Typical National Industry

3323	Architectural and Structural Metals Manufacturing
3222	Converted Paper Product Manufacturing
3274	Lime and Gypsum Product Manufacturing
3359	Other Electrical Equipment and Component Manufacturing
3141	Textile Furnishings Mills
3352	Household Appliance Manufacturing
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
3279	Other Nonmetallic Mineral Product Manufacturing
3255	Paint, Coating, and Adhesive Manufacturing
3399	Other Miscellaneous Manufacturing

Consumer Industries for Typical Regional Industry

3219	Other Wood Product Manufacturing
3221	Pulp, Paper, and Paperboard Mills
42*	Wholesale Trade
FR	Farms
2360	Construction of Buildings
3272	Glass and Glass Product Manufacturing
4931	Warehousing and Storage
621b*	Other ambulatory health care services
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
2380	Specialty Trade Contractors

3221 Pulp, Paper, and Paperboard Mills

Supplier Industries for Typical Regional Industry

3221	Pulp, Paper, and Paperboard Mills
42*	Wholesale Trade
1133	Logging
484*	Truck Transportation
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3211	Sawmills and Wood Preservation
3251	Basic Chemical Manufacturing
4821	Rail Transportation

Consumer Industries for Typical Regional Industry

3221	Pulp, Paper, and Paperboard Mills
3222	Converted Paper Product Manufacturing

Supplier Industries for Typical National Industry

3241	Petroleum and Coal Products Manufacturing
8112	Electronic and Precision Equipment Repair and Maintenance
3112	Grain and Oilseed Milling
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing
3222	Converted Paper Product Manufacturing
8111	Automotive Repair and Maintenance
3219	Other Wood Product Manufacturing
2380	Specialty Trade Contractors
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing

3322 Cutlery and Handtool Manufacturing

Supplier Industries for Typical Regional Industry

42*	Wholesale Trade
484*	Truck Transportation
3261	Plastics Product Manufacturing
3322	Cutlery and Handtool Manufacturing

Consumer Industries for Typical Regional Industry

3322	Cutlery and Handtool Manufacturing
3221	Pulp, Paper, and Paperboard Mills
FR	Farms
8111	Automotive Repair and Maintenance

Supplier Industries for Typical National Industry

3311	Iron and Steel Mills and Ferroalloy Manufacturing
3313	Alumina and Aluminum Production and Processing
3329	Other Fabricated Metal Product Manufacturing
3321	Forging and Stamping
3222	Converted Paper Product Manufacturing
483*	Water Transportation
3315	Foundries
3241	Petroleum and Coal Products Manufacturing
3312	Steel Product Manufacturing from Purchased Steel
5418	Advertising and Related Services

Consumer Industries for Typical Regional Industry

722*	Food services and drinking places
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3325	Hardware Manufacturing
2360	Construction of Buildings
8121	Personal Care Services

3325 Hardware Manufacturing

Supplier Industries for Typical Regional Industry

42*	Wholesale Trade
3353	Electrical Equipment Manufacturing
484*	Truck Transportation
3261	Plastics Product Manufacturing
3326	Spring and Wire Product Manufacturing
3325	Hardware Manufacturing

Supplier Industries for Typical National Industry

3311	Iron and Steel Mills and Ferroalloy Manufacturing
3321	Forging and Stamping
3222	Converted Paper Product Manufacturing
3315	Foundries
3322	Cutlery and Handtool Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3314	Nonferrous Metal (except Aluminum) Production and Processing
3312	Steel Product Manufacturing from Purchased Steel
3313	Alumina and Aluminum Production and Processing
5419	Other Professional, Scientific, and Technical Services

Consumer Industries for Typical Regional Industry

3219	Other Wood Product Manufacturing
3323	Architectural and Structural Metals Manufacturing
3325	Hardware Manufacturing
2360	Construction of Buildings
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3364	Aerospace Product and Parts Manufacturing

3329 Other Fabricated Metal Product Manufacturing

Supplier Industries for Typical Regional Industry

5415	Computer Systems Design and Related Services
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Supplier Industries for Typical National Industry

3311	Iron and Steel Mills and Ferroalloy Manufacturing
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Supplier Industries for Typical Regional Industry

42*	Wholesale Trade
484*	Truck Transportation
5112	Software Publishers
3261	Plastics Product Manufacturing
3251	Basic Chemical Manufacturing
3329	Other Fabricated Metal Product Manufacturing
5411	Legal Services

Supplier Industries for Typical National Industry

3328	Coating, Engraving, Heat Treating, and Allied Activities
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3313	Alumina and Aluminum Production and Processing
3221	Pulp, Paper, and Paperboard Mills
3259	Other Chemical Product and Preparation Manufacturing
3222	Converted Paper Product Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3315	Foundries
3323	Architectural and Structural Metals Manufacturing

Consumer Industries for Typical Regional Industry

8114	Personal and Household Goods Repair and Maintenance
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
2123	Nonmetallic Mineral Mining and Quarrying
3324	Boiler, Tank, and Shipping Container Manufacturing
3329	Other Fabricated Metal Product Manufacturing
2360	Construction of Buildings
2131	Support Activities for Mining
3391	Medical Equipment and Supplies Manufacturing
3364	Aerospace Product and Parts Manufacturing
3315	Foundries

3339 Other General Purpose Machinery Manufacturing

Supplier Industries for Typical Regional Industry

42*	Wholesale Trade
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3353	Electrical Equipment Manufacturing
5415	Computer Systems Design and Related Services
3261	Plastics Product Manufacturing
484*	Truck Transportation

Supplier Industries for Typical National Industry

3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3326	Spring and Wire Product Manufacturing
3323	Architectural and Structural Metals Manufacturing
3315	Foundries
3321	Forging and Stamping

Supplier Industries for Typical Regional Industry

3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3339	Other General Purpose Machinery Manufacturing

Supplier Industries for Typical National Industry

3359	Other Electrical Equipment and Component Manufacturing
3314	Nonferrous Metal (except Aluminum) Production and Processing
3329	Other Fabricated Metal Product Manufacturing
3363	Motor Vehicle Parts Manufacturing

Consumer Industries for Typical Regional Industry

2212	Natural Gas Distribution
FR	Farms
2211	Electric Power Generation, Transmission and Distribution
3231	Printing and Related Support Activities
3331	Agriculture, Construction, and Mining Machinery Manufacturing
2123	Nonmetallic Mineral Mining and Quarrying
3328	Coating, Engraving, Heat Treating, and Allied Activities
3221	Pulp, Paper, and Paperboard Mills
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing

3353 Electrical Equipment Manufacturing**Supplier Industries for Typical Regional Industry**

42*	Wholesale Trade
3261	Plastics Product Manufacturing
484*	Truck Transportation
3353	Electrical Equipment Manufacturing
4931	Warehousing and Storage
5413	Architectural, Engineering, and Related Services
2380	Specialty Trade Contractors

Supplier Industries for Typical National Industry

3255	Paint, Coating, and Adhesive Manufacturing
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing
3321	Forging and Stamping
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3314	Nonferrous Metal (except Aluminum) Production and Processing
3315	Foundries
3241	Petroleum and Coal Products Manufacturing
3271	Clay Product and Refractory Manufacturing
3329	Other Fabricated Metal Product Manufacturing

Consumer Industries for Typical Regional Industry

3221	Pulp, Paper, and Paperboard Mills
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3219	Other Wood Product Manufacturing
3399	Other Miscellaneous Manufacturing
3333	Commercial and Service Industry Machinery Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
484*	Truck Transportation
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
3115	Dairy Product Manufacturing
3353	Electrical Equipment Manufacturing

3362 Motor Vehicle Body and Trailer Manufacturing

Supplier Industries for Typical Regional Industry

42*	Wholesale Trade
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3362	Motor Vehicle Body and Trailer Manufacturing
484*	Truck Transportation
3363	Motor Vehicle Parts Manufacturing
3261	Plastics Product Manufacturing
3211	Sawmills and Wood Preservation
4931	Warehousing and Storage
3219	Other Wood Product Manufacturing
5413	Architectural, Engineering, and Related Services
3272	Glass and Glass Product Manufacturing

Supplier Industries for Typical National Industry

3363	Motor Vehicle Parts Manufacturing
3362	Motor Vehicle Body and Trailer Manufacturing
3329	Other Fabricated Metal Product Manufacturing
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3361	Motor Vehicle Manufacturing
3313	Alumina and Aluminum Production and Processing
3321	Forging and Stamping
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
3359	Other Electrical Equipment and Component Manufacturing
3262	Rubber Product Manufacturing

Consumer Industries for Typical Regional Industry

3362	Motor Vehicle Body and Trailer Manufacturing
8111	Automotive Repair and Maintenance
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3361	Motor Vehicle Manufacturing
3369	Other Transportation Equipment Manufacturing

3369 Other Transportation Equipment Manufacturing

<u>Supplier Industries for Typical Regional Industry</u>		<u>Supplier Industries for Typical National Industry</u>	
42*	Wholesale Trade	3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
484*	Truck Transportation	3311	Iron and Steel Mills and Ferroalloy Manufacturing
3363	Motor Vehicle Parts Manufacturing	3344	Semiconductor and Other Electronic Component Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing	3329	Other Fabricated Metal Product Manufacturing
3261	Plastics Product Manufacturing	3314	Nonferrous Metal (except Aluminum) Production and Processing
3369	Other Transportation Equipment Manufacturing	3262	Rubber Product Manufacturing
4931	Warehousing and Storage	3255	Paint, Coating, and Adhesive Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	5417	Scientific Research and Development Services
5413	Architectural, Engineering, and Related Services	3321	Forging and Stamping
		3313	Alumina and Aluminum Production and Processing

Consumer Industries for Typical Regional Industry

3369	Other Transportation Equipment Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing
FR	Farms
3362	Motor Vehicle Body and Trailer Manufacturing
3353	Electrical Equipment Manufacturing
8111	Automotive Repair and Maintenance
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
621b*	Other ambulatory health care services
3333	Commercial and Service Industry Machinery Manufacturing
3325	Hardware Manufacturing

3371 Household and Institutional Furniture and Kitchen Cabinet Manufacturing

<u>Supplier Industries for Typical Regional Industry</u>		<u>Supplier Industries for Typical National Industry</u>	
42*	Wholesale Trade	3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing

Supplier Industries for Typical Regional Industry

3261	Plastics Product Manufacturing
484*	Truck Transportation
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing
3372	Office Furniture (including Fixtures) Manufacturing
3211	Sawmills and Wood Preservation
3251	Basic Chemical Manufacturing
3219	Other Wood Product Manufacturing
3272	Glass and Glass Product Manufacturing

Supplier Industries for Typical National Industry

3132	Fabric Mills
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3133	Textile and Fabric Finishing and Fabric Coating Mills
3222	Converted Paper Product Manufacturing
3313	Alumina and Aluminum Production and Processing
3149	Other Textile Product Mills
3326	Spring and Wire Product Manufacturing
3131	Fiber, Yarn, and Thread Mills
3241	Petroleum and Coal Products Manufacturing

Consumer Industries for Typical Regional Industry

3219	Other Wood Product Manufacturing
2360	Construction of Buildings
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing
3221	Pulp, Paper, and Paperboard Mills
3364	Aerospace Product and Parts Manufacturing
3333	Commercial and Service Industry Machinery Manufacturing
8112	Electronic and Precision Equipment Repair and Maintenance
3399	Other Miscellaneous Manufacturing
8121	Personal Care Services
3391	Medical Equipment and Supplies Manufacturing

7.3.3 Top Firms by Driver Industry in the Central Region

3114 Fruit and Vegetable Preserving and Specialty Food Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
McCain Foods USA Inc	600	4,124	Branch	Private	100MM-499.9MM	1979
Del Monte Foods Co	600	10,001	Branch	Public	100MM-499.9MM	1966
Kraft Pizza Co	400	41,810	Branch	Private	50MM-99.9MM	1962
Golden County Foods Inc	350		Single	Private	50MM-99.9MM	1991
Basic American Foods	170	1,545	Branch	Private	25MM-49.9MM	1974
Chef-Fresh Frozen Co Inc	30		Single	Private	5MM-9.9MM	1972
Ocean Spray Cranberries Inc	30		Single		5MM-9.9MM	1969
Abbotsford Produce Egg Prods	25		Single	Private	5MM-9.9MM	1948
Portesi's Italian Foods Inc	20		Single	Private	1MM-4.9MM	1957
Northland Cranberries Inc	20	5,014	HQs	Private		1987

3115 Dairy Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Land O'Lakes Inc	470	6,861	Branch	Private	100MM-499.9MM	1908
Kraft Foods Inc	265	41,810	Branch	Private	100MM-499.9MM	1918
Grassland Dairy Products Inc	211		Single	Private	100MM-499.9MM	1904
Schreiber Foods Inc	180	4,107	Branch	Private	50MM-99.9MM	1945
Kerry Specialty Ingredients	150	20,973	Branch	Private	50MM-99.9MM	1972
Antigo Cheese Co	145		Single	Private	50MM-99.9MM	1993
Kerry Specialty Ingredients	125	20,973	Branch	Private	50MM-99.9MM	1992
Mullins Cheese Inc	100	101	Branch	Private	50MM-99.9MM	1970
Lynn Protein Inc	80		Single	Private	25MM-49.9MM	1975
Rondele Specialty Foods	70		Single	Private	25MM-49.9MM	1995
Drangle Foods Inc	68		Single	Private	25MM-49.9MM	1932
Foremost Farms USA Co-op	65	1,467	Branch	Private	10MM-24.9MM	1963
Foremost Farms USA Cooperative	65	1,467	Branch	Private	25MM-49.9MM	1963
Foremost Farms USA Cooperative	65	1,467	Branch	Private	25MM-49.9MM	1970
Welcome Dairy Inc	60		Single	Private	25MM-49.9MM	1899
Wiskerchen Cheese Inc	60		Single	Private	25MM-49.9MM	1936
Quality Ingredients Corp	50	90	Branch	Private	10MM-24.9MM	1999
Foremost Farms USA Co-Op	50	1,467	Branch	Private	25MM-49.9MM	1963
Maple Island Inc	50	91	Branch	Private	25MM-49.9MM	1984
Grande Custom Ingredients Grp	35	800	Branch	Private	10MM-24.9MM	1940
Mullin's Cheese Inc	35		Single	Private	10MM-24.9MM	1958
Nasonville Dairy Inc	35		Single	Private	10MM-24.9MM	1985
Dairy Concepts	30	3,658	Branch	Private	10MM-24.9MM	

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Wisconsin Dairy State Cheese	30		Single	Private	10MM-24.9MM	1952
North Hendren Cooperative	29		Single	Private	10MM-24.9MM	1923
Spring Brook Farm	22		Single	Private	5MM-9.9MM	2001
LaGrander's Hillside Dairy Inc	20		Single	Private	10MM-24.9MM	1960
Herschlebs Ice Cream Co Inc	20		Single	Private	5MM-9.9MM	1939

3121 Beverage Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Stevens Point Brewery	24		Single	Private	10MM-24.9MM	1857

3211 Sawmills and Wood Preservation

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Kretz Lumber Co Inc	150		Single	Private	25MM-49.9MM	1936
Louisiana Pacific Corp	145	4,371	Branch	Public	25MM-49.9MM	1992
Hamel Forest Products Inc	140	180	Parent	Private		1965
Northwest Hardwoods	125	43,346	Branch	Public	25MM-49.9MM	1986
American Wood Fibers	55	405	Branch	Private	10MM-24.9MM	1966
Golden Eagle Log Homes Inc	55		Single	Private	10MM-24.9MM	1967
Wetterau Wood Products Inc	45		Single	Private	5MM-9.9MM	1970
Hamel Forest Products Inc	40	180	Branch	Private	5MM-9.9MM	1974
Northwest Hardwoods	40	43,346	Branch	Public	5MM-9.9MM	1989
Granite Valley Forest Products	26	185	Branch	Private	5MM-9.9MM	2002
Polar Manufacturing Co Inc	25		Single	Private	5MM-9.9MM	1933
James Grezenski Forest Prdts	22		Single	Private	1MM-4.9MM	1966

3212 Veneer, Plywood, and Engineered Wood Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Automated Products Inc	150		Single	Private	10MM-24.9MM	1968
Riverstone Inc	50		Single	Private	5MM-9.9MM	1999
Hatley Veneer Co	30	633	Branch	Private	1MM-4.9MM	1988

3219 Other Wood Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Weather Shield Mfg Inc	2,500	3,953	Parent	Private		1956
Kolbe & Kolbe Millwork Co Inc	1,600	1,710	Parent	Private		1946
Hurd Millwork Co Inc	1,000	4,242	HQs	Private		1919
Wick Building Systems Inc	600	1,167	Branch	Private	50MM-99.9MM	1954
Lincoln Wood Products Inc	500		Single	Private	50MM-99.9MM	1947
Semling-Menke Co Inc	375	457	Parent	Private		1941

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Wausau Homes Inc	300	530	Parent	Private		1960
Hurd Millwork Co	250	4,242	Branch	Private	25MM-49.9MM	1982
Menzner Lumber & Supply Co	200	213	Parent	Private		1904
Wisconsin Homes Inc	200		Single	Private	25MM-49.9MM	1965
Award Hardwood Flooring LLP	150		Single	Private	10MM-24.9MM	1998
Liberty Homes Inc	150	935	Branch	Private	10MM-24.9MM	1941
Stratford Homes LP	150		Single	Private	10MM-24.9MM	1973
Robbins Inc	115	540	Branch	Private	10MM-24.9MM	1917
Parrett Manufacturing Inc	100		Single	Private	10MM-24.9MM	1983
Polywood Fabrication Inc	100		Single	Private	10MM-24.9MM	1999
Terrace Homes	100		Single	Private	10MM-24.9MM	1971
Wisconsin Box Co	90	114	Parent	Private		1900
Marth Wood Shaving Supply Inc	60		Single	Private	5MM-9.9MM	1958
JMB Pallet	55		Single	Private	1MM-4.9MM	1984
Sterling Building Systems	50	530	Branch	Private	5MM-9.9MM	1963
Pittsville Homes Inc	50		Single	Private	5MM-9.9MM	1971
Zelazoski Wood Products Inc	36		Single	Private	1MM-4.9MM	1924
Trimpac Inc	35		Single	Private	1MM-4.9MM	1986
Owen Manufacturing Inc	30		Single	Private	1MM-4.9MM	1992
Tannery Lane Co Inc	27		Single	Private	1MM-4.9MM	1980
Merrill Millwork Inc	25		Single	Private	1MM-4.9MM	1966
Woodruff Lumber Co Inc	25		Single	Private	1MM-4.9MM	1948
Feltz Manufacturing Co Inc	20		Single	Private	1MM-4.9MM	1938
Community Industries Corp	20	90	Branch	Private	1MM-4.9MM	1965

3221 Pulp, Paper, and Paperboard Mills

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Domtar Industries Inc	1,400	4,274	Branch	Private	100MM-499.9MM	1908
Wausau Papers	650	3,149	Branch	Public	100MM-499.9MM	1899
Stora Enso North America	350	2,688	Branch	Private	100MM-499.9MM	
Weyerhaeuser Co	350	43,346	Branch	Public	100MM-499.9MM	1973
Stora Enso North America	300	2,688	HQs	Private		2002
Kimberly-Clark Corp	110	18,353	Branch	Public	25MM-49.9MM	1981
Wausau-Mosinee Paper Corp	38	3,149	Parent	Public		1899
Industrial Recyclers of Wiscon	35		Single	Private	10MM-24.9MM	1989
Wausau-Mosinee Paper Corp	20	3,149	Branch	Public	5MM-9.9MM	

3322 Cutlery and Handtool Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Fiskars Brands Inc	300	1,736	Branch	Private	50MM-99.9MM	1977
Fiskars Brands	120	1,736	Branch	Private	10MM-24.9MM	1988
Hydratight Sweeney Mfg	50	17,619	Branch	Public	5MM-9.9MM	1997

3325 Hardware Manufacturing

*No firms were identified in database. (This study used the Harris Infosource database. Harris is a fully owned subsidiary of Dun & Bradstreet. Companies providing data to D&B for the Harris database do so voluntarily. Therefore, the information is incomplete for this item because eligible firms chose not to participate.)

3329 Other Fabricated Metal Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Felker Brothers Corp	250	300	Parent	Private		1903
A & B Process Systems Corp	200		Single	Private	25MM-49.9MM	1972
Custom Fabricating & Repair	80		Single	Private	10MM-24.9MM	1984
J & D Tube Benders Inc	72		Single	Private	5MM-9.9MM	1968
Innovative Industries Inc	21		Single	Private	1MM-4.9MM	1979
TEAM-Marshfield Inc	20		Single	Private	1MM-4.9MM	1992

3339 Other General Purpose Machinery Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Donaldson Co Inc	420	5,578	Branch	Public	50MM-99.9MM	1976
Steel King Industries Inc	200	380	Parent	Private		1970
Jarp Industries Inc	128		Single	Private	10MM-24.9MM	1949
Stainless Specialists Inc	125		Single	Private	10MM-24.9MM	1985
Ramrod Industries Ltd	80	103	Parent	Private		1992
Creative Automation Inc	45		Single	Private	5MM-9.9MM	1971
Professional Hydraulic Jacks	20		Single	Private	1MM-4.9MM	1996

3353 Electrical Equipment Manufacturing

Company	Employment Site		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Marathon Electric	750	4,950	HQs	Public		1932
Motor Technologies	160	4,950	Branch	Public	25MM-49.9MM	1972
Wilson-Hurd Mfg Co	75	140	Parent	Private		1904
L & S Electric Inc	40	115	Parent	Private		1933

3362 Motor Vehicle Body and Trailer Manufacturing

*No firms were identified in database. (This study used the Harris Infosource database. Harris is a fully owned subsidiary of Dun & Bradstreet. Companies providing data to D&B for the Harris database do so voluntarily. Therefore, the information is incomplete for this item because eligible firms chose not to participate.)

3369 Other Transportation Equipment Manufacturing

Company	Employment Site		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Harley-Davidson Inc	275	7,203	Branch	Public	50MM-99.9MM	1964
Pingel Enterprises Inc	30		Single	Private	5MM-9.9MM	1967

3371 Household and Institutional Furniture and Kitchen Cabinet Manufacturing

Company	Employment Site		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Sunrise Medical Long Term Care	330		Single	Private	25MM-49.9MM	1889
Marshfield Furniture	120		Single	Private	10MM-24.9MM	1944
Great Northern Cabinetry Inc	80		Single	Private	5MM-9.9MM	1972
Wisconsin Bench Inc	70		Single	Private	5MM-9.9MM	1983
Counter-Form LLC	60		Single	Private	5MM-9.9MM	1980
Especially For You Ltd	60		Single	Private	5MM-9.9MM	1984
Lang Furniture Inc	50		Single	Private	1MM-4.9MM	1960
Buffets Inc	40	20,834	Branch	Private	1MM-4.9MM	1994
Featherstone Manufacturing	32		Single	Private	1MM-4.9MM	1976
Mapleton Sign & Cabinetry Inc	30		Single	Private	1MM-4.9MM	1978
Evergreen Mfg	25		Single	Private	1MM-4.9MM	1985
Badger Basket Co	25	28	Branch	Private	1MM-4.9MM	1936
Witmer Furniture Inc	25		Single	Private	1MM-4.9MM	1984
Westwood Kitchens Inc	20		Single	Private	1MM-4.9MM	1986

7.3.4 Detailed Employment, Gross Product, & Gross Product per Employee, Central Region

Table 7-3 Manufacturing Employment in the Central Region's Driver Industries, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3114	Fruit and Vegetable Preserving and Specialty Food Mfg.	3,048	2,711	2,696	2,442	2,454	2,152	2,019	1,874
3115	Dairy Product Manufacturing	3,009	2,382	2,358	2,313	2,167	2,083	2,087	2,010
3121	Beverage Manufacturing	220	159	139	119	148	118	118	136
3211	Sawmills and Wood Preservation	530	638	736	744	703	708	715	767
3212	Veneer, Plywood, and Engineered Wood Product Mfg.	2,029	2,472	2,358	2,323	2,147	2,073	2,087	1,932
3219	Other Wood Product Manufacturing	5,737	6,708	6,944	6,849	6,601	6,446	6,527	6,350
3221	Pulp, Paper, and Paperboard Mills	9,735	7,935	7,401	6,670	6,511	4,196	3,734	2,845
3322	Cutlery and Handtool Mfg.	380	618	647	605	604	590	598	651
3325	Hardware Manufacturing	310	478	527	496	485	482	490	563
3329	Other Fabricated Metal Product Manufacturing	950	269	338	288	297	275	294	291
3339	Other General Purpose Machinery Manufacturing	280	817	865	814	821	766	794	893
3353	Electrical Equipment Mfg.	350	279	249	208	188	177	176	175
3362	Motor Vehicle Body and Trailer Manufacturing	180	169	219	189	178	177	176	184
3369	Other Transportation Equipment Manufacturing	650	1,017	1,124	1,102	1,158	1,268	1,431	1,728

Table 7-4 CAGR* for Employment in the Central Region's Driver Industries, 1993-2008

NAICS	Title	1993-1998	1998-2003	2003-2008
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	-1.9%	-3.8%	-2.3%
3115	Dairy Product Manufacturing	-3.8%	-2.2%	-0.6%
3121	Beverage Manufacturing	-5.2%	-4.9%	2.4%
3211	Sawmills and Wood Preservation	3.1%	1.7%	1.4%
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	3.3%	-2.9%	-1.2%
3219	Other Wood Product Manufacturing	2.6%	-0.7%	-0.3%
3221	Pulp, Paper, and Paperboard Mills	-3.4%	-10.1%	-6.3%
3322	Cutlery and Handtool Manufacturing	8.5%	-0.8%	1.7%
3325	Hardware Manufacturing	7.5%	0.1%	2.6%
3329	Other Fabricated Metal Product Manufacturing	-19.0%	0.4%	1.0%
3339	Other General Purpose Machinery Mfg.	19.6%	-1.1%	2.6%
3353	Electrical Equipment Manufacturing	-3.7%	-7.3%	-0.2%
3362	Motor Vehicle Body and Trailer Manufacturing	-1.0%	0.7%	0.7%
3369	Other Transportation Equipment Mfg.	7.8%	3.7%	5.3%

***Compound Annual Growth Rate—CAGR.** An average annual growth rate over a specified period of time. It is calculated as:

$$CAGR = (\text{present value} / \text{base value})^{(1 / \text{number of years})} - 1$$

Table 7-5 Labor Location Quotients*—Central Region's Driver Industries, 1993-2003

NAICS	Title	1993	1998	2003
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	8.82	8.61	7.28
3115	Dairy Product Manufacturing	13.26	11.71	9.50
3121	Beverage Manufacturing	0.83	0.60	0.43
3211	Sawmills and Wood Preservation	2.48	3.05	3.78
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	13.59	14.14	11.34
3219	Other Wood Product Manufacturing	12.14	11.95	13.10
3221	Pulp, Paper, and Paperboard Mills	26.70	24.60	17.33
3322	Cutlery and Handtool Manufacturing	3.20	5.00	5.95
3325	Hardware Manufacturing	3.61	5.76	7.53
3329	Other Fabricated Metal Product	1.93	0.53	0.60

NAICS	Title	1993	1998	2003
	Manufacturing			
3339	Other General Purpose Machinery Manufacturing	0.55	1.45	1.80
3353	Electrical Equipment Manufacturing	1.02	0.84	0.69
3362	Motor Vehicle Body and Trailer Manufacturing	0.83	0.64	0.73
3369	Other Transportation Equipment Manufacturing	11.18	16.56	20.24
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	1.98	2.18	2.11

* The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region.

Table 7-6 Manufacturing Gross Product in the Central Region's Driver Industries, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	\$ 143,258,224	\$ 153,142,764	\$ 176,754,847	\$ 191,517,514	\$ 188,052,737	\$ 178,920,661	\$ 175,203,711	\$ 186,376,846
3115	Dairy Product Manufacturing	\$ 153,900,037	\$ 138,837,892	\$ 146,077,813	\$ 160,507,541	\$ 143,640,028	\$ 143,064,445	\$ 146,882,334	\$ 162,484,512
3121	Beverage Manufacturing	\$ 36,820,277	\$ 29,654,985	\$ 29,616,129	\$ 26,669,774	\$ 34,210,465	\$ 34,970,622	\$ 35,719,615	\$ 46,589,013
3211	Sawmills and Wood Preservation	\$ 22,680,736	\$ 34,283,910	\$ 39,174,197	\$ 44,878,655	\$ 44,422,693	\$ 47,729,339	\$ 52,849,056	\$ 66,520,086
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	\$ 106,893,742	\$ 142,710,261	\$ 128,359,693	\$ 141,360,778	\$ 134,965,124	\$ 143,836,765	\$ 150,518,400	\$ 161,808,706
3219	Other Wood Product Manufacturing	\$ 238,499,477	\$ 320,968,677	\$ 323,030,960	\$ 359,637,863	\$ 350,939,271	\$ 377,087,521	\$ 398,138,664	\$ 454,068,728
3221	Pulp, Paper, and Paperboard Mills	\$ 786,255,589	\$ 854,121,313	\$ 916,424,357	\$ 901,324,623	\$ 906,153,049	\$ 740,129,126	\$ 727,129,030	\$ 715,553,593
3322	Cutlery and Handtool Manufacturing	\$ 20,946,734	\$ 37,200,631	\$ 43,160,030	\$ 41,456,383	\$ 40,808,981	\$ 42,230,425	\$ 43,737,875	\$ 54,220,420
3325	Hardware Manufacturing	\$ 16,775,223	\$ 30,789,819	\$ 36,427,739	\$ 35,000,961	\$ 35,198,745	\$ 37,575,913	\$ 40,417,075	\$ 52,317,767
3329	Other Fabricated Metal Product Manufacturing	\$ 31,578,639	\$ 47,493,768	\$ 50,407,901	\$ 46,764,396	\$ 49,234,319	\$ 47,904,398	\$ 50,631,687	\$ 50,810,200
3339	Other General Purpose Machinery Manufacturing	\$ 47,620,627	\$ 86,346,876	\$ 95,045,266	\$ 106,010,606	\$ 105,526,356	\$ 109,401,617	\$ 115,166,595	\$ 146,327,554
3353	Electrical Equipment Manufacturing	\$ 21,868,232	\$ 21,601,651	\$ 19,522,651	\$ 32,945,602	\$ 28,670,106	\$ 28,215,402	\$ 29,151,577	\$ 33,644,733
3362	Motor Vehicle Body and Trailer Manufacturing	\$ 14,952,045	\$ 18,515,701	\$ 21,515,567	\$ 17,779,849	\$ 17,998,677	\$ 19,174,116	\$ 20,103,449	\$ 24,828,066
3369	Other Transportation Equipment Manufacturing	\$ 34,035,966	\$ 62,694,561	\$ 67,570,779	\$ 63,556,476	\$ 71,555,474	\$ 82,535,200	\$ 98,163,260	\$ 139,299,174

Table 7-7 CAGR* for Gross Product in the Central Region's Driver Industries, 1993-2008

NAICS	Title	1993-1998	1998-2003	2003-2008
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	1.1%	2.6%	0.7%
3115	Dairy Product Manufacturing	-1.7%	0.5%	2.1%
3121	Beverage Manufacturing	-3.5%	2.8%	4.9%
3211	Sawmills and Wood Preservation	7.1%	5.7%	5.7%
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	4.9%	0.1%	2.0%
3219	Other Wood Product Manufacturing	5.1%	2.7%	3.1%
3221	Pulp, Paper, and Paperboard Mills	1.4%	-2.4%	-0.6%
3322	Cutlery and Handtool Manufacturing	10.0%	2.1%	4.3%
3325	Hardware Manufacturing	10.7%	3.4%	5.7%
3329	Other Fabricated Metal Product Manufacturing	7.0%	0.1%	1.0%
3339	Other General Purpose Machinery Manufacturing	10.4%	4.0%	5.0%
3353	Electrical Equipment Manufacturing	-0.2%	4.6%	3.0%
3362	Motor Vehicle Body and Trailer Manufacturing	3.6%	0.6%	4.4%
3369	Other Transportation Equipment Manufacturing	10.7%	4.7%	9.1%
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	4.6%	-2.0%	3.4%

*Compound Annual Growth Rate—CAGR. An average annual growth rate over a specified period of time. It is calculated as:

$$\text{CAGR} = (\text{present value} / \text{base value})^{(1 / \text{number of years})} - 1$$

Table 7-8 Output Location Quotients*—Central Region's Driver Industries, 1993-2003

NAICS	Title	1993	1998	2003
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	8.49	8.92	11.87
3115	Dairy Product Manufacturing	10.26	9.46	10.62
3121	Beverage Manufacturing	1.79	1.32	1.71
3211	Sawmills and Wood Preservation	2.32	3.70	7.00
3212	Veneer, Plywood, and Engineered Wood Product Mfg.	13.16	16.34	19.04
3219	Other Wood Product Manufacturing	12.53	14.49	22.35
3221	Pulp, Paper, and Paperboard Mills	29.83	30.93	28.30
3322	Cutlery and Handtool Manufacturing	4.03	6.01	9.49
3325	Hardware Manufacturing	3.56	5.50	8.60
3329	Other Fabricated Metal Product Manufacturing	1.30	1.77	2.26

NAICS	Title	1993	1998	2003
3339	Other General Purpose Machinery Manufacturing	1.98	2.68	4.23
3353	Electrical Equipment Manufacturing	1.27	1.00	1.74
3362	Motor Vehicle Body and Trailer Manufacturing	2.85	2.64	2.67
3369	Other Transportation Equipment Manufacturing	19.98	31.86	31.31
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	4.73	5.06	4.84

* The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region.

Table 7-9 Manufacturing Productivity (Gross Product per Employee) of Driver Industries, Central Region, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3114	Fruit & Vegetable Preserving & Specialty Food Mfg.	\$ 46,993	\$ 56,483	\$ 65,563	\$ 78,432	\$ 76,625	\$ 83,139	\$ 86,785	\$ 99,458
3115	Dairy Product Manufacturing	\$ 51,155	\$ 58,278	\$ 61,957	\$ 69,400	\$ 66,279	\$ 68,673	\$ 70,366	\$ 80,844
3121	Beverage Manufacturing	\$167,448	\$185,939	\$212,646	\$223,902	\$230,469	\$296,559	\$303,736	\$342,737
3211	Sawmills and Wood Preservation	\$ 42,815	\$ 53,741	\$ 53,214	\$ 60,284	\$ 63,225	\$ 67,459	\$ 73,873	\$ 86,722
3212	Veneer, Plywood, and Engineered Wood Product Mfg.	\$ 52,683	\$ 57,729	\$ 54,442	\$ 60,860	\$ 62,850	\$ 69,371	\$ 72,107	\$ 83,744
3219	Other Wood Product Manufacturing	\$ 41,571	\$ 47,845	\$ 46,521	\$ 52,509	\$ 53,168	\$ 58,496	\$ 61,000	\$ 71,507
3221	Pulp, Paper, and Paperboard Mills	\$ 80,764	\$107,646	\$123,817	\$135,124	\$139,162	\$176,388	\$194,741	\$251,525
3322	Cutlery and Handtool Manufacturing	\$ 55,150	\$ 60,194	\$ 66,746	\$ 68,467	\$ 67,604	\$ 71,625	\$ 73,164	\$ 83,348
3325	Hardware Manufacturing	\$ 54,140	\$ 64,352	\$ 69,090	\$ 70,523	\$ 72,590	\$ 78,037	\$ 82,483	\$ 92,902
3329	Other Fabricated Metal Product Mfg.	\$ 33,257	\$176,468	\$149,031	\$162,457	\$165,841	\$174,103	\$172,215	\$174,436
3339	Other General Purpose Machinery Manufacturing	\$170,158	\$105,639	\$109,817	\$130,244	\$128,478	\$142,731	\$145,081	\$163,811
3353	Electrical Equipment Manufacturing	\$ 62,512	\$ 77,397	\$ 78,498	\$158,052	\$152,483	\$159,515	\$165,257	\$192,509
3362	Motor Vehicle Body and Trailer Mfg.	\$ 83,108	\$109,266	\$ 98,308	\$ 94,275	\$101,045	\$108,400	\$113,964	\$134,585
3369	Other Transportation Equipment Mfg.	\$ 52,389	\$ 61,663	\$ 60,109	\$ 57,684	\$ 61,802	\$ 65,109	\$ 68,607	\$ 80,600

7.4 Wisconsin Executive Perspectives in the Central Region

Central Region Responses to the WMEP Study Questionnaire's "Open Ended" Questions

(NB: Incomplete answers are due to the space limits of the online questionnaire. In some cases, a partial word or intended meaning has been inferred and, therefore, completed. In such cases, the extrapolation appears in brackets. Where an inference could not be made, ellipses indicate the omission of the letters or words. Where provided by the respondent, job title and industry sector are included.)

As you consider your industry and business for the next 5 to 10 years, what are the most prominent workforce-related concerns?

Difficult to find toolmakers and other skilled workers. Health Insurance and the cost of other benefits. Dealing with a changing work ethic and set of values among younger workers.

--President, Wire Forms

Get quality people to live in rural areas. The aging of the population to have [to] replace workers.

--Cheese Industry

Maintaining a stable workforce. Employees need to be dedicated to the corporate goals of easier to do business with for our customers and engaged in the continuous improvement environment .

...

--Director of Research, Windows and Doors

Quality of personnel -- experience and knowledge

--Controller, Marketing Solutions Company

The high cost of wages and benefits of our Unionized work force. Health Care costs are increasing at a rate that offsets any productivity improvements. Lack of or inability of the workforce to accept . . .

--Commercial Wood Doors and Door Components

There are fewer students enrolling in the Machine Tool programs. More focus needs to be placed on jobs in the manufacturing sector as a career choice.

--President, Precision Machined Components

Technically skilled labor (toolmakers, CNC technicians, welders), state taxes, regulatory costs, health insurance costs. . .

--President, Wireform Components

Cost of Chinese, Indian and Mexican Labor keeps us lowering prices to keep business and prevents reasonable wage increases to reward the improved productivity.

Supply of labor that possess the necessary "soft skills" to be successful employees.

--Assistant General Manager, Hardwood Plywood

As you consider your industry and business for the next 5 to 10 years, what are the most prominent advantages that the Wisconsin workforce can offer?

Dependable and knowledgeable workers.

--Director of Research, Windows and Doors

Generally, a slightly better work ethic. Controlled influx of “foreign” workers.

--President Wire Forms

Higher work ethic, when good employees are obtained.

--Controller, Marketing Solutions Company

Its close to milk

--Cheese Industry

Reliable, hard working, family oriented labor.

--President, Wireform Components

Strong work ethic, good skill sets, educated.

--Commercial Wood Doors and Door Components

Work ethic and job stability

--President, Precision Machined Components

None.

Strong work ethic installed in a culture where “an honest day of work equals an honest day of pay.”

--Assistant General Manager, Hardwood Plywood

What changes, if any, would you like to see in the Wisconsin higher education system to better meet the long-term needs of your industry and firm in the state?

Better prepared for business. Understanding of overall business needs do not appear to be a focus at this point. Individuals are not versed in business terminology, cost structures, etc.

--Controller, Marketing Solutions Company

I think students entering the workforce must understand that it takes more than one year to really understand and fit into a good work environment. It is also important to be a dependable employee.

--Director of Research, Windows and Doors

I think that more required for graduation, internships or Coop arrangements would help.

--Commercial Wood Doors and Door Components

Less emphasis on college and more on trades. More medical practitioners (increased supply means lower prices).

--President, Wire Forms

More advertising and enhancing the level of skill provided in the education system that keeps pace with technology.

--President, Precision Machined Components

More positive marketing for 2 year tech college based careers in manufacturing vs. 4 year colleges which are not for everyone

--President, Wireform Components

The state must get evolved [sic] to solve local schools, force consolidation to keep real estate taxes from increasing.

--Cheese Industry

More technical and engineering.

Describe any innovative workforce attraction or development programs that you would like to see expanded in Wisconsin?

Health insurance, more help with rural area, sewer, water, land encouragements, aging population and its effect.

--Cheese Industry

Inexpensive, accessible education for all levels so that people could continue being educated, on their own or through the company, during non-work hours . . .

--President, Wire Forms

More education of the technologies employed by business today. Examples would be a background in Lean, Six Sigma, and various quality/business systems such as Baldrige.

--President, Precision Machined Components

Number One: Teach great analytical and problem solving skills! then more emphasis on flow manufacturing and continuous improvement. . . .

--Director of Research, Windows and Doors

WMEP is one of the best resources for manufacturers to help keep these types of businesses in WI. Lower taxes.

--President Wireform Components

High school graduates that can write in complete sentences and do basic math.

What are the business challenges that your organization faces – what most keeps you up at night?

Cash Flow and Technology Changes and maintaining the business at the highest technological level.

--Controller, Marketing Solutions Company

Dealing with the high level of expectations among younger workers. They are spoiled and pampered by parents, schools, and society. We do not have the time or resources to pamper them

...

--President, Wire Forms

High cost of labor, Competition with highly flexible non-union manufactures, Health Care costs. Location in relationship to East Coast and West Coast (major markets of our products) speed to deliver.

--Commercial Wood Doors and Door Components

Lack of results from State government to keep the dairy industry in Wisconsin, from the farm to the manufacturing plant. The state lives in a vacuum to the changes in the industry. . . .

--Cheese Industry

Price of raw material and cost of transportation. Also the shortage of skilled machinists in the state. Health care is also at the top of the list as employers continue to offer incentives for employ[ment].

--President, Precision Machined Components

Terrorism causing the economy to collapse. Labor availability during growth phases.

--President Wireform Components

The biggest challenge is the State of Wisconsin business tax environment and regulations. Wisconsin talks about being business friendly but realistically it is not. The tax structure and business reg[ulation].

--Director of Research, Windows and Doors

How to cope with inflation while imports lower the price customers are willing to pay. We have improved productivity 50% in 2 years and it is not enough to survive . . .

Personnel issues.

--Assistant General Manager, Hardwood Plywood

What are the business strengths and/or advantages your organization has by being located in Wisconsin?

Better work ethic than elsewhere. Excellent transportation. Great business community.

--President Wire Form

Its a clean state with the best road system in the nation. A very safe place to live and work.

--Cheese Industry

Not many.

--Commercial Wood Doors and Door Components

Regional material sources, tool/die infrastructure, good roads-airports-trucking systems

--President, Wireform Components

Still a decent work ethic. The ability for recreation and at this point a good educational system, which is rapidly becoming a weakness in K-12. Positive economic development folks at least in our area.

--President, Precision Machined Components

The people, work ethic and loyalty of the work force.

--Director of Research, Windows and Doors

Working with National and international companies, we struggle with our location and always justifying the location to customers.

--Controller Marketing Solutions Company

None come to mind.

Located close to customers, central location in the U.S., good work ethic.

--Assistant General Manager, Hardwood Plywood

8 East Central Region

8.1 Introduction

Driver industry and industry cluster analyses were conducted for each of the seven economic regions in the State of Wisconsin. This section provides a summary of the findings from the analysis for the East Central Region, as well as detailed information related to each of the regional driver industries identified. For the purposes of this analysis, the East Central Region is defined to include the counties of Brown, Calumet, Door, Kewaunee, Marinette, Menominee, Oconto, Outagamie, Shawano, Waupaca, Winnebago.

The next sub-section provides an overview and summary of the findings from the analyses conducted. This is followed by detailed descriptions of each of the regional driver industries and their associated industry cluster. Next, perspectives on the state of manufacturing in the region appear in tabular form. And, finally, Wisconsin's manufacturing executives identify key issues affecting them in the region.

8.2 Summary of Regional Driver Industries & Industry Clusters

The driver analysis for the East Central Region identified seven regional driver industries. These industries include:

- 3115 Dairy Product Manufacturing
- 3221 Pulp, Paper, and Paperboard Mills
- 3222 Converted Paper Product Manufacturing
- 3346 Manufacturing and Reproducing Magnetic and Optical Media
- 3353 Electrical Equipment Manufacturing
- 3359 Other Electrical Equipment and Component Manufacturing
- 3369 Other Transportation Equipment Manufacturing

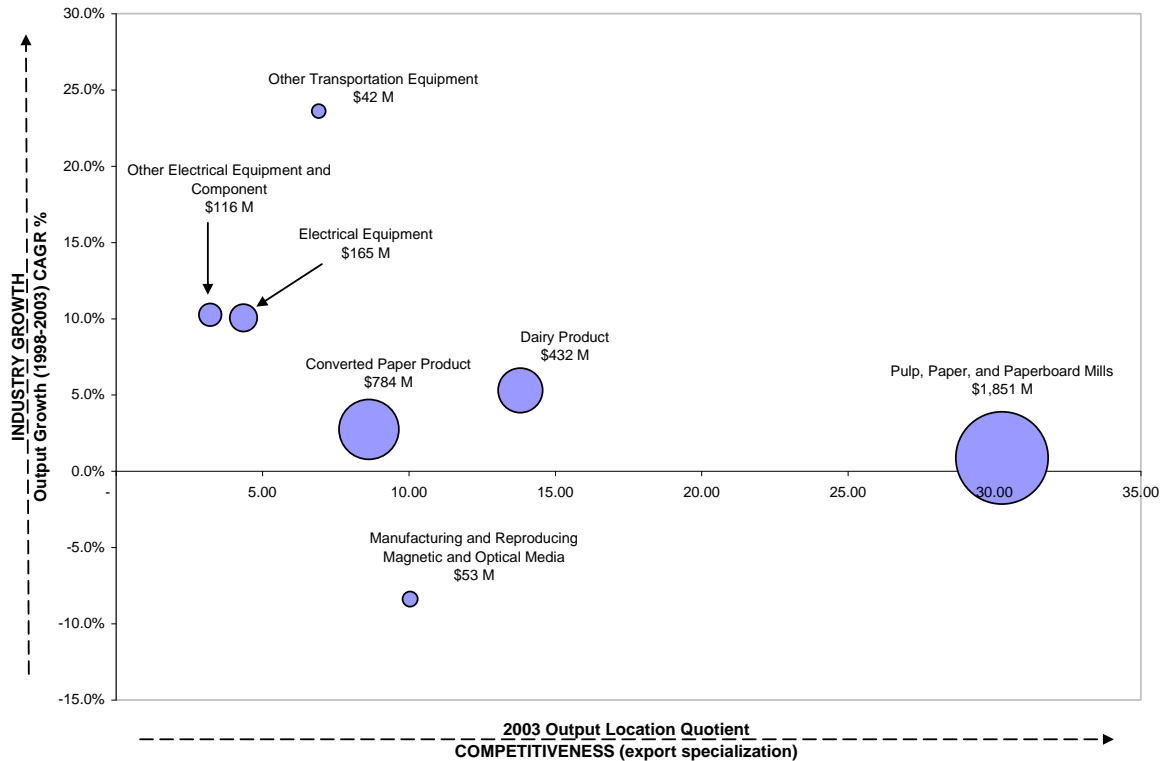
8.2.1 How Are the East Central Region's Driver Industries Doing?

This chart shows the relative economic health of driver industries measured by two factors – their “competitiveness” in terms of export orientation or specialization on the X axis (horizontal), and their “growth” on the Y axis (vertical). Competitiveness is measured in terms of the output location quotients which is a ratio of the industry's concentration in the region compared to the industry's concentration nationally. In general, a location quotient above 1 indicates that the industry is more concentrated in the region than it is nationally. This concentration suggests that the industry exports its product from the region and that the region offers competitive advantages to the industry over other areas throughout the country. An industry is increasingly more competitive as it moves to the right on the X axis. And the more competitive it is, the more it sells goods outside of its own region, thereby generating money for the region in which it operates.

Industry growth is measured in terms of compound annual growth rates over the last five years and is shown on the Y axis. An industry is growing faster as it moves upward from zero; it is declining if it is below zero. The area (size) of each circle represents the gross product of each

industry and indicates the industry's relative size as compared to the other industries. Through this picturing of all of the region's drivers in one perspective, a sense of the overall strategies and services that will be needed in that region begins to emerge.

Figure 8-1 Overview of the East Central Region Drivers



Interpretation: It is important to keep in mind that each of the seven economic regions is unique. Therefore, it should not be surprising that the circumstances for industries that are alike, but are in different regions, are unique. They may not share the same fate. It would be helpful to a region to compare the status of similar industries in other regions.

Here, the Industry Growth/Competitiveness overview shows that the seven driver industries are all well above one, and therefore competitive; and, all but Manufacturing and Reproducing Magnetic and Optical Media Manufacturing is thriving. Other Transportation Equipment shows the fastest growth of the seven industries.

8.2.2 Driver and Industry Cluster Relationships in the East Central Region

For this Study, an industry cluster analysis was conducted for each of the driver industries. Tables 8-1 and 8-2 provide a summary of the results from these analyses and identify regional and national supplier industries that are common to multiple regional driver industries.

The supplier industries identified in Table 6-1 are found in the regional economy and provide goods or services to multiple driver industries. Many, in fact, are driver industries themselves. The importance of these industries to the overall competitiveness of the driver industries can not be overstated. By providing quality goods and services to the driver industries, these supplier industries help the regional driver industries produce and deliver the products their consumers demand. Attempts to impact the competitiveness of the industries that supply inputs to multiple regional driver industries can indirectly impact the competitiveness of those driver industries.

Table 8-1 Supplier Industries Common to Regional Driver Industries

NAICS	Title	Regional Driver**	Count of Drivers	
			Regional Suppliers	National Suppliers
3261	Plastics Product Manufacturing		7	6
484*	Truck Transportation		7	7
42*	Wholesale Trade		7	7
4931	Warehousing and Storage		4	5
3344	Semiconductor and Other Electronic Component Manufacturing		3	4
5413	Architectural, Engineering, and Related Services		3	4
3222	Converted Paper Product Manufacturing	X	2	6
3312	Steel Product Manufacturing from Purchased Steel		2	2
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing		2	2

* An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

**Not all of a Region's drivers are also suppliers. Those marked with an X are suppliers.

Table 6-2 is similar to Table 6-1 in that it shows industries that supply inputs to multiple driver industries. The difference is that the industries identified in Table 6-2 either do not exist in the region or they are smaller industries that are not likely to be able to provide inputs at a sufficient scale to meet the needs of the driver industries. Attempts to attract or grow these industries within the region may help reduce the import of goods and services by the region's driver industries.

Table 8-2 National Supplier Industries Common to Regional Driver Industries

NAICS	Title	Count of Drivers	
		Regional Suppliers	National Suppliers
2380	Specialty Trade Contractors	2	
3112	Grain and Oilseed Milling	2	
3219	Other Wood Product Manufacturing	3	
3221	Pulp, Paper, and Paperboard Mills	5	
3241	Petroleum and Coal Products Manufacturing	4	
3251	Basic Chemical Manufacturing	3	

		Count of Drivers	
NAICS	Title	National Suppliers	
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	5	
3255	Paint, Coating, and Adhesive Manufacturing	3	
3259	Other Chemical Product and Preparation Manufacturing	3	
3262	Rubber Product Manufacturing	3	
3311	Iron and Steel Mills and Ferroalloy Manufacturing	4	
3313	Alumina and Aluminum Production and Processing	5	
3314	Nonferrous Metal (except Aluminum) Production and Processing	3	
3315	Foundries	2	
3321	Forging and Stamping	4	
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	4	
3329	Other Fabricated Metal Product Manufacturing	4	
3359	Other Electrical Equipment and Component Manufacturing	2	
4821	Rail Transportation	2	
517*	Telecommunications	2	
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	2	
5417	Scientific Research and Development Services	4	
5419	Other Professional, Scientific, and Technical Services	4	
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	4	

*An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

8.2.3 Filtering & Refinement of Quantitative Results

The analysis used to identify driver industries is a quantitative analysis based on secondary data and captures industries that exhibit some form of competitive advantage. While the model is extremely good at identifying regional driver industries, certain results often require qualitative insight to filter and refine the results. One way in which to identify industries to either remove or add as driver industries is to receive local perspectives on the lists of driver industries identified by the model. The following are responses to some of the comments related to the driver industries identified by the quantitative analysis for the East Central Region.

Overall, the East Central Region was a very difficult region to evaluate because of the region's industrial diversity and general economic strength. Most of the industries that were identified as needing further review are definitely important industries simply based on their size and the value of the products they produce. For many of these industries, the fact that they do not appear to be heavily concentrated in the region as compared to the nation as a whole or the fact that they have relatively low gross product per employee resulted in their not being classified as driver industries.

First, “Industry 3116: Animal Slaughtering and Processing,” which includes the processing of beef products, was identified as an important industry in the region. After experiencing employment growth from 1993 to 1998, the industry has declined to a level well below that in 1993. In terms of gross product, the industry has experienced only a slight decline. Overall this industry is an important regional industry, but it does not exhibit the characteristics of a driver industry. That is, the regional industry’s characteristics relative to the nation as a whole did not suggest that the region offered the industry competitive advantages as compared to other locations. One of the problems with data for this industry is the fact that they are not specific to beef processing but, rather, include other types of meat processing as well. This lack of detailed information results in the industry’s relative concentration in the region being understated.

The second industry identified was “Industry 3231: Printing and Related Support Activities.” This industry employs a large number of workers and had some growth since 1993. In terms of gross product, the industry does not appear as large as its employment would suggest, however, the industry’s gross product has grown considerably since 1993. As compared to the nation as a whole, the industry is not overly concentrated in the region, although this appears to be changing rapidly. This industry will likely be a driver industry for the region in the future.

A third industry identified was “Industry 3261: Plastics Product Manufacturing.” In many respects, this industry is similar to the Printing industry identified above. The industry employs a large number of workers but its gross product per worker is relatively low. Also, the industry is only slightly more concentrated in the region than in the nation as a whole. As with the printing industry, the plastics industry also appears to be growing, especially in terms of gross product per employee. This industry is also likely to be a future regional driver industry.

The “Industry 3315: Foundries” was also identified as an important regional industry. As a large regional employer, this is clearly an important regional industry. Like the printing and the plastics industries, the industry has a fairly low gross product per employee. Unlike these other two industries, both employment and gross product has been declining in the foundries industry. Since employment has declined more rapidly than gross product, the gross product per employee has actually increased. It is not clear what the future of this industry will be in terms of being a regional driver.

Finally, transportation and warehousing were identified as being important in the region. Transportation and warehousing includes several NAICS industries including: “Industry 4841: General Freight Trucking”; “Industry 4842: Specialized Freight Trucking”; and “Industry 4931: Warehousing and Storage.” As a whole, these industries are quite large and have experienced some growth throughout the 1990s in terms of both employment and gross product. Individually, General Freight Trucking and Specialized Freight Trucking exhibited characteristics of driver industries. However, due to the nature of the industries themselves, they are best viewed as supplier industries that help other regional driver industries be more competitive.

8.3 Detailed Descriptions of the Regional Driver Industries

8.3.1 Driver Industry Definitions

3115 Dairy Product Manufacturing

This industry group comprises establishments that manufacture dairy products from raw milk, processed milk, and dairy substitutes.

31151 Dairy Product (except Frozen) Manufacturing

31152 Ice Cream and Frozen Dessert Manufacturing

322 Paper Manufacturing (Complete)

Industries in the Paper Manufacturing subsector make pulp, paper, or converted paper products.

The manufacturing of these products is grouped together because they constitute a series of vertically connected processes. More than one is often carried out in a single establishment.

There are essentially three activities. The manufacturing of pulp involves separating the cellulose fibers from other impurities in wood or used paper. The manufacturing of paper involves matting these fibers into a sheet. Converted paper products are made from paper and other materials by various cutting and shaping techniques and include coating and laminating activities.

3221 Pulp, Paper, and Paperboard Mills

3222 Converted Paper Product Manufacturing

3346 Manufacturing and Reproducing Magnetic and Optical Media

This industry comprises establishments primarily engaged in (1) manufacturing optical and magnetic media, such as blank audio tape, blank video tape, and blank diskettes and/or (2) mass duplicating (i.e., making copies) audio, video, software, and other data on magnetic, optical, and similar media.

335 Electrical Equipment, Appliance, and Component Manufacturing (Partial)

Industries in the Electrical Equipment, Appliance, and Component Manufacturing subsector manufacture products that generate, distribute and use electrical power. Electric Lighting Equipment Manufacturing establishments produce electric lamp bulbs, lighting fixtures, and parts. Household Appliance Manufacturing establishments make both small and major electrical appliances and parts. Electrical Equipment Manufacturing establishments make goods, such as electric motors, generators, transformers, and switchgear apparatus. Other Electrical Equipment and Component Manufacturing establishments make devices for storing electrical power (e.g., batteries), for transmitting electricity (e.g., insulated wire), and wiring devices (e.g., electrical outlets, fuse boxes, and light switches).

3353 Electrical Equipment Manufacturing

3359 Other Electrical Equipment and Component Manufacturing

3369 Other Transportation Equipment Manufacturing

This industry group comprises establishments primarily engaged in manufacturing transportation equipment (except motor vehicles and parts, aerospace products and parts, railroad rolling stock, ship building, and boat manufacturing).

8.3.2 Industry Clusters

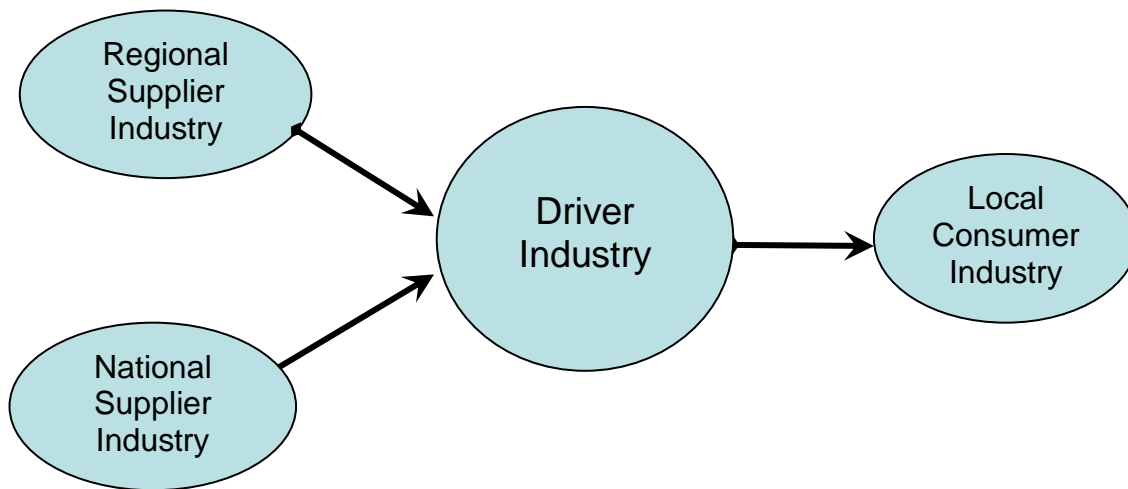
Industries contained within an industry cluster are related to driver industries in three ways, two supplier relationships and one consumer relationship.

Supplier relationships are defined by the backward linkages that a driver industry has with either (1) other regional industries (Regional Suppliers) or (2) industries not located within the region (National Supplier). Both types of supplier relationships are based on linkages identified using information from input-output tables from the IMPLAN model. For supplier relationships with other regional industries, the IMPLAN model is ‘regionalized’ to reflect the industries that exist within the region. For supplier relationships with industries not located within the region, the national IMPLAN model is used.

For both types of supplier relationships, only the most significant supplier industries are listed. The significance of the supplier industry is based on the relative amount of the driver industry’s total outlay that is used to purchase goods or services from the supplier industry. In the case where supplier industries appear in the lists for both types of supplier industries, the specific industry is removed from the list of national supplier industries.

The consumer industries are identified by reversing the relationship used to identify supplier industries. The consumer industries are those industries to which a driver industry sells a significant portion of its total output.

Figure 8-2 Industry Clusters



Cluster Industries

NB: An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

3115 Dairy Product Manufacturing

<u>Supplier Industries - Typical Regional Industry</u>		<u>Supplier Industries - Typical National Industry</u>	
FR	Farms	3222	Converted Paper Product Manufacturing
42*	Wholesale Trade	3119	Other Food Manufacturing
3115	Dairy Product Manufacturing	3324	Boiler, Tank, and Shipping Container

3332 Industrial Machinery Manufacturing
 4931 Warehousing and Storage
 3261 Plastics Product Manufacturing
 484* Truck Transportation

Manufacturing
 3112 Grain and Oilseed Milling
 5411 Legal Services
 3113 Sugar and Confectionery Product
 Manufacturing
 481* Air Transportation
 3252 Resin, Synthetic Rubber, and Artificial
 Synthetic Fibers and Filaments
 Manufacturing
 5419 Other Professional, Scientific, and
 Technical Services
 5324 Commercial and Industrial Machinery and
 Equipment Rental and Leasing

Consumer Industries - Typical Regional Industry

722* Food services and drinking places
 3115 Dairy Product Manufacturing
 3114 Fruit and Vegetable Preserving and
 Specialty Food Manufacturing
 622* Hospitals
 6244 Child Day Care Services

3221 Pulp, Paper, and Paperboard Mills

Supplier Industries - Typical Regional Industry

42* Wholesale Trade
 484* Truck Transportation
 1133 Logging
 8113 Commercial and Industrial Machinery and
 Equipment (except Automotive and
 Electronic) Repair and Maintenance
 3211 Sawmills and Wood Preservation
 8111 Automotive Repair and Maintenance
 3261 Plastics Product Manufacturing
 2380 Specialty Trade Contractors

Supplier Industries - Typical National Industry

3221 Pulp, Paper, and Paperboard Mills
 3251 Basic Chemical Manufacturing
 3241 Petroleum and Coal Products
 Manufacturing
 8112 Electronic and Precision Equipment Repair
 and Maintenance
 3112 Grain and Oilseed Milling
 5324 Commercial and Industrial Machinery and
 Equipment Rental and Leasing
 3222 Converted Paper Product Manufacturing
 4821 Rail Transportation
 3219 Other Wood Product Manufacturing
 3252 Resin, Synthetic Rubber, and Artificial
 Synthetic Fibers and Filaments
 Manufacturing

Consumer Industries - Typical Regional Industry

3221 Pulp, Paper, and Paperboard Mills
 3222 Converted Paper Product Manufacturing
 3231 Printing and Related Support Activities
 722* Food services and drinking places
 3261 Plastics Product Manufacturing

3222 Converted Paper Product Manufacturing

Supplier Industries - Typical Regional Industry

42* Wholesale Trade
 484* Truck Transportation

Supplier Industries - Typical National Industry

3313 Alumina and Aluminum Production and
 Processing
 3251 Basic Chemical Manufacturing

3261	Plastics Product Manufacturing	3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3132	Fabric Mills	3255	Paint, Coating, and Adhesive Manufacturing
3221	Pulp, Paper, and Paperboard Mills	3329	Other Fabricated Metal Product Manufacturing
3259	Other Chemical Product and Preparation Manufacturing	4821	Rail Transportation
3222	Converted Paper Product Manufacturing	5418	Advertising and Related Services
		8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
		3231	Printing and Related Support Activities
		3321	Forging and Stamping

Consumer Industries - Typical Regional Industry

3121	Beverage Manufacturing
3221	Pulp, Paper, and Paperboard Mills
3116	Animal Slaughtering and Processing
622*	Hospitals
3231	Printing and Related Support Activities
8121	Personal Care Services
3222	Converted Paper Product Manufacturing
3261	Plastics Product Manufacturing
3115	Dairy Product Manufacturing
722*	Food services and drinking places

3346 Manufacturing and Reproducing Magnetic and Optical Media

Supplier Industries - Typical Regional Industry

3222	Converted Paper Product Manufacturing
42*	Wholesale Trade
3261	Plastics Product Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing
5413	Architectural, Engineering, and Related Services
484*	Truck Transportation

Supplier Industries - Typical National Industry

5614	Business Support Services
5415	Computer Systems Design and Related Services
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3221	Pulp, Paper, and Paperboard Mills
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3259	Other Chemical Product and Preparation Manufacturing
3346	Manufacturing and Reproducing Magnetic and Optical Media
3313	Alumina and Aluminum Production and Processing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3329	Other Fabricated Metal Product Manufacturing

Consumer Industries - Typical Regional Industry

521*	Monetary authorities and depository credit intermediation
GVSL*	State and Local Government
3221	Pulp, Paper, and Paperboard Mills

523*	Securities, commodity contracts, investments
5412	Accounting, Tax Preparation, Bookkeeping, and Payroll Services
517*	Telecommunications
5413	Architectural, Engineering, and Related Services
5182	Data Processing, Hosting, and Related Services
5112	Software Publishers
441*	Motor vehicle and parts dealers

3353 Electrical Equipment Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
42*	Wholesale Trade	3255	Paint, Coating, and Adhesive Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing	3311	Iron and Steel Mills and Ferroalloy Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	3321	Forging and Stamping
3261	Plastics Product Manufacturing	3314	Nonferrous Metal (except Aluminum) Production and Processing
3353	Electrical Equipment Manufacturing	3315	Foundries
484*	Truck Transportation	3241	Petroleum and Coal Products Manufacturing
4931	Warehousing and Storage	3271	Clay Product and Refractory Manufacturing
5413	Architectural, Engineering, and Related Services	3329	Other Fabricated Metal Product Manufacturing
3312	Steel Product Manufacturing from Purchased Steel	3359	Other Electrical Equipment and Component Manufacturing
3339	Other General Purpose Machinery Manufacturing	3323	Architectural and Structural Metals Manufacturing

Consumer Industries - Typical Regional Industry

3221	Pulp, Paper, and Paperboard Mills
3351	Electric Lighting Equipment Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3332	Industrial Machinery Manufacturing
2360	Construction of Buildings
3339	Other General Purpose Machinery Manufacturing
2211	Electric Power Generation, Transmission and Distribution
3333	Commercial and Service Industry Machinery Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3361	Motor Vehicle Manufacturing

3359 Other Electrical Equipment and Component Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
42*	Wholesale Trade	3272	Glass and Glass Product Manufacturing
484*	Truck Transportation	3344	Semiconductor and Other Electronic

3261	Plastics Product Manufacturing	3252	Component Manufacturing Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
4931	Warehousing and Storage	3241	Petroleum and Coal Products Manufacturing
		3314	Nonferrous Metal (except Aluminum) Production and Processing
		3359	Other Electrical Equipment and Component Manufacturing
		3221	Pulp, Paper, and Paperboard Mills
		3259	Other Chemical Product and Preparation Manufacturing
		3279	Other Nonmetallic Mineral Product Manufacturing
		3311	Iron and Steel Mills and Ferroalloy Manufacturing

Consumer Industries - Typical Regional Industry

3221	Pulp, Paper, and Paperboard Mills
3344	Semiconductor and Other Electronic Component Manufacturing
3363	Motor Vehicle Parts Manufacturing
2360	Construction of Buildings
3261	Plastics Product Manufacturing
3333	Commercial and Service Industry Machinery Manufacturing
3332	Industrial Machinery Manufacturing
3339	Other General Purpose Machinery Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3315	Foundries

3369 Other Transportation Equipment Manufacturing

Supplier Industries - Typical Regional Industry	Supplier Industries - Typical National Industry	
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	
42*	Wholesale Trade	
3344	Semiconductor and Other Electronic Component Manufacturing	
484*	Truck Transportation	
3363	Motor Vehicle Parts Manufacturing	
3261	Plastics Product Manufacturing	
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	
4931	Warehousing and Storage	
3312	Steel Product Manufacturing from Purchased Steel	
5413	Architectural, Engineering, and Related Services	
	3311	Iron and Steel Mills and Ferroalloy Manufacturing
	3329	Other Fabricated Metal Product Manufacturing
	3369	Other Transportation Equipment Manufacturing
	3314	Nonferrous Metal (except Aluminum) Production and Processing
	3262	Rubber Product Manufacturing
	3255	Paint, Coating, and Adhesive Manufacturing
	5417	Scientific Research and Development Services
	3321	Forging and Stamping
	3313	Alumina and Aluminum Production and Processing
	5182	Data Processing, Hosting, and Related Services

Consumer Industries - Typical Regional Industry

3361	Motor Vehicle Manufacturing
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3336 Engine, Turbine, and Power Transmission
Equipment Manufacturing
3362 Motor Vehicle Body and Trailer
Manufacturing
3363 Motor Vehicle Parts Manufacturing
FR Farms
3321 Forging and Stamping
8111 Automotive Repair and Maintenance
3331 Agriculture, Construction, and Mining
Machinery Manufacturing
8113 Commercial and Industrial Machinery and
Equipment (except Automotive and
Electronic) Repair and Maintenance
3366 Ship and Boat Building

8.3.3 Top Firms by Driver Industry in the East Central Region

3115 Dairy Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Schreiber Foods Inc	760	4,107	Parent	Private		1945
Sturm Foods Inc	450	-	Single	Private	100-499.9MM	1905
Saputo Cheese USA Inc	300	1,745	Branch	Private	100-499.9MM	
Bel Kaukauna USA Inc	275	475	Parent	Private		1971
Schreiber Foods Inc	250	4,107	Branch	Private	100-499.9MM	1945
Good Humor-Breyers Ice Cream	220	-	Single	Private	50-99.9MM	1938
Churny Co Inc	200	41,810	Branch	Private	100-499.9MM	1955
White Clover Dairy Inc	190	-	Single	Private	100-499.9MM	1905
Trega Foods Inc	175	181	Parent	Private		
Morning Glory Dairy	150	1,467	Branch	Private	100-499.9MM	1963
Land O'Lakes Inc	150	6,861	Branch	Private	50-99.9MM	
Foremost Farms USA Cooperative	100	1,467	Branch	Private	50-99.9MM	1995
Land O'Lakes Inc	100	6,861	Branch	Private	50-99.9MM	1948
Saputo Cheese USA Inc	80	1,745	Branch	Private	25-49.9MM	1992
Trega Foods Inc	80	-	Single	Private	25-49.9MM	
Wohlt Cheese Corp	80	-	Single	Private	25-49.9MM	1935
Galloway Co Corp	75	150	Parent	Private		1918
Classic Mix Partners	75	150	Branch	Private	10-24.9MM	1932
Milk Products LLC	73	6,861	Branch	Private	25-49.9MM	1992
Belgioioso Cheese Inc	65	90	Parent	Private		1979
Alto Dairy	55	505	Branch	Private	25-49.9MM	1953
Graf Creamery Inc	50	-	Single	Private	25-49.9MM	1926
Foremost Farms USA Cooperative	50	1,467	Branch	Private	25-49.9MM	1995
Thiel Cheese & Ingredients LLC	50	-	Single	Private	25-49.9MM	1955
Sargento Foods Inc	40	661	Branch	Private	10-24.9MM	1979
Milk Source	35	-	Single	Private	10-24.9MM	1965
Weyauwega Star Dairy Inc	30	-	Single	Private	10-24.9MM	1976
BelGioioso Cheese Inc	20	90	Branch	Private	10-24.9MM	1978
Dupont Cheese Inc	20	-	Single	Private	10-24.9MM	1971
Springside Cheese Corp	20	-	Single	Private	10-24.9MM	1947

3221 Pulp, Paper, and Paperboard Mills

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Georgia-Pacific Corp	3,000	57,936	Branch	Public	1-9.9B	1919
Kimberly-Clark Corp	1,200	18,353	Branch	Public	100-499.9MM	1872
International Paper	1,000	59,195	Branch	Public	100-499.9MM	1883
Georgia-Pacific Corp	785	57,936	Branch	Public	100-499.9MM	1902
International Paper De Pere	300	59,195	Branch	Public	100-499.9MM	1892
Cellu Tissue Corp	280	-	Single	Private	50-99.9MM	2002
Badger Paper Mills Inc	260	310	Parent	Public		1929
Glatfelter	200	1,300	Branch	Public	50-99.9MM	1904
Shawano Specialty Papers	200	310	Branch	Private	50-99.9MM	1894
Fox River Paper Co	175	-	Single	Private	50-99.9MM	

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Sonoco US Mills Inc	120	11,300	Branch	Public	25-49.9MM	1971
Green Bay Packaging Inc	100	2,883	Branch	Private	25-49.9MM	1940
Kerwin Paper Co	100	-	Single	Private	25-49.9MM	
PCDI Oconto Falls Tissue Inc	100	138	Parent	Private		1997
SCA Tissue North America LLC	100	57,936	Branch	Public	25-49.9MM	
Sonoco- U S Mills Inc	70	11,300	Branch	Public	25-49.9MM	1933
George A Whiting Paper Co	55	-	Single	Private	10-24.9MM	1882
Kimberly-Clark Corp	55	18,353	Branch	Public	10-24.9MM	
Ecosource Corp	50	57,936	Branch	Public	10-24.9MM	1990
Fox River Fiber Co	48	-	Single	Private	10-24.9MM	1990
EcoFibre Inc	30	138	Branch	Private	10-24.9MM	1990
Minergy Corp	30	9,722	Branch	Public	10-24.9MM	1997

3222 Converted Paper Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Procter & Gamble Paper Prods	1,500	25,019	Branch	Public	100-499.9MM	1892
Appleton Papers	1,425	2,627	HQs	Private		1907
Appleton Coated LLC	800	993	Branch	Private	100-499.9MM	
Stora Enso	800	2,688	Branch	Private	100-499.9MM	2000
SCA North America LLC	700	57,936	Branch	Public	100-499.9MM	1915
WS Packaging Group Inc	400	1,429	Parent	Private		1966
Hoffmaster	400	-	Single	Private	50-99.9MM	1947
Belmark Inc	340	-	Single	Private	50-99.9MM	1977
Green Bay Packaging Inc	320	2,883	Branch	Private	50-99.9MM	1929
Graphic Packaging Intl	316	6,847	Branch	Private	50-99.9MM	
Kimberly-Clark Corp	300	18,353	Branch	Public	100-499.9MM	1979
Green Bay Packaging Inc	300	2,883	Branch	Private	25-49.9MM	1926
Hoffmaster	300	8,877	Branch	Private	25-49.9MM	1989
Great Northern Corp	250	669	Parent	Private		1962
Kimberly-Clark Corp	250	18,353	Branch	Public	100-499.9MM	1941
Coating Excellence Intl	230	-	Single	Private	25-49.9MM	1997
Menasha Packaging Co LLC	200	4,125	HQs	Private		2001
Stora Enso Niagara Mill	200	2,688	Branch	Private	50-99.9MM	
Kimberly-Clark Corp	200	18,353	Branch	Public	50-99.9MM	
Intertape Polymer Group Inc	180	570	Division HQ	Private		1919
Converting Inc	165	-	Single	Private	25-49.9MM	1968
Atlas Tag & Label Inc	160	690	Branch	Private	25-49.9MM	1931
Menasha Corp	150	4,125	Parent	Private		1849
Hayes Manufacturing Group Inc	150	11,300	HQs	Public		1968
Outlook Label Systems Inc	150	500	Branch	Public	25-49.9MM	1981
H C Miller Co	150	-	Single	Private	25-49.9MM	1888
Williamhouse of Wisconsin	150	4,143	Branch	Private	10-24.9MM	1978
Hoffmaster	147	8,877	Branch	Private	10-24.9MM	1927
Printed Systems	140	4,125	Branch	Private	25-49.9MM	1849
Avery Dennison	130	7,023	HQs	Public		1987
Resource One International LLC	120	-	Single	Private	10-24.9MM	1981
Little Rapids Corp	110	310	Parent	Private		1925
Green Bay Packaging Inc	100	2,883	Branch	Private	10-24.9MM	1989
Green Bay Packaging Inc	100	2,883	Parent	Private		1943

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Green Bay Packaging Inc	100	2,883	Branch	Private	10-24.9MM	1919
Laminations Inc	100	669	Branch	Private	25-49.9MM	1972
Fox River Paper Co	100	725	Branch	Private	25-49.9MM	
Northstar Print Group	100	4,757	Branch	Public	25-49.9MM	1961
Midwest Towel & Supply Inc	100	-	Single	Private	25-49.9MM	1995
Green Bay Converting Inc	100	-	Single	Private	10-24.9MM	1999
National Packaging Services	100	-	Single	Private	10-24.9MM	1996
Progressive Converting Inc	100	210	Parent	Private		1991
R Sabee Co Inc	100	-	Single	Private	10-24.9MM	1946
US Paper Converters Inc	100	-	Single	Private	10-24.9MM	1983
Zebra Technologies Corp	80	1,245	Branch	Public	10-24.9MM	1991
Fox River Paper Co LLC	80	725	HQs	Private		1883
Custom Paper Products Inc	75	-	Single	Private	10-24.9MM	2000
Georgia-Pacific Corp	70	57,936	Branch	Public	10-24.9MM	1927
Sonoco	70	11,300	Branch	Public	10-24.9MM	1985
Dura-Fibre	70	-	Single	Private	10-24.9MM	1897
Fox River Paper Co	70	725	Branch	Private	10-24.9MM	2001
Filter Materials	65	190	Branch	Private	10-24.9MM	1938
Milltown Paper Inc	65	-	Single	Private	10-24.9MM	1994
Newark Paperboard Products	60	-	Single	Private	10-24.9MM	1986
Pro Label Inc	55	-	Single	Private	10-24.9MM	1992
Wausau Papers	55	3,149	Branch	Public	5-9.9MM	1969
Smurfit-Stone Container Corp	50	29,591	Branch	Public	10-24.9MM	1970
Wisconsin Converting Inc	50	-	Single	Private	5-9.9MM	1987
American Paper Converters Inc	50	-	Single	Private	10-24.9MM	1979
Cellynne USA Inc	45	130	Branch	Private	5-9.9MM	1995
Nichols Paper Products Co	45	-	Single	Private	5-9.9MM	1951
Libman Business Forms Inc	40	-	Single	Private	5-9.9MM	1965
Contract Converting LLC	40	-	Single	Private	5-9.9MM	1994
Straubel Paper Co	37	-	Single	Private	5-9.9MM	1907
Appleton Coated LLC	35	993	Parent	Private		1999
Waldan Paper Services Inc	35	-	Single	Private	5-9.9MM	1989
BemisTape	25	8,173	Branch	Public	5-9.9MM	1981
Vibrant Impressions Inc	25	-	Single	Private	5-9.9MM	1994
Swanson Wiper Corp	25	-	Single	Private	1-4.9MM	1994
American Custom Converting LLC	24	-	Single	Private	1-4.9MM	1997
Kadant Grantek Inc	24	59	Branch	Public	1-4.9MM	1988
Superior Specialties Inc	22	-	Single	Private	1-4.9MM	1967
Menasha Corp	20	4,125	Branch	Private	1-4.9MM	1849
Alpha-Prime Inc	20	-	Single	Private	1-4.9MM	1979
Precision Paper Converters LLC	20	-	Single	Private	1-4.9MM	1992

3346 Manufacturing and Reproducing Magnetic and Optical Media

*No firms were identified in database. (This study used the Harris Infosource database. Harris is a fully owned subsidiary of Dun & Bradstreet. Companies providing data to D&B for the Harris database do so voluntarily. Therefore, the information is incomplete for this item because eligible firms chose not to participate.)

3353 Electrical Equipment Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
AZCO Inc	200	-	Single	Private	25-49.9MM	1949
Baldor Generators	140	-	Single	Private	10-24.9MM	1965
Shallbetter Inc	48	-	Single	Private	5-9.9MM	1982
Dana Brake Parts Inc	40	24,940	Branch	Public	5-9.9MM	2001
L & S Electric Inc	35	115	Branch	Private	5-9.9MM	1930
Cummins NPower LLC	30	14,589	Branch	Public	1-4.9MM	
E M S Holdin Co Inc	20	48	Branch	Private	1-4.9MM	1980

3359 Other Electrical Equipment and Component Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Grayhill Inc	75	700	Branch	Private	5-9.9MM	1980
Sturgeon Bay Metal Products	30	-	Single	Private	5-9.9MM	1946

3369 Other Transportation Equipment Manufacturing

*No firms were identified in database. (This study used the Harris Infosource database. Harris is a fully owned subsidiary of Dun & Bradstreet. Companies providing data to D&B for the Harris database do so voluntarily. Therefore, the information is incomplete for this item because eligible firms chose not to participate.)

8.3.4 Detailed Employment, Gross Product, & Gross Product per Employee, East Central Region

Table 8-3 Employment in the East Central Region's Driver Industries, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3115	Dairy Product Manufacturing	2,999	3,598	4,138	4,070	4,047	4,088	4,263	4,758
3221	Pulp, Paper, and Paperboard Mills	18,211	19,677	18,703	18,324	17,288	13,866	13,407	12,865
3222	Converted Paper Product Manufacturing	9,145	8,802	9,013	9,092	8,847	7,252	7,134	6,282
3346	Manufacturing and Reproducing Magnetic and Optical Media	100	110	139	149	148	138	157	126
3353	Electrical Equipment Manufacturing	840	1,296	1,512	1,469	1,366	1,228	1,303	1,418
3359	Other Electrical Equipment and Component Manufacturing	260	459	507	476	426	413	431	369
3369	Other Transportation Equipment Mfg.	20	150	249	308	346	403	519	718

Table 8-4 CAGR* for Employment in the East Central Region's Driver Industries, 1993-2008

NAICS	Title	1993-1998	1998-2003	2003-2008
3115	Dairy Product Manufacturing	3.1%	2.1%	2.6%
3221	Pulp, Paper, and Paperboard Mills	1.3%	-5.7%	-1.2%
3222	Converted Paper Product Mfg.	-0.6%	-3.2%	-2.4%
3346	Manufacturing and Reproducing Magnetic and Optical Media	1.6%	3.9%	-1.4%
3353	Electrical Equipment Manufacturing	7.5%	-0.9%	2.4%
3359	Other Electrical Equipment and Component Manufacturing	9.9%	-1.7%	-1.9%
3369	Other Transportation Equipment Mfg.	39.8%	18.0%	10.1%

***Compound Annual Growth Rate—CAGR.** An average annual growth rate over a specified period of time. It is calculated as: $CAGR = (\text{present value} / \text{base value})^{(1 / \text{number of years})} - 1$

Table 8-5 Labor Location Quotients*—East Central Region’s Driver Industries, 1993-1003

NAICS	Title	1993	1998	2001	2002	2003
3115	Dairy Product Manufacturing	6.68	8.54	9.26	9.14	9.15
3221	Pulp, Paper, and Paperboard Mills	25.27	29.45	31.75	32.40	28.13
3222	Converted Paper Product Manufacturing	7.06	6.56	7.09	7.15	6.00
3346	Manufacturing and Reproducing Magnetic and Optical Media	0.69	0.58	0.76	0.83	0.86
3353	Electrical Equipment Manufacturing	1.24	1.88	2.32	2.41	2.34
3359	Other Electrical Equipment and Component Manufacturing	0.46	0.78	0.82	0.87	0.90
3369	Other Transportation Equipment Manufacturing	0.17	1.18	2.43	2.75	3.16

* The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region.

Table 8-6 Manufacturing Gross Product in the East Central Region’s Driver Industries, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3115	Dairy Product Manufacturing	\$ 207,901,788	\$ 317,285,447	\$ 382,084,747	\$ 425,359,450	\$ 427,865,399	\$ 432,426,780	\$ 466,908,643	\$ 581,775,233
3221	Pulp, Paper, and Paperboard Mills	\$ 1,447,187,481	\$ 1,757,289,323	\$ 1,961,039,853	\$ 2,022,383,041	\$ 1,991,803,724	\$1,851,342,277	\$1,921,608,076	\$ 2,198,614,650
3222	Converted Paper Product Manufacturing	\$ 655,373,180	\$ 666,535,364	\$ 816,114,222	\$ 873,856,651	\$ 856,768,991	\$ 783,935,082	\$ 811,840,950	\$ 839,517,173
3346	Manufacturing and Reproducing Magnetic and Optical Media	\$ 47,105,381	\$ 89,950,469	\$ 104,196,819	\$ 53,658,827	\$ 48,146,213	\$ 53,166,467	\$ 63,252,827	\$ 64,659,021
3353	Electrical Equipment Manufacturing	\$ 59,956,807	\$ 93,145,920	\$ 111,266,220	\$ 211,482,429	\$ 176,183,393	\$ 165,461,708	\$ 182,181,594	\$ 250,599,193
3359	Other Electrical Equipment and Component Manufacturing	\$ 28,764,603	\$ 64,416,720	\$ 70,376,727	\$ 134,975,198	\$ 117,804,988	\$ 115,672,851	\$ 125,402,225	\$ 132,655,483
3369	Other Transportation Equipment Manufacturing	\$ 1,516,012	\$ 11,875,931	\$ 21,128,882	\$ 25,552,298	\$ 33,411,854	\$ 42,364,293	\$ 58,135,013	\$ 95,517,354

Table 8-7 CAGR* for Gross Product in the East Central Region’s Driver Industries, 1993-2008

NAICS	Title	1993-1998	1998-2003	2003-2008
3115	Dairy Product Mfg.	7.3%	5.3%	5.1%
3221	Pulp, Paper, and Paperboard Mills	3.3%	0.9%	2.9%
3222	Converted Paper Product Mfg.	0.3%	2.7%	1.1%
3346	Manufacturing and Reproducing Magnetic and Optical Media	11.4%	-8.4%	3.3%

NAICS	Title	1993-1998	1998-2003	2003-2008
3353	Electrical Equipment Mfg.	7.6%	10.0%	7.2%
3359	Other Electrical Equipment and Component Mfg.	14.4%	10.2%	2.3%
3369	Other Transportation Equipment Mfg.	40.9%	23.6%	14.5%

***Compound Annual Growth Rate—CAGR.** An average annual growth rate over a specified period of time. It is calculated as:

$$CAGR = (\text{present value} / \text{base value})^{(1 / \text{number of years})} - 1$$

Figure 8-8 Output Location Quotients*—East Central Region’s Driver Industries, 1993-2003

NAICS	Title	1993	1998	2001	2002	2003
3115	Dairy Product Manufacturing	6.37	9.48	13.14	13.40	13.81
3221	Pulp, Paper, and Paperboard Mills	25.28	27.98	30.50	31.53	30.26
3222	Converted Paper Product Manufacturing	9.04	7.70	9.16	9.28	8.64
3346	Manufacturing and Reproducing Magnetic and Optical Media	3.50	7.51	8.79	8.87	10.05
3353	Electrical Equipment Manufacturing	1.60	1.90	4.72	4.41	4.36
3359	Other Electrical Equipment and Component Manufacturing	0.72	1.37	3.06	3.11	3.22
3369	Other Transportation Equipment Manufacturing	0.42	2.60	4.73	5.6	6.93

* The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region.

Table 8-9 Manufacturing Productivity (Gross Product per Employee) of Driver Industries, East Central Region, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3115	Dairy Product Manufacturing	\$ 69,335	\$ 88,173	\$ 92,326	\$ 104,518	\$ 105,713	\$ 105,781	\$ 109,525	\$ 122,283
3221	Pulp, Paper, and Paperboard Mills	\$ 79,468	\$ 89,308	\$ 104,854	\$ 110,370	\$ 115,212	\$ 133,521	\$ 143,334	\$ 170,899
3222	Converted Paper Product Manufacturing	\$ 71,661	\$ 75,728	\$ 90,548	\$ 96,109	\$ 96,844	\$ 108,097	\$ 113,791	\$ 133,638
3346	Manufacturing and Reproducing Magnetic and Optical Media	\$ 471,287	\$ 820,359	\$ 748,141	\$ 360,388	\$ 324,351	\$ 386,454	\$ 403,395	\$ 512,262
3353	Electrical Equipment Mfg.	\$ 71,412	\$ 71,881	\$ 73,583	\$ 143,957	\$ 129,012	\$ 134,703	\$ 139,773	\$ 176,780
3359	Other Electrical Equipment and Component Mfg.	\$ 110,688	\$ 140,486	\$ 138,713	\$ 283,291	\$ 276,847	\$ 280,266	\$ 290,819	\$ 359,540
3369	Other Transportation Equipment Manufacturing	\$ 75,838	\$ 79,427	\$ 84,956	\$ 83,040	\$ 96,467	\$ 105,149	\$ 111,926	\$ 132,940

8.4 Wisconsin Executive Perspectives in the East Central Region

East Central Region Responses to the WMEP Study Questionnaire's "Open Ended" Questions

(NB: Incomplete answers are due to the space limits of the online questionnaire. In some cases, a partial word or intended meaning has been inferred and, therefore, completed. In such cases, the extrapolation appears in brackets. Where an inference could not be made, ellipses indicate the omission of the letters or words. Where provided by the respondent, job title and industry sector are included.)

As you consider your industry and business for the next 5 to 10 years, what are the most prominent workforce-related concerns?

Available skilled work force; Use of leading edge technology; Affordable health care for associates.

--Chairman/CEO, Special Machinery

Cost of Health Care!! Availability of educated, motivated labor force in NE Wisconsin. Access to educated, globally-minded technical and business professionals.

--President, Fiberglass Reinforced Products

Health Insurance.

--President, Electric Wiring and Components

Health care costs.

--Vice President, general Manager, Aircraft

Health care costs; availability of appropriate individuals for our type of work.

--President, Overhead Material Handling

None.

--Co-owner, Assembly and Packaging Services (Contract Manufacturing)

Qualified workers. Benefit costs.

--VP Operations, Exhaust Systems

Retaining and training workers in a somewhat seasonal business. Developing a learning, thinking, and continuous improvement based workforce. Healthcare and other employee related benefit costs.

--Vice President, Outdoor Power Equipment

Runaway cost of healthcare which will continue and the increasingly non-competitive position this puts the U.S. in relative to labor in other countries of the world.

--Wire Harnesses and Cable Assemblies

The ability to hire and retain production workers willing and able to work safely and with increasing productivity in a teamwork environment. This is more of a concern with our Jacksonville, FL, plant.

--President, Laminated Paper Edge Protectors

The ability to provide employees affordable health care coverage. The ability to hire skilled employees for manufacturing positions.

--Corrugate

As you consider your industry and business for the next 5 to 10 years, what are the most prominent advantages that the Wisconsin workforce can offer?

Single greatest difference is upper mid-west work ethic.

--Chairman/CEO, Special Machinery

Close to major customer. Close to key equipment supplier.

--VP Operations, Exhaust Systems

Generally exhibits a strong work ethic, particularly if you are selective in your hiring process.

--President, Overhead Material Handling

Speed to market (delivery and new products) relative to off-shore competition.

--Vice President, Outdoor Power Equipment

Strong work ethic

--Vice President, General Manager, Aircraft

Strong work ethic and technical capabilities

--Wire Harnesses and Cable Assemblies

The work ethic in the State of Wisconsin is a key advantage. Wisconsin educational institutions need to educate at all levels that a key to keeping manufacturing in the state is to work closely with . . .

--Corrugate

We are still able to hire workers that are well educated enough and yet are still willing to do the physical labor required in our manufacturing process. The diversity of our workforce has broadened.

--President, Laminated Paper Edge Protectors

Work ethic.

--President, Electric Wiring and Components

Work ethics.

--Co-owner, Assembly and Packaging Services (Contract Manufacturing)

What changes, if any, would you like to see in the Wisconsin higher education system to better meet the long-term needs of your industry and firm in the state?

A focus on the use of technology & data base driven information systems. Math & science focus driven curriculums. Something more than designing a garage & thinking you are computer literate.

--Chairman/CEO, Special Machinery

A stronger link to the main industries and companies to really understand their needs and prepare them to be part of these industries and companies in the future.

--Vice President, Outdoor Power Equipment

Greater emphasis on technical education

-Wire Harnesses and Cable Assemblies

Higher standards of secondary education. Require foreign language study in secondary school system. Enhance cooperative education programs with Vo-Tech colleges. . . .

--President, Fiberglass Reinforced Products

More emphasis on emotional control and personal accountability.

--Co-owner, Assembly and Packaging Services (Contract Manufacturing)

N/A

--Vice President, General Manager, Aircraft

N/A

--President, Electric Wiring and Components

Tech training specifically for our welders, both undergrad and through customized company training.

--VP Operations, Exhaust Systems

The entire education system needs to focus on all levels training our future employees on how successful business operate. . . .

--Corrugate

We need to have people better educated in basic language, reading and math skills. It's essential that workers are computer literate and able to learn new skills as required in this area. . . .

--President, Laminated Paper Edge Protectors

Describe any innovative workforce attraction or development programs that you would like to see expanded in Wisconsin?

Math & science fairs, symposiums & learning centers sponsored by corporations & not government or educational systems. Stop dumbing down. Expect MORE not less.

--Chairman/CEO, Special Machinery

Additional education on successful business practices at all levels.

--Corrugate

Additional lean or other training at low cost.

--VP Operations, Exhaust Systems

Continue job retraining efforts and increase partnership with WMEP as a feeder for industry/tech college partnerships.

--Wire Harnesses and Cable Assemblies

Health Insurance buying cooperatives for small business.

--President, Electric Wiring and Components

I don't think that the workforce development is the issue. I think that the development can be accomplished by the employer if emotional control and personal accountability are already in place.

-Co-owner, Assembly and Packaging Services (Contract Manufacturing)

N/A

--Vice President, general Manager, Aircraft

There may be some no-cost or low-cost training programs; personally I'm unaware of many that an existing manufacturer might use to strengthen the skills of its manufacturing and office employees. . . .

--President, Laminated paper Edge Protectors

Wisconsin needs to become much more aware, and aggressive in providing tax and investment incentives targeting new business development. I currently have much more attractive expansion options OUTSID[E] . . .

--President, Fiberglass Reinforced Products

What are the business challenges that your organization faces - what most keeps you up at night?

The changing demographics & how we can position LMC to find an opportunity for special machine builders.

--Chairman/CEO, Special Machinery

Being able to recruit, train, and retain highly skilled technicians. 2. Many of our competitors operate in states that do not tax parts and labor. . . .

--Vice President, General Manager, Aircraft

Cost of raw materials. Employee and business costs (health care, insurance, taxes, etc.)

Logistics and transportations costs, availability, and lead time. Suppliers ability to improve fast enough.

--Vice President, Outdoor Power Equipment

Funding for Business Expansion (Growth).

--President, Electric Wiring and Components

Increasing competition of all types and from all locations.

--Wire Harnesses and Cable Assemblies

Rising cost and risk of health care. Rapid escalation of raw materials cost, particularly petroleum-based resins and steel hardware. Cost of freight and energy.

--President, Fiberglass Reinforced Products

State and Federal taxation.

--Co-owner, Assembly and Packaging Services (Contract Manufacturing)

Taxes are high. Energy cost is high. Government is pro-labor. We pay comp to workers legally terminated or faking injuries.

--VP Operations, Exhaust Systems

The ability to grow the business while attaining desirable profit levels. To do this, we must be much more successful with new product and service offers. We must also bring our cost structure on [down]. . . .

--President, Laminated Paper Edge Protectors

The challenge of rising utility cost and health care cost with a extremely competitive customer pricing arena. The secondary issue is the concern of if our workforce has developed the attitude of wor[k].

--Corrugate

The need to constantly monitor our costs as they relate to employees, particularly health insurance premiums. You can add to that all costs resulting from mandated programs by various governmental uni[ts].

--President, Overhead Material Handling

What are the business strengths and/or advantages your organization has by being located in Wisconsin?

Flexible, skilled associates.

--Chairman/CEO, Special Machinery

Available work force.

--Co-Owner, Assembly and Packaging Services (Contract Manufacturing)

Close to major customer and equipment suppliers. Good work ethic.

--VP Operations, Exhaust Systems

Good source of labor. Strong work ethic. Access to many suppliers of recycled paperboard, our primary raw material. Use of the Wisconsin Paper Group for cost-effective LTL shipment of products. . . .

--President, Laminated Paper Edge Protectors

Level of Service and Support.

--President, Electric Wiring and Components

Located in a niche market with strong players within a 200-400 mile radius.

--Wire Harnesses and Cable Assemblies

Strong work ethic, high quality people, favorable relationships with local government.

--Vice President, general Manager, Aircraft

The work ethic in Wisconsin is terrific.

--President, Overhead Material Handling

Thought hard about this, history and current work force only thing can come up with.

--Vice President, Outdoor Power Equipment

We have the best quality and service as a result of the systems we have in place and the people we employ. Wisconsin specifically has a strong work ethic and we have access to various paper sources.

--Corrugate

We serve customers nationally, and globally. Wisconsin's reputation among our US customers is typically neutral. The most common awareness among our customers is related either to cheese, or the Pack[aging?].

--President, Fiberglass Reinforced Products

9 North Region

9.1 Introduction

Driver industry and industry cluster analyses were conducted for each of the seven economic regions in the State of Wisconsin. This section provides a summary of the findings from the analysis for the North Region, as well as, detailed information related to each of the regional driver industries identified. For the purposes of this analysis, the North Region is defined to include the counties of Ashland, Bayfield, Burnett, Douglas, Florence, Forest, Iron, Oneida, Price, Rusk, Sawyer, Vilas, and Washburn.

The next sub-section provides an overview and summary of the findings from the analyses conducted. This is followed by detailed descriptions of each of the regional driver industries and their associated industry cluster. Next, perspectives on the state of manufacturing in the region appear in tabular form. And, finally, Wisconsin's manufacturing executives identify key issues affecting them in the region.

9.2 Summary of Regional Driver Industries & Industry Clusters

The driver analysis for the North Region identified 4 regional driver industries. These industries include:

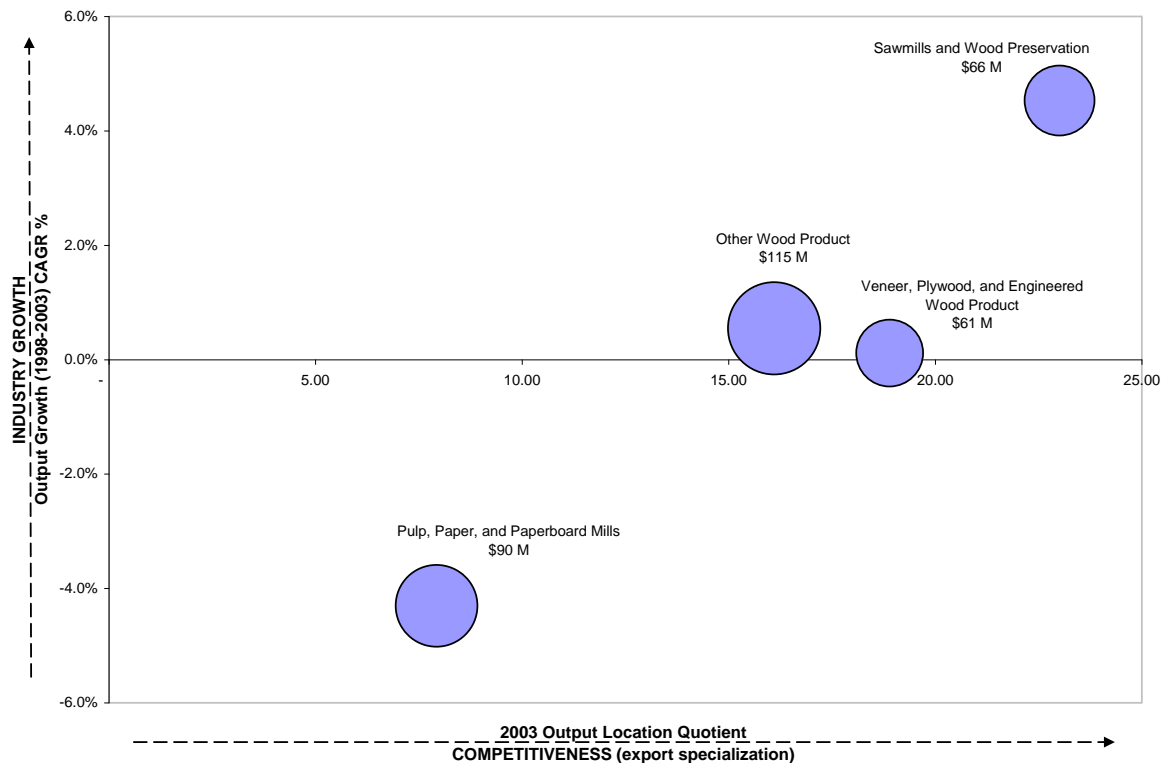
- 3211 Sawmills and Wood Preservation
- 3212 Veneer, Plywood, and Engineered Wood Product Manufacturing
- 3219 Other Wood Product Manufacturing
- 3221 Pulp, Paper, and Paperboard Mills

9.2.1 How Are the North Region's Driver Industries Doing?

This chart shows the relative economic health of driver industries measured by two factors – their “competitiveness” in terms of export orientation or specialization on the X axis (horizontal), and their “growth” on the Y axis (vertical). Competitiveness is measured in terms of the output location quotients which is a ratio of the industry's concentration in the region compared to the industry's concentration nationally. In general, a location quotient above 1 indicates that the industry is more concentrated in the region than it is nationally. This concentration suggests that the industry exports its product from the region and that the region offers competitive advantages to the industry over other areas throughout the country. An industry is increasingly more competitive as it moves to the right on the X axis. And the more competitive it is, the more it sells goods outside of its own region, thereby generating money for the region in which it operates.

Industry growth is measured in terms of compound annual growth rates over the last five years and is shown on the Y axis. An industry is growing faster as it moves upward from zero; it is declining if it is below zero. The area (size) of each circle represents the gross product of each industry and indicates the industry's relative size as compared to the other industries. Through this picturing of all of the region's drivers in one perspective, a sense of the overall strategies and services that will be needed in that region begins to emerge.

Figure 9-1 Overview of the North Region's Drivers



Interpretation: Pulp, Paper, and Paperboard Mills have been losing ground over the past five years; only the Sawmills and Wood Preservation is both very competitive and growing rapidly. The other two closely related industries are very competitive, too, but, they are not growing. The analysis of the drivers and industry cluster in Pulp, Paper, and Paperboard Mills may be needed in careful detail to help rebuild Wisconsin's number one industry in the nation.

9.2.2 Drive and Industry Cluster Relationships in the North Region

For this Study, an industry cluster analysis was conducted for each of the driver industries. Tables 9-1 and 9-2 provide a summary of the results from these analyses and identify regional and national supplier industries that are common to multiple regional driver industries.

The supplier industries identified in Table 9-1 are found in the regional economy and provide goods or services to multiple driver industries. Many, in fact, are driver industries themselves. The importance of these industries to the overall competitiveness of the driver industries can not be overstated. By providing quality goods and services to the driver industries, these supplier industries help the regional driver industries produce and deliver the products their consumers demand. Attempts to impact the competitiveness of the industries that supply inputs to multiple regional driver industries can indirectly impact the competitiveness of those driver industries.

Table 9-1 Regional & National Supplier Industries Common to Regional Driver Industries

NAICS	Title	Regional Driver**	Count of Drivers	
			Regional Suppliers	National Suppliers
484*	Truck Transportation		4	4
42*	Wholesale Trade		4	4
3211	Sawmills and Wood Preservation	X	4	4
1133	Logging		4	4
4821	Rail Transportation		3	3
3219	Other Wood Product Manufacturing	X	3	4
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	X	3	3
3261	Plastics Product Manufacturing		2	2

*An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.
**Not all of a Region's drivers are also suppliers. Those marked with an X are suppliers.

Table 9-2 National Supplier Industries Common to Regional Driver Industries
Count of Drivers

NAICS	Title	National Suppliers
3222	Converted Paper Product Manufacturing	2
3241	Petroleum and Coal Products Manufacturing	2
3251	Basic Chemical Manufacturing	2
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	2
3255	Paint, Coating, and Adhesive Manufacturing	2
3323	Architectural and Structural Metals Manufacturing	2
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	4
FH	Fishing, Hunting, Etc.	2

7.2.1 Filtering & Refinement of Quantitative Results

The analysis used to identify driver industries is a quantitative analysis based on secondary data and captures industries that exhibit some form of competitive advantage. While the model is extremely good at identifying regional driver industries, certain results often require qualitative insight to filter and refine the results. One way in which to identify industries either to remove or add as driver industries is to receive local perspectives on the lists of driver industries identified by the model. The following are responses to some of the comments related to the driver industries identified by the quantitative analysis for the North Region.

First, "Industry 3332: Industrial Machinery Manufacturing," which includes the firm Marquip Ward United, was identified as an important regional industry. While the industry appeared to be fairly large in terms of both employment and gross product in the 1990s, regional data did not

exist for the industry after 2001. This result could have been due to an error in the data used for the analysis or simply due to changes in the primary industry in which the major firms identify themselves.

Second, it was noted that the truck transportation industry was an important regional industry due to its strong link to other regional manufacturing industries. The truck transportation industry, including “Industry 4841: General Freight Trucking” and “Industry 4842: Specialized Freight Trucking,” does have a large gross product and employs a fairly large number of local workers, the region does not appear to have a significant concentration in the region as compared to the nation as a whole. Clearly, these industries are important in the region, however, they are not considered driver industries because of they are not overly concentrated in the region and because they are really supplier industries to other driver industries in the region. In general, the truck transportation industry and the other regional driver industries are mutually dependent. Without the demand created by the other regional driver industries, truck transportation would not prosper in the region. The industry is important in the sense that it helps other industries to be more competitive.

9.3 Detailed Descriptions of the Regional Driver Industries

9.3.1 Driver Industry Definitions

321 Wood Product Manufacturing (Complete)

Industries in the Wood Product Manufacturing subsector manufacture wood products, such as lumber, plywood, veneers, wood containers, wood flooring, wood trusses, manufactured homes (i.e., mobile home), and prefabricated wood buildings. The production processes of the Wood Product Manufacturing subsector include sawing, planing, shaping, laminating, and assembling of wood products starting from logs that are cut into bolts, or lumber that then may be further cut, or shaped by lathes or other shaping tools. The lumber or other transformed wood shapes may also be subsequently planed or smoothed, and assembled into finished products, such as wood containers. The Wood Product Manufacturing subsector includes establishments that make wood products from logs and bolts that are sawed and shaped, and establishments that purchase sawed lumber and make wood products. With the exception of sawmills and wood preservation establishments, the establishments are grouped into industries mainly based on the specific products manufactured.

3211 Sawmills and Wood Preservation

3212 Veneer, Plywood, and Engineered Wood Product Manufacturing

3219 Other Wood Product Manufacturing

3221 Pulp, Paper, and Paperboard Mills

This industry group comprises establishments primarily engaged in manufacturing pulp, paper, or paperboard. The manufacturing of pulp involves separating the cellulose fibers from other impurities in wood or used paper. The manufacturing of paper involves matting these fibers into a sheet.

9.3.2 Industry Clusters

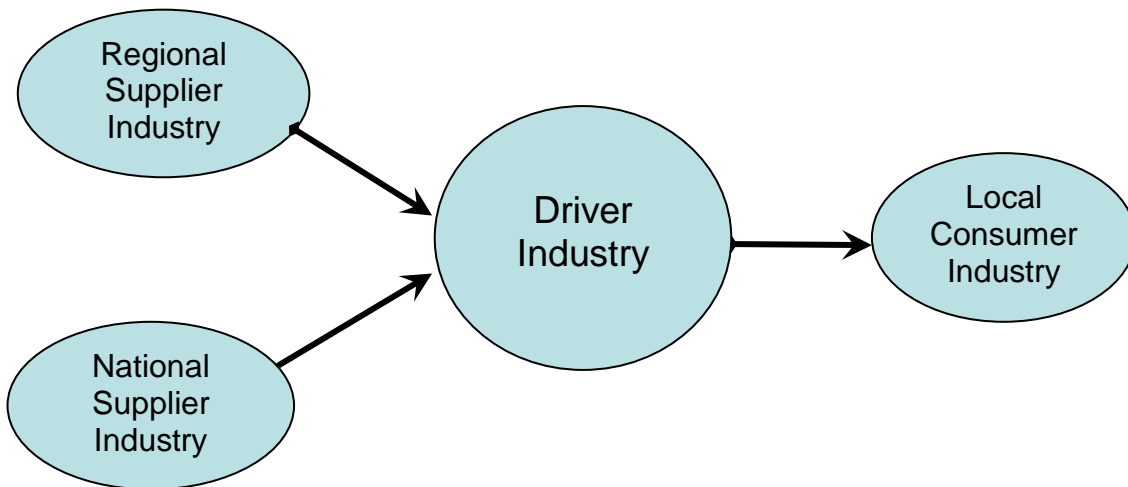
Industries contained within an industry cluster are related to driver industries in three ways, two supplier relationships and one consumer relationship.

Supplier relationships are defined by the backward linkages that a driver industry has with either (1) other regional industries (Regional Suppliers) or (2) industries not located within the region (National Supplier). Both types of supplier relationships are based on linkages identified using information from input-output tables from the IMPLAN model. For supplier relationships with other regional industries, the IMPLAN model is ‘regionalized’ to reflect the industries that exist within the region. For supplier relationships with industries not located within the region, the national IMPLAN model is used.

For both types of supplier relationships, only the most significant supplier industries are listed. The significance of the supplier industry is based on the relative amount of the driver industry’s total outlay that is used to purchase goods or services from the supplier industry. In the case where supplier industries appear in the lists for both types of supplier industries, the specific industry is removed from the list of national supplier industries.

The consumer industries are identified by reversing the relationship used to identify supplier industries. The consumer industries are those industries to which a driver industry sells a significant portion of its total output.

Figure 9-2 Industry Clusters



Industry Clusters

NB: An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

3211 Sawmills and Wood Preservation

<u>Supplier Industries - Typical Regional Industry</u>		<u>Supplier Industries - Typical National Industry</u>	
1133	Logging	3251	Basic Chemical Manufacturing
3211	Sawmills and Wood Preservation	8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
484*	Truck Transportation	3259	Other Chemical Product and Preparation Manufacturing
42*	Wholesale Trade		
FH	Fishing, Hunting, Etc.		
3219	Other Wood Product Manufacturing		
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing		
4821	Rail Transportation		
<u>Consumer Industries - Typical Regional Industry</u>			
4821	Rail Transportation		
3221	Pulp, Paper, and Paperboard Mills		
3219	Other Wood Product Manufacturing		
2360	Construction of Buildings		
3211	Sawmills and Wood Preservation		
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing		
2380	Specialty Trade Contractors		
2370	Heavy and Civil Engineering Construction		

3212 Veneer, Plywood, and Engineered Wood Product Manufacturing

<u>Supplier Industries - Typical Regional Industry</u>		<u>Supplier Industries - Typical National Industry</u>	
1133	Logging	3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3211	Sawmills and Wood Preservation	3323	Architectural and Structural Metals Manufacturing
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	FH	Fishing, Hunting, Etc.
484*	Truck Transportation	3241	Petroleum and Coal Products Manufacturing
42*	Wholesale Trade	3255	Paint, Coating, and Adhesive Manufacturing
3219	Other Wood Product Manufacturing	3321	Forging and Stamping
		3261	Plastics Product Manufacturing
		8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

Consumer Industries - Typical Regional Industry

3212	Veneer, Plywood, and Engineered Wood Product Manufacturing
2360	Construction of Buildings
3219	Other Wood Product Manufacturing
2380	Specialty Trade Contractors
3372	Office Furniture (including Fixtures) Manufacturing
4821	Rail Transportation
3221	Pulp, Paper, and Paperboard Mills
3211	Sawmills and Wood Preservation
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing

3219 Other Wood Product Manufacturing

Supplier Industries - Typical Regional Industry

3211	Sawmills and Wood Preservation
1133	Logging
42*	Wholesale Trade
484*	Truck Transportation
3219	Other Wood Product Manufacturing
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing
3261	Plastics Product Manufacturing
4821	Rail Transportation

Supplier Industries - Typical National Industry

3363	Motor Vehicle Parts Manufacturing
3325	Hardware Manufacturing
3323	Architectural and Structural Metals Manufacturing
3222	Converted Paper Product Manufacturing
3272	Glass and Glass Product Manufacturing
3274	Lime and Gypsum Product Manufacturing
3359	Other Electrical Equipment and Component Manufacturing
3141	Textile Furnishings Mills
3352	Household Appliance Manufacturing
3353	Electrical Equipment Manufacturing

Consumer Industries - Typical Regional Industry

3116	Animal Slaughtering and Processing
3219	Other Wood Product Manufacturing
FR	Farms
2360	Construction of Buildings
42*	Wholesale Trade
3274	Lime and Gypsum Product Manufacturing
2380	Specialty Trade Contractors
3221	Pulp, Paper, and Paperboard Mills
3211	Sawmills and Wood Preservation
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing

3221 Pulp, Paper, and Paperboard Mills

Supplier Industries - Typical Regional Industry

1133	Logging
3221	Pulp, Paper, and Paperboard Mills
484*	Truck Transportation
42*	Wholesale Trade
3211	Sawmills and Wood Preservation
3241	Petroleum and Coal Products Manufacturing
3261	Plastics Product Manufacturing
4821	Rail Transportation

Consumer Industries - Typical Regional Industry

3221	Pulp, Paper, and Paperboard Mills
622*	Hospitals
623*	Nursing and residential care facilities

Supplier Industries - Typical National Industry

8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3251	Basic Chemical Manufacturing
8112	Electronic and Precision Equipment Repair and Maintenance
3112	Grain and Oilseed Milling
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing
3222	Converted Paper Product Manufacturing
8111	Automotive Repair and Maintenance
3219	Other Wood Product Manufacturing
2380	Specialty Trade Contractors
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing

9.3.3 Top Firms by Driver Industry in the North Region

3211 Sawmills and Wood Preservation

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
John A Biewer Lumber Co Inc	100	283	Branch	Private	10MM-24.9MM	1989
Nicolet Hardwood Corp	70	-	Single	Private	10MM-24.9MM	1872
North Country Lumber Co	55	-	Single	Private	10MM-24.9MM	1979
Park Falls Hardwoods	50	360	Branch	Private	10MM-24.9MM	1989
Pine River Lumber Co Ltd	50	62	Parent	Private		1969
Old Fosterville Enterprises	48	96	Branch	Private	5MM-9.9MM	1998
Nagel Lumber Co Inc	30	-	Single	Private	5MM-9.9MM	1950
Besse Lumber Co	25	-	Single	Private	5MM-9.9MM	1993
Koppers Inc	25	1,490	Branch	Private	5MM-9.9MM	1928
Tri-State Lumber & Land Inc	25	-	Single	Private	5MM-9.9MM	1996
Peterson Wood Treating Inc	25	-	Single	Private	5MM-9.9MM	1984
Drummond Lumber Co	22	54	Branch	Private	1MM-4.9MM	2002
Midwest Forest Products Co	20	25	Branch	Private	1MM-4.9MM	1974
OEI Inc	20	-	Single	Private	1MM-4.9MM	1998

3212 Veneer, Plywood, and Engineered Wood Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Columbia Forest Products	250	3,532	Branch	Private	25MM-49.9MM	1974
Bird's Eye Veneer Co	150	633	Branch	Private	10MM-24.9MM	1912
Louisiana Pacific Corp	150	4,371	Branch	Public	25MM-49.9MM	1979
Trussworks Inc	100	-	Single	Private	10MM-24.9MM	1982
Georgia-Pacific Corp	100	57,936	Branch	Public	10MM-24.9MM	1959
Butternut Veneers Inc	50	-	Single	Private	5MM-9.9MM	1986
Saunders Wood Specialties Inc	50	195	Branch	Private	5MM-9.9MM	1967
K-Wood Truss Rafters Inc	35	-	Single	Private	1MM-4.9MM	1973
Columbia Forest Products	30	4,371	Branch	Public	1MM-4.9MM	1973

3219 Other Wood Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Jeld-Wen Windows & Doors	700	11,046	Branch	Private	50MM-99.9MM	1922
Weather Shield Manufacturing	311	-	Single	Private	25MM-49.9MM	2001
Birchwood Lumber & Veneer Co	200	-	Single	Private	10MM-24.9MM	1905
Pride Manufacturing Co	170	381	Branch	Private	10MM-24.9MM	1930
Action Floor Systems LLC	135	-	Single	Private	10MM-24.9MM	1988
Norse Building Systems Inc	100	-	Single	Private	10MM-24.9MM	1996
Larson-Juhl US LLC	100	90,036	Branch	Public	5MM-9.9MM	1957
Pukall Lumber Co Inc	75	-	Single	Private	5MM-9.9MM	1942
Northern Manufacturing Co Inc	65	-	Single	Private	5MM-9.9MM	1954
Solon Manufacturing	55	-	Single	Private	1MM-4.9MM	1988
Snow Country Hardwoods Inc	52	-	Single	Private	5MM-9.9MM	1999
Superior Floor Co Inc	50	60	Branch	Private	5MM-9.9MM	1986

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Snow River Products	50	-	Single	Private	1MM-4.9MM	1991
Superior Kilns	50	360	Branch	Private	1MM-4.9MM	1983
Beaver Mfg Inc	40	-	Single	Private	1MM-4.9MM	1992
Snowbelt Hardwoods Inc	32	-	Single	Private	1MM-4.9MM	1994
Woodline Mfg Superior	32	-	Single	Private	1MM-4.9MM	2004
Black Bear Forest Products Inc	30	-	Single	Private	1MM-4.9MM	1991
Walters Brothers Lumber Mfg	28	68	Parent	Private		1930
Superior Wood Systems	26	-	Single	Private	1MM-4.9MM	1988
ANP Dimensional Lumber Inc	25	-	Single	Private	1MM-4.9MM	1979
L & N Manufacturing Inc	24	-	Single	Private	1MM-4.9MM	1972
Larson Pallet Co Inc	20	-	Single	Private	1MM-4.9MM	1969

3221 Pulp, Paper, and Paperboard Mills

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
CityForest Corp	100	-	Single	Private	25MM-49.9MM	1993

9.3.4 Detailed Employment, Gross Product, & Gross Product per Employee, North Region

Table 9-3 Employment in the North Region's Driver Industries, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
1133	Logging	847	672	592	455	450	411	393	352
3211	Sawmills and Wood Preservation	820	1,116	1,154	1,151	1,118	1,120	1,147	1,223
3212	Veneer, Plywood, and Engineered Wood Product Mfg.	1,099	1,376	1,363	1,310	1,217	1,140	1,137	1,019
3219	Other Wood Product Manufacturing	1,759	2,033	2,029	1,916	1,771	1,671	1,686	1,602
3221	Pulp, Paper, and Paperboard Mills	1,509	1,475	1,373	1,221	1,188	639	549	379

Table 9-4 CAGR* for Employment in the North Region's Driver Industries, 1993-2008

NAICS	Title	1993-1998	1998-2003	2003-2008
1133	Logging	-3.8%	-7.9%	-2.6%
3211	Sawmills and Wood Preservation	5.3%	0.1%	1.5%
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	3.8%	-3.1%	-1.8%
3219	Other Wood Product Manufacturing	2.4%	-3.2%	-0.7%
3221	Pulp, Paper, and Paperboard Mills	-0.4%	-13.0%	-8.3%

***Compound Annual Growth Rate—CAGR.** An average annual growth rate over a specified period of time. It is calculated as: $CAGR = (\text{present value} / \text{base value})^{(1/n \text{ number of years})} - 1$

Table 9-5 Labor Location Quotients*—North Region's Driver Industries, 1993-2003

NAICS	Title	1993	1998	2001	2002	2003
3211	Sawmills and Wood Preservation	7.46	9.98	10.52	10.50	10.56
3212	Veneer, Plywood, and Engineered Wood Product Mfg.	14.35	14.70	13.01	11.95	11.01
3219	Other Wood Product Manufacturing	7.25	6.77	6.69	6.32	5.99
3221	Pulp, Paper, and Paperboard Mills	8.07	8.55	7.88	8.19	4.66

* The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region.

Table 9-6 Manufacturing Gross Product in the North Region's Driver Industries, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
1133	Logging	\$ 25,248,296	\$ 22,873,025	\$ 19,156,372	\$ 17,364,936	\$ 17,785,983	\$ 18,035,939	\$ 18,541,686	\$ 18,685,851
3211	Sawmills and Wood Preservation	\$ 35,116,001	\$ 50,967,951	\$ 53,312,998	\$ 58,707,427	\$ 60,604,532	\$ 66,481,254	\$ 73,782,705	\$ 97,004,127
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	\$ 43,488,750	\$ 60,504,532	\$ 58,577,867	\$ 61,241,704	\$ 58,767,728	\$ 60,910,257	\$ 64,072,518	\$ 69,140,133
3219	Other Wood Product Manufacturing	\$ 91,961,514	\$ 111,442,618	\$ 107,776,137	\$ 114,271,950	\$ 110,577,565	\$ 115,147,674	\$ 123,069,258	\$ 141,815,251
3221	Pulp, Paper, and Paperboard Mills	\$ 98,857,885	\$ 117,634,428	\$ 125,236,466	\$ 123,541,019	\$ 123,335,363	\$ 90,330,477	\$ 86,088,580	\$ 77,447,346

Table 9-7 CAGR* for Gross Product in the North Region's Driver Industries, 1993-2008

NAICS	Title	1998-2003	1998-2003	2003-2008
1133	Logging	-1.6%	-3.9%	0.6%
3211	Sawmills and Wood Preservation	6.4%	4.5%	6.5%
3212	Veneer, Plywood, and Engineered Wood Product Mfg.	5.7%	0.1%	2.1%
3219	Other Wood Product Mfg.	3.3%	0.5%	3.5%
3221	Pulp, Paper, and Paperboard Mills	2.9%	-4.3%	-2.5%

***Compound Annual Growth Rate—CAGR.** An average annual growth rate over a specified period of time. It is calculated as: $CAGR = (\text{present value} / \text{base value})^{(1/n \text{ number of years})} - 1$

Table 9-8 Output Location Quotients*—North Region's Driver Industries, 1993-2003

NAICS	Title	1993	1998	2001	2002	2003
3211	Sawmills and Wood Preservation	9.36	14.06	18.42	20.62	23.01
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	13.96	17.70	18.31	18.36	18.90
3219	Other Wood Product Manufacturing	12.61	12.85	14.66	15.28	16.10
3221	Pulp, Paper, and Paperboard Mills	9.78	10.88	10.09	11.00	7.93

* The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region.

Table 9-9 Manufacturing Productivity (Gross Product per Employee) of Driver Industries, North Region, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
1133	Logging	\$ 29,813	\$ 34,017	\$ 32,354	\$ 38,128	\$ 39,564	\$ 43,837	\$ 47,165	\$ 53,085
3211	Sawmills and Wood Preservation	\$ 42,846	\$ 45,653	\$ 46,199	\$ 50,987	\$ 54,197	\$ 59,345	\$ 64,349	\$ 79,291
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	\$ 39,555	\$ 43,985	\$ 42,980	\$ 46,741	\$ 48,281	\$ 53,434	\$ 56,362	\$ 67,818
3219	Other Wood Product Manufacturing	\$ 52,277	\$ 54,804	\$ 53,107	\$ 59,649	\$ 62,425	\$ 68,928	\$ 73,011	\$ 88,521
3221	Pulp, Paper, and Paperboard Mills	\$ 65,501	\$ 79,738	\$ 91,224	\$ 101,187	\$ 103,861	\$ 141,419	\$ 156,866	\$ 204,526

9.4 Wisconsin Executive Perspectives in the North Region

North Region Responses to the WMEP Study Questionnaire's "Open Ended" Questions

(NB: Incomplete answers are due to the space limits of the online questionnaire. In some cases, a partial word or intended meaning has been inferred and, therefore, completed. In such cases, the extrapolation appears in brackets. Where an inference could not be made, ellipses indicate the omission of the letters or words. Where provided by the respondent, job title and industry sector are included.)

As you consider your industry and business for the next 5 to 10 years, what are the most prominent workforce-related concerns?

Quality trained available welders and machinists

--President, Mobile and Stationary Hydraulic Recycling Equipment

The availability of skilled labor.

--Energetic Devices

We have had a downturn in business the last 2 years, so we haven't had to hire many unskilled workers. Our difficulty is finding skilled professionals willing to relocate to our rural area.

--Screen Printed Sportswear

Supply of labor that possess the necessary "soft skills" to be successful employees.

--Assistant General Manager, Hardwood Plywood

As you consider your industry and business for the next 5 to 10 years, what are the most prominent advantages that the Wisconsin workforce can offer?

Honest[y].

--President, Mobile and Stationary Hydraulic Recycling Equipment

The quality of the education received has been top-notch.

--Energetic Devices

We have had to switch almost completely to outsourcing in order to compete. Our Wisconsin workforce has a strong work ethic, desire to change and improve our manufacturing processes . . .

--Screen Printed Sportswear

Strong work ethic installed in a culture where an "honest day of work equals an honest day of pay."

--Assistant General Manager, Hardwood Plywood

What changes, if any, would you like to see in the Wisconsin higher education system to better meet the long-term needs of your industry and firm in the state?

Expand the school to work programs.

--President, Mobile and Stationary Hydraulic Recycling Equipment

It's a challenge, but grads are still coming out of higher institutions without a real desire to work hard and get ahead. There is still an entitlement mentality and wanting to start with unrealistic [goals].

--Screen Printed Sportswear

Describe any innovative workforce attraction or development programs that you would like to see expanded in Wisconsin.

School to work programs.

--President, Mobile and Stationary Hydraulic Recycling Equipment

What are the business challenges that your organization faces - what most keeps you up at night?

Competition is very keen. To compete I'm afraid that our quality reputation will go down.

--Energetic Devices

IMPORTS!! We have been in the clothing business for 40 plus years, proudly manufacturing here in Wisconsin. Pricing pressure got so great about 2 years ago, we had to make the tough decision to close.

--Screen Printed Sportswear

Product liability lawsuits that a small manufacture is faced with, not being able to afford liability insurance. The legal system in America is unfair to small manufactures competing with products from overseas].

--President, Mobile and Stationary Hydraulic Recycling Equipment

Personnel issues.

--Assistant General Manager, Hardwood Plywood

What are the business strengths and/or advantages your organization has by being located in Wisconsin?

Honest hard working people, Quality of life, good transportation system, stable electrical grid,

--President, Mobile and Stationary Hydraulic Recycling Equipment

Located in rural area.

--Energetic Devices

We have great employees with a strong work ethic. Otherwise, our transportation is expensive, we're 3 hours from a major airport, and we're a company that needs skilled managers . . .

--Screen Printed Sportswear

Located close to customers, central location in the U.S., good work ethic.

--*Assistant General Manager, Hardwood Plywood*

10 South Region

10.1 Introduction

Driver industry and industry cluster analyses were conducted for each of the seven economic regions in the State of Wisconsin. This section provides a summary of the findings from the analysis for the South Region, as well as, detailed information related to each of the regional driver industries identified. For the purposes of this analysis, the South Region is defined to include the counties of Columbia, Crawford, Dane, Grant, Green, Iowa, Juneau, Lafayette, Marquette, Richland, Rock, Sauk, and Winnebago, IL.

The next sub-section provides an overview and summary of the findings from the analyses conducted. This is followed by detailed descriptions of each of the regional driver industries and their associated industry cluster. Next, perspectives on the state of manufacturing in the region appear in tabular form. And, finally, Wisconsin's manufacturing executives identify key issues affecting them in the region.

10.2 Summary of Regional Driver Industries & Industry Clusters

The driver analysis for the South Region identified 12 regional driver industries. These industries include:

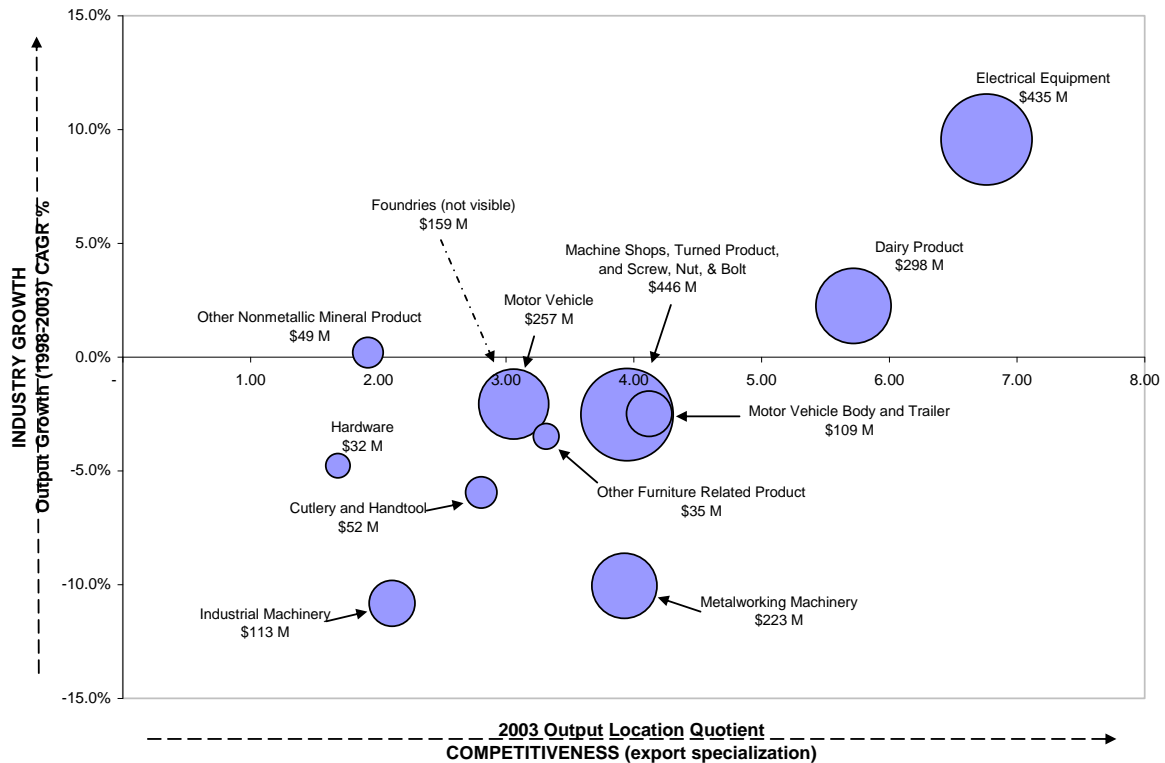
- 3115 Dairy Product Manufacturing
- 3279 Other Nonmetallic Mineral Product Manufacturing
- 3315 Foundries
- 3322 Cutlery and Handtool Manufacturing
- 3325 Hardware Manufacturing
- 3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Mfg.
- 3332 Industrial Machinery Manufacturing
- 3335 Metalworking Machinery Manufacturing
- 3353 Electrical Equipment Manufacturing
- 3361 Motor Vehicle Manufacturing
- 3362 Motor Vehicle Body and Trailer Manufacturing
- 3379 Other Furniture Related Product Manufacturing

10.2.1 How are the South Region's Driver Industries Doing?

This chart shows the relative economic health of driver industries measured by two factors – their “competitiveness” in terms of export orientation or specialization on the X axis (horizontal), and their “growth” on the Y axis (vertical). Competitiveness is measured in terms of the output location quotients which is a ratio of the industry's concentration in the region compared to the industry's concentration nationally. In general, a location quotient above 1 indicates that the industry is more concentrated in the region than it is nationally. This concentration suggests that the industry exports its product from the region and that the region offers competitive advantages to the industry over other areas throughout the country. An industry is increasingly more competitive as it moves to the right on the X axis. And the more competitive it is, the more it sells goods outside of its own region, thereby generating money for the region in which it operates.

Industry growth is measured in terms of compound annual growth rates over the last five years and is shown on the Y axis. An industry is growing faster as it moves upward from zero; it is declining if it is below zero. The area (size) of each circle represents the gross product of each industry and indicates the industry's relative size as compared to the other industries. Through this picturing of all of the region's drivers in one perspective, a sense of the overall strategies and services that will be needed in that region begins to emerge.

Figure 10-1 Overview of the South Region's Drivers



Interpretation: Only two of the South's driver industries have been growing in the last five years, but Dairy Products have been rising slowly, and Electrical Equipment shows solid growth. As we saw in Section 5, the Metal Working Machinery, Industrial Machinery, Cutlery, Hardware, and other metal industries are losing ground.

10.2.2 Driver Industry and Cluster Relationships in the South Region

For the Study, an industry cluster analysis was conducted for each of the driver industries. Tables 10-1 and 10-2 provide a summary of the results from these analyses and identify regional and national supplier industries that are common to multiple regional driver industries.

The supplier industries identified in Table 10-1 are found in the regional economy and provide goods or services to multiple driver industries. Many, in fact, are driver industries themselves. The importance of these industries to the overall competitiveness of the driver industries can not

be overstated. By providing quality goods and services to the driver industries, these supplier industries help the regional driver industries produce and deliver the products their consumers demand. Attempts to impact the competitiveness of the industries that supply inputs to multiple regional driver industries can indirectly impact the competitiveness of those driver industries.

Table 10-1 Regional & National Supplier Industries Common to Regional Driver Industries

NAICS	Title	Regional Driver**	Count of Drivers	
			Regional Suppliers	National Suppliers
42*	Wholesale Trade		12	12
484*	Truck Transportation		12	12
3261	Plastics Product Manufacturing		10	10
3312	Steel Product Manufacturing from Purchased Steel		9	5
3363	Motor Vehicle Parts Manufacturing		5	2
4931	Warehousing and Storage		4	4
3353	Electrical Equipment Manufacturing	X	4	4
3335	Metalworking Machinery Manufacturing	X	3	4
3219	Other Wood Product Manufacturing		3	4
3332	Industrial Machinery Manufacturing	X	3	3
3272	Glass and Glass Product Manufacturing		3	3
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	X	3	8
3344	Semiconductor and Other Electronic Component Manufacturing		3	3
5415	Computer Systems Design and Related Services		3	3
3326	Spring and Wire Product Manufacturing		2	5
2380	Specialty Trade Contractors		2	1
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing		2	3
3251	Basic Chemical Manufacturing		2	2
3359	Other Electrical Equipment & Component Mfg.		2	3
5411	Legal Services		2	3
3362	Motor Vehicle Body and Trailer Manufacturing	X	2	2
5413	Architectural, Engineering, and Related Services		2	3
*An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.				
**Not all of a Region's drivers are also suppliers. Those marked with an X are suppliers.				

Table 10-2 is similar to Table 10-1 in that it shows industries that supply inputs to multiple driver industries. The difference is that the industries identified in Table 10-2 either do not exist in the region or they are smaller industries that are not likely to be able to provide inputs at a sufficient scale to meet the needs of the driver industries. Attempts to attract or grow these industries within the region may help reduce the import of goods and services by the region's driver industries.

Table 10-2 National Supplier Industries Common to Regional Driver Industries

		<u>Count of Drivers</u>
NAICS	Title	National Suppliers
2123	Nonmetallic Mineral Mining and Quarrying	2
3132	Fabric Mills	2
3221	Pulp, Paper, and Paperboard Mills	3
3222	Converted Paper Product Manufacturing	8
3241	Petroleum and Coal Products Manufacturing	3
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	3
3255	Paint, Coating, and Adhesive Manufacturing	6
3259	Other Chemical Product and Preparation Manufacturing	2
3262	Rubber Product Manufacturing	6
3279	Other Nonmetallic Mineral Product Manufacturing	4
3311	Iron and Steel Mills and Ferroalloy Manufacturing	10
3313	Alumina and Aluminum Production and Processing	9
3314	Nonferrous Metal (except Aluminum) Production and Processing	6
3315	Foundries	7
3321	Forging and Stamping	7
3322	Cutlery and Handtool Manufacturing	4
3323	Architectural and Structural Metals Manufacturing	4
3324	Boiler, Tank, and Shipping Container Manufacturing	2
3325	Hardware Manufacturing	3
3328	Coating, Engraving, Heat Treating, and Allied Activities	3
3329	Other Fabricated Metal Product Manufacturing	6
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	2
3339	Other General Purpose Machinery Manufacturing	2
3361	Motor Vehicle Manufacturing	2
4821	Rail Transportation	2
483*	Water Transportation	3
5151	Radio and Television Broadcasting	2
517*	Telecommunications	5
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	3
5417	Scientific Research and Development Services	2
5418	Advertising and Related Services	3
5419	Other Professional, Scientific, and Technical Services	9
8111	Automotive Repair and Maintenance	2
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	6

*An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

10.2.3 Filtering & Refinement of Quantitative Results

The analysis used to identify driver industries is a quantitative analysis based on secondary data and captures industries that exhibit some form of competitive advantage. While the model is extremely good at identifying regional driver industries, certain results often require qualitative insight to filter and refine the results. One way in which to identify industries either to remove or add as driver industries is to receive local perspectives on the lists of driver industries identified by the model. The following are responses to some of the comments related to the driver industries identified by the quantitative analysis for the South Region.

First, the “Biotech” firm Promega Corporation was identified as an important regional firm/industry. Promega Corporation’s primary NAICS code is “Industry 3254: Pharmaceutical and Medicine Manufacturing.” This industry experienced significant growth in terms of both gross product and employment, but it is very small in terms of its relative concentration in the region as compared to the nation as a whole. Because of the nature of this industry, its overall impact may be understated by the data that are available. In general, the industry is growing and evolving rapidly, regionally and nationally. What is not clear is the effect that it is having on other regional industries which may be evolving along with it in order to supply the inputs it demands. It is possible that the industry enjoys certain competitive advantages for future production due to the suppliers and quality of the labor force available in the region. At this point, however, these advantages do not appear in the data.

Second, vegetable canning and food manufacturing were identified as important regional industries. In the region, both “Industry 3114: Fruit and Vegetable Preserving and Specialty Food Manufacturing” and “Industry 3116: Animal Slaughtering and Processing” are relatively large industries in terms of both employment and gross product, but when compared to the nation as whole, they are not overly concentrated in the region. One of the confusing issues related to these industries is due to the characteristics of the larger companies that have production operations in the region. Three specific firms were identified as important regional employers: Frito Lay, Hormel, and Oscar Mayer (Kraft). According to all the information available, each of these companies appear to operate different types of plants in the region and some of the different plants report information in different NAICS industries. For example, Frito Lay reports operations in “Industry 3119: Other Food Manufacturing,” “Industry 4244: Grocery and Related Product Wholesalers,” and “Industry 4931: Warehousing and Storage.” This suggests both that the company itself is important as a large employer and that the company owns and operates its own suppliers.

Third, “container products for food operations” and “plastics” were identified as being important industries. After investigating the industry classifications for the specific firms identified (Flambeau, Inc.; Teel Plastics, Inc.; and Freedom Plastics, Inc.), most of these firms were in the “Industry 3261: Plastics Products Manufacturing.” This industry is clearly an important regional employer because it employs a large number of workers and has a large gross product. It is not, however, overly concentrated in the region as compared to the nation as a whole. For the most part, the firms in this industry are suppliers to other driver industries and directly impact the competitiveness of the industries they supply.

Unlike the other firms identified above, EVCO Plastics was found not to be included in the Plastics Products Manufacturing industry. Rather, it was listed in “Industry 3391: Medical Equipment and Supplies Manufacturing,” and is possibly a supplier to the Pharmaceutical and Medicine Manufacturing industry discussed earlier.

10.3 Detailed Descriptions of the Regional Driver Industries

10.3.1 Driver Industry Definitions

Definitions of Driver Industries

3115 Dairy Product Manufacturing

This industry group comprises establishments that manufacture dairy products from raw milk, processed milk, and dairy substitutes.

31151 Dairy Product (except Frozen) Manufacturing

31152 Ice Cream and Frozen Dessert Manufacturing

3279 Other Nonmetallic Mineral Product Manufacturing

The Other Nonmetallic Mineral Product Manufacturing industry group comprises establishments manufacturing nonmetallic mineral products (except clay products, refractory products, glass products, cement and concrete products, lime, and gypsum products).

32791 Abrasive Product Manufacturing

32799 All Other Nonmetallic Mineral Product Manufacturing

3315 Foundries

This industry group comprises establishments primarily engaged in pouring molten metal into molds or dies to form castings. Establishments making castings and further manufacturing, such as machining or assembling, a specific manufactured product are classified in the industry of the finished product. Foundries may perform operations, such as cleaning and deburring, on the castings they manufacture. More involved processes, such as tapping, threading, milling, or machining to tight tolerances, that transform castings into more finished products are classified elsewhere in the manufacturing sector based on the product being made.

Establishments in this industry group make castings from purchased metals or in integrated secondary smelting and casting facilities. When the production of primary metals is combined with making castings, the establishment is classified in 331 with the primary metal being made.

332 Fabricated Metal Product Manufacturing (Partial)

Industries in the Fabricated Metal Product Manufacturing subsector transform metal into intermediate or end products, other than machinery, computers and electronics, and metal furniture or treating metals and metal formed products fabricated elsewhere. Important fabricated metal processes are forging, stamping, bending, forming, and machining, used to shape individual pieces of metal; and other processes, such as welding and assembling, used to join separate parts together. Establishments in this subsector may use one of these processes or a combination of these processes.

3322 Cutlery and Handtool Manufacturing

3325 Hardware Manufacturing

3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing

333 Machinery Manufacturing (Partial)

Industries in the Machinery Manufacturing subsector create end products that apply mechanical force, for example, the application of gears and levers, to perform work. Some important processes for the manufacture of machinery are forging, stamping, bending, forming, and machining that are used to shape individual pieces of metal. Processes, such as welding and assembling are used to join separate parts together. Although these processes are similar to those used in metal fabricating establishments, machinery manufacturing is different because it typically employs multiple metal forming processes in manufacturing the various parts of the machine. Moreover, complex assembly operations are an inherent part of the production process.

3332 Industrial Machinery Manufacturing

3335 Metalworking Machinery Manufacturing

3353 Electrical Equipment Manufacturing

This industry comprises establishments primarily engaged in manufacturing power, distribution, and specialty transformers; electric motors, generators, and motor generator sets; switchgear and switchboard apparatus; relays; and industrial controls.

336 Transportation Equipment Manufacturing (Partial)

Industries in the Transportation Equipment Manufacturing subsector produce equipment for transporting people and goods. Transportation equipment is a type of machinery. An entire subsector is devoted to this activity because of the significance of its economic size in all three North American countries.

Establishments in this subsector utilize production processes similar to those of other machinery manufacturing establishments—bending, forming, welding, machining, and assembling metal or plastic parts into components and finished products. However, the assembly of components and subassemblies and their further assembly into finished vehicles tends to be a more common production process in this subsector than in the Machinery Manufacturing subsector.

NAICS has industry groups for the manufacture of equipment for each mode of transport - road, rail, air and water. Parts for motor vehicles warrant a separate industry group because of their importance and because parts manufacture requires less assembly, and the establishments that manufacture only parts are not as vertically integrated as those that make complete vehicles.

Land use motor vehicle equipment not designed for highway operation (e.g., agricultural equipment, construction equipment, and materials handling equipment) is classified in the appropriate NAICS subsector based on the type and use of the equipment.

3361 Motor Vehicle Manufacturing

3362 Motor Vehicle Body and Trailer Manufacturing

3379 Other Furniture Related Product Manufacturing

This industry group comprises establishments manufacturing furniture related products, such as mattresses, blinds, and shades.

10.3.2 Industry Clusters

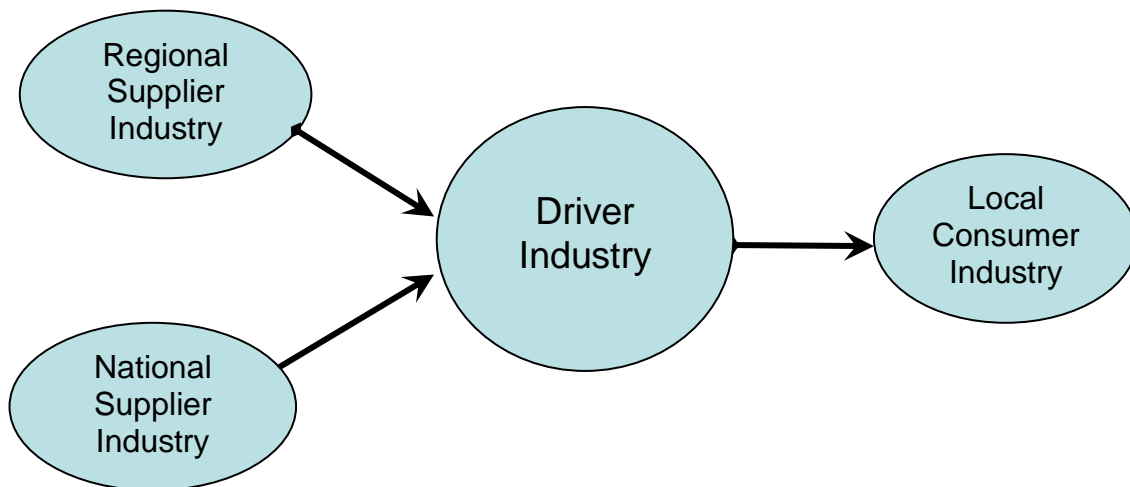
Industries contained within an industry cluster are related to driver industries in three ways, two supplier relationships and one consumer relationship.

Supplier relationships are defined by the backward linkages that a driver industry has with either (1) other regional industries (Regional Suppliers) or (2) industries not located within the region (National Supplier). Both types of supplier relationships are based on linkages identified using information from input-output tables from the IMPLAN model. For supplier relationships with other regional industries, the IMPLAN model is 'regionalized' to reflect the industries that exist within the region. For supplier relationships with industries not located within the region, the national IMPLAN model is used.

For both types of supplier relationships, only the most significant supplier industries are listed. The significance of the supplier industry is based on the relative amount of the driver industry's total outlay that is used to purchase goods or services from the supplier industry. In the case where supplier industries appear in the lists for both types of supplier industries, the specific industry is removed from the list of national supplier industries.

The consumer industries are identified by reversing the relationship used to identify supplier industries. The consumer industries are those industries to which a driver industry sells a significant portion of its total output.

Figure 10-2 Industry Clusters



Industry Clusters

NB: An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

3115 Dairy Product Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
FR	Farms	3222	Converted Paper Product Manufacturing
42*	Wholesale Trade	3112	Grain and Oilseed Milling
3332	Industrial Machinery Manufacturing	3113	Sugar and Confectionery Product Manufacturing
3115	Dairy Product Manufacturing	481*	Air Transportation
4931	Warehousing and Storage	3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3261	Plastics Product Manufacturing	5419	Other Professional, Scientific, and Technical Services
3119	Other Food Manufacturing	5324	Commercial and Industrial Machinery and Equipment Rental and Leasing
484*	Truck Transportation	8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3324	Boiler, Tank, and Shipping Container Manufacturing	3219	Other Wood Product Manufacturing
5411	Legal Services		
Consumer Industries - Typical Regional Industry			
722*	Food services and drinking places		
3115	Dairy Product Manufacturing		
3254	Pharmaceutical and Medicine Manufacturing		
6244	Child Day Care Services		

3279 Other Nonmetallic Mineral Product Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
484*	Truck Transportation	3273	Cement and Concrete Product Manufacturing
3272	Glass and Glass Product Manufacturing	3311	Iron and Steel Mills and Ferroalloy Manufacturing
42*	Wholesale Trade	3279	Other Nonmetallic Mineral Product Manufacturing
3219	Other Wood Product Manufacturing	3221	Pulp, Paper, and Paperboard Mills
3261	Plastics Product Manufacturing	2212	Natural Gas Distribution
3251	Basic Chemical Manufacturing	3255	Paint, Coating, and Adhesive Manufacturing
2123	Nonmetallic Mineral Mining and Quarrying	3322	Cutlery and Handtool Manufacturing
		3132	Fabric Mills

Supplier Industries - Typical Regional Industry**Supplier Industries - Typical National Industry**

8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing

Consumer Industries - Typical Regional Industry

3363	Motor Vehicle Parts Manufacturing
722*	Food services and drinking places
3221	Pulp, Paper, and Paperboard Mills
3255	Paint, Coating, and Adhesive Manufacturing
3222	Converted Paper Product Manufacturing
3379	Other Furniture Related Product Manufacturing
2360	Construction of Buildings
3361	Motor Vehicle Manufacturing
3279	Other Nonmetallic Mineral Product Manufacturing
3115	Dairy Product Manufacturing

3315 Foundries**Supplier Industries - Typical Regional Industry****Supplier Industries - Typical National Industry**

42*	Wholesale Trade	3313	Alumina and Aluminum Production and Processing
484*	Truck Transportation	3314	Nonferrous Metal (except Aluminum) Production and Processing
5419	Other Professional, Scientific, and Technical Services	3315	Foundries
3335	Metalworking Machinery Manufacturing	3311	Iron and Steel Mills and Ferroalloy Manufacturing
3332	Industrial Machinery Manufacturing	2122	Metal Ore Mining
3363	Motor Vehicle Parts Manufacturing	3329	Other Fabricated Metal Product Manufacturing
3328	Coating, Engraving, Heat Treating, and Allied Activities	3222	Converted Paper Product Manufacturing
3312	Steel Product Manufacturing from Purchased Steel	3321	Forging and Stamping
		8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
		2123	Nonmetallic Mineral Mining and Quarrying

Consumer Industries - Typical Regional Industry

3363	Motor Vehicle Parts Manufacturing
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Consumer Industries - Typical Regional Industry

3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3329	Other Fabricated Metal Product Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing
2360	Construction of Buildings
3352	Household Appliance Manufacturing
3339	Other General Purpose Machinery Manufacturing

3322 Cutlery and Handtool Manufacture

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
3312	Steel Product Manufacturing from Purchased Steel
484*	Truck Transportation
3261	Plastics Product Manufacturing

Supplier Industries - Typical National Industry

3311	Iron and Steel Mills and Ferroalloy Manufacturing
3313	Alumina and Aluminum Production and Processing
3329	Other Fabricated Metal Product Manufacturing
3321	Forging and Stamping
3222	Converted Paper Product Manufacturing
483*	Water Transportation
3315	Foundries
3322	Cutlery and Handtool Manufacturing
3241	Petroleum and Coal Products Manufacturing
5418	Advertising and Related Services

Consumer Industries - Typical Regional Industry

3322	Cutlery and Handtool Manufacturing
3121	Beverage Manufacturing
3332	Industrial Machinery Manufacturing
FR	Farms
8111	Automotive Repair and Maintenance
3221	Pulp, Paper, and Paperboard Mills
722*	Food services and drinking places
8121	Personal Care Services
3222	Converted Paper Product Manufacturing
2360	Construction of Buildings

3325 Hardware Manufacturing

Supplier Industries - Typical Regional Industry

Supplier Industries - Typical National Industry

Supplier Industries - Typical Regional Industry	
42*	Wholesale Trade
3312	Steel Product Manufacturing from Purchased Steel
3261	Plastics Product Manufacturing
484*	Truck Transportation
3353	Electrical Equipment Manufacturing

Supplier Industries - Typical National Industry	
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3321	Forging and Stamping
3325	Hardware Manufacturing
3222	Converted Paper Product Manufacturing
3315	Foundries
3322	Cutlery and Handtool Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3314	Nonferrous Metal (except Aluminum) Production and Processing
3326	Spring and Wire Product Manufacturing
3313	Alumina and Aluminum Production and Processing

Consumer Industries - Typical Regional Industry	
3361	Motor Vehicle Manufacturing
3362	Motor Vehicle Body and Trailer Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
2360	Construction of Buildings
3352	Household Appliance Manufacturing
3219	Other Wood Product Manufacturing
8111	Automotive Repair and Maintenance
3261	Plastics Product Manufacturing
3359	Other Electrical Equipment and Component Manufacturing

3327 Machine Shops, Turned products, and Screw, Nut, and Bolt Manufacturing

Supplier Industries - Typical Regional Industry	
42*	Wholesale Trade
5415	Computer Systems Design and Related Services
3326	Spring and Wire Product Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3312	Steel Product Manufacturing from Purchased Steel
3335	Metalworking Machinery Manufacturing
3363	Motor Vehicle Parts Manufacturing

Supplier Industries - Typical National Industry	
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3325	Hardware Manufacturing
3315	Foundries
3314	Nonferrous Metal (except Aluminum) Production and Processing
3313	Alumina and Aluminum Production and Processing
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing
5419	Other Professional, Scientific, and Technical Services

Supplier Industries - Typical Regional Industry

484* Truck Transportation

2380 Specialty Trade Contractors

Consumer Industries - Typical Regional Industry

3363 Motor Vehicle Parts Manufacturing

3361 Motor Vehicle Manufacturing

3119 Other Food Manufacturing

3221 Pulp, Paper, and Paperboard Mills

3327 Machine Shops, Turned Product, and
Screw, Nut, & Bolt Manufacturing

GVSL* State and Local Government

3329 Other Fabricated Metal Product
Manufacturing

3261 Plastics Product Manufacturing

3332 Industrial Machinery Manufacturing

3344 Semiconductor and Other Electronic
Component Manufacturing**Supplier Industries - Typical National Industry**8113 Commercial and Industrial Machinery and
Equipment (except Automotive and
Electronic) Repair and Maintenance**3332 Industrial Machinery Manufacturing****Supplier Industries - Typical Regional Industry**

42* Wholesale Trade

3332 Industrial Machinery Manufacturing

3261 Plastics Product Manufacturing

5415 Computer Systems Design and Related
Services3312 Steel Product Manufacturing from
Purchased Steel3344 Semiconductor and Other Electronic
Component Manufacturing3327 Machine Shops, Turned Product, and
Screw, Nut, & Bolt Manufacturing

484* Truck Transportation

3251 Basic Chemical Manufacturing

3329 Other Fabricated Metal Product
Manufacturing

3353 Electrical Equipment Manufacturing

Supplier Industries - Typical National Industry3328 Coating, Engraving, Heat Treating, and
Allied Activities3311 Iron and Steel Mills and Ferroalloy
Manufacturing3334 Ventilation, Heating, Air-Conditioning, and
Commercial Refrigeration Equipment
Manufacturing

3322 Cutlery and Handtool Manufacturing

3321 Forging and Stamping

3279 Other Nonmetallic Mineral Product
Manufacturing

3315 Foundries

3255 Paint, Coating, and Adhesive Manufacturing

3359 Other Electrical Equipment and Component
Manufacturing3339 Other General Purpose Machinery
Manufacturing

Consumer Industries - Typical Regional Industry

3132	Fabric Mills
3115	Dairy Product Manufacturing
3255	Paint, Coating, and Adhesive Manufacturing
3231	Printing and Related Support Activities
3344	Semiconductor and Other Electronic Component Manufacturing
3332	Industrial Machinery Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3221	Pulp, Paper, and Paperboard Mills
3251	Basic Chemical Manufacturing
3133	Textile and Fabric Finishing and Fabric Coating Mills

3335 Metalworking Machinery Manufacture

<u>Supplier Industries - Typical Regional Industry</u>	<u>Supplier Industries - Typical National Industry</u>
42* Wholesale Trade	3314 Nonferrous Metal (except Aluminum) Production and Processing
3261 Plastics Product Manufacturing	3311 Iron and Steel Mills and Ferroalloy Manufacturing
5415 Computer Systems Design and Related Services	3315 Foundries
3335 Metalworking Machinery Manufacturing	3321 Forging and Stamping
3353 Electrical Equipment Manufacturing	3255 Paint, Coating, and Adhesive Manufacturing
484* Truck Transportation	3279 Other Nonmetallic Mineral Product Manufacturing
2380 Specialty Trade Contractors	3339 Other General Purpose Machinery Manufacturing
3312 Steel Product Manufacturing from Purchased Steel	3329 Other Fabricated Metal Product Manufacturing
3344 Semiconductor and Other Electronic Component Manufacturing	3323 Architectural and Structural Metals Manufacturing
517* Telecommunications	5324 Commercial and Industrial Machinery and Equipment Rental and Leasing
3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	
4931 Warehousing and Storage	
3363 Motor Vehicle Parts Manufacturing	
3359 Other Electrical Equipment and Component Manufacturing	

Consumer Industries - Typical Regional Industry

Consumer Industries - Typical Regional Industry

3363	Motor Vehicle Parts Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3335	Metalworking Machinery Manufacturing
3315	Foundries
3323	Architectural and Structural Metals Manufacturing
3261	Plastics Product Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3332	Industrial Machinery Manufacturing
3361	Motor Vehicle Manufacturing
3362	Motor Vehicle Body and Trailer Manufacturing

3353 Electrical Equipment Manufacturing

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
3344	Semiconductor and Other Electronic Component Manufacturing
3353	Electrical Equipment Manufacturing
3312	Steel Product Manufacturing from Purchased Steel
3261	Plastics Product Manufacturing
3359	Other Electrical Equipment and Component Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
484*	Truck Transportation
4931	Warehousing and Storage
5413	Architectural, Engineering, and Related Services

Supplier Industries - Typical National Industry

3255	Paint, Coating, and Adhesive Manufacturing
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3321	Forging and Stamping
3314	Nonferrous Metal (except Aluminum) Production and Processing
3315	Foundries
3241	Petroleum and Coal Products Manufacturing
3271	Clay Product and Refractory Manufacturing
3329	Other Fabricated Metal Product Manufacturing
3323	Architectural and Structural Metals Manufacturing
3221	Pulp, Paper, and Paperboard Mills

Consumer Industries - Typical Regional Industry

3399	Other Miscellaneous Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
2360	Construction of Buildings
3363	Motor Vehicle Parts Manufacturing
3221	Pulp, Paper, and Paperboard Mills
3219	Other Wood Product Manufacturing

Consumer Industries - Typical Regional Industry

3353	Electrical Equipment Manufacturing
3352	Household Appliance Manufacturing
3261	Plastics Product Manufacturing
3361	Motor Vehicle Manufacturing

3361 Motor Vehicle Manufacturing

Supplier Industries - Typical Regional Industry

3363	Motor Vehicle Parts Manufacturing
42*	Wholesale Trade
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
8111	Automotive Repair and Maintenance
3261	Plastics Product Manufacturing
484*	Truck Transportation
3362	Motor Vehicle Body and Trailer Manufacturing
3272	Glass and Glass Product Manufacturing

Supplier Industries - Typical National Industry

3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
5413	Architectural, Engineering, and Related Services
5414	Specialized Design Services
3255	Paint, Coating, and Adhesive Manufacturing
3361	Motor Vehicle Manufacturing
3262	Rubber Product Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing

Consumer Industries - Typical Regional Industry

3361	Motor Vehicle Manufacturing
3363	Motor Vehicle Parts Manufacturing
8111	Automotive Repair and Maintenance
3362	Motor Vehicle Body and Trailer Manufacturing
484*	Truck Transportation

3362 Motor Vehicle Body and Trailer Manufacturing

Supplier Industries - Typical Regional Industry

3363	Motor Vehicle Parts Manufacturing
42*	Wholesale Trade
484*	Truck Transportation
3362	Motor Vehicle Body and Trailer Manufacturing
3272	Glass and Glass Product Manufacturing
3312	Steel Product Manufacturing from Purchased Steel
3211	Sawmills and Wood Preservation
5413	Architectural, Engineering, and Related

Supplier Industries - Typical National Industry

3329	Other Fabricated Metal Product Manufacturing
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3361	Motor Vehicle Manufacturing
3313	Alumina and Aluminum Production and Processing
3321	Forging and Stamping
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
3359	Other Electrical Equipment and Component Manufacturing
3262	Rubber Product Manufacturing

Supplier Industries - Typical Regional Industry

	Services
3261	Plastics Product Manufacturing
4931	Warehousing and Storage
3219	Other Wood Product Manufacturing

Supplier Industries - Typical National Industry

3325	Hardware Manufacturing
3369	Other Transportation Equipment Manufacturing

Consumer Industries - Typical Regional Industry

3362	Motor Vehicle Body and Trailer Manufacturing
3361	Motor Vehicle Manufacturing
8111	Automotive Repair and Maintenance

3379 Other Furniture Related Product Manufacture**Supplier Industries - Typical Regional Industry**

42*	Wholesale Trade
3261	Plastics Product Manufacturing
484*	Truck Transportation
3326	Spring and Wire Product Manufacturing
3231	Printing and Related Support Activities
3219	Other Wood Product Manufacturing
5418	Advertising and Related Services
5111	Newspaper, Periodical, Book, and Directory Publishers
5151	Radio and Television Broadcasting
3312	Steel Product Manufacturing from Purchased Steel
3379	Other Furniture Related Product Manufacturing

Supplier Industries - Typical National Industry

3262	Rubber Product Manufacturing
3149	Other Textile Product Mills
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3313	Alumina and Aluminum Production and Processing
3132	Fabric Mills
3222	Converted Paper Product Manufacturing
3133	Textile and Fabric Finishing and Fabric Coating Mills
517*	Telecommunications
3131	Fiber, Yarn, and Thread Mills
3314	Nonferrous Metal (except Aluminum) Production and Processing

Consumer Industries - Typical Regional Industry

3379	Other Furniture Related Product Manufacturing
3343	Audio and Video Equipment Manufacturing
2360	Construction of Buildings
622*	Hospitals
621a*	Offices of physicians, dentists, and other health practitioners
3219	Other Wood Product Manufacturing
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing
2380	Specialty Trade Contractors
623*	Nursing and residential care facilities

**Consumer Industries - Typical Regional
Industry**

621b* Other ambulatory health care services

3391 Medical Equipment and Supplies
Manufacturing

10.3.3 Top Firms by Driver Industry in the South Region

3115 Dairy Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Sites	All Sites				
Mille Lacs Gourmet Foods	1,300	1,924	Branch	Private	500MM-999.9MM	1946
Wisconsin Cheeseman Inc	424	1,924	Parent	Private		1946
AMPI	400	1,796	Branch	Private	100MM-499.9MM	1972
Schoep's Ice Cream Co Inc	200	350	Branch	Private	50MM-99.9MM	
Dean Foods	150	33,805	Branch	Public	50MM-99.9MM	1985
Grande Cheese Co	150	800	Branch	Private	50MM-99.9MM	1941
Wisconsin Cheese Group	150	153	Branch	Private	50MM-99.9MM	1985
Schoeps Ice Cream Co Inc	150	350	Parent	Private		1928
Foremost Farms USA Cooperative	140	1,467	Parent	Private		1995
Lactalis USA Inc	120	-	Single	Private	50MM-99.9MM	1960
Lactoprot USA Inc	120	-	Single	Private	50MM-99.9MM	1890
Foremost Farms USA	100	1,467	Branch	Private	25MM-49.9MM	1993
Hilltop Valley Dairy LLC	100	-	Single	Private	25MM-49.9MM	2001
Madison Dairy Produce Co	100	6,861	Branch	Private	50MM-99.9MM	1915
Roth Kase USA Ltd	100	-	Single	Private	50MM-99.9MM	1990
Saputo Cheese USA Inc	70	1,745	Branch	Private	25MM-49.9MM	1984
Foremost Farms USA Cooperative	65	1,467	Branch	Private	25MM-49.9MM	1963
Meister Cheese Co	55	-	Single	Private	25MM-49.9MM	1923
Foremost Farms USA	50	1,467	Branch	Private	25MM-49.9MM	1977
Montchevre-Betin Inc	50	-	Single	Private	25MM-49.9MM	1989
Zander's Creamery Inc	45	-	Single	Private	25MM-49.9MM	1870
Klondike Cheese Co	40	-	Single	Private	10MM-24.9MM	1925
Chula Vista Cheese Co	35	235	Branch	Private	10MM-24.9MM	1985
Cedar Grove Cheese Inc	30	-	Single	Private	10MM-24.9MM	1900
Torkelson Springdale Cheese	30	-	Single	Private	10MM-24.9MM	1949
Wisconsin Pride Cheese Co	28	50	Branch	Private	10MM-24.9MM	1986
Salemville Cheese Coop Cambria	26	-	Single	Private	10MM-24.9MM	1984
Arena Cheese	25	-	Single	Private	10MM-24.9MM	1981
Zimmerman Cheese Inc	25	-	Single	Private	10MM-24.9MM	1979
Carr Valley Cheese Co Inc	22	50	Parent	Private		1986
Chalet Cheese Co-Op	20	-	Single	Private	10MM-24.9MM	1885
Saputo Cheese USA Inc	20	1,745	Branch	Private	10MM-24.9MM	1981
Swiss Valley Farms Co	20	668	Branch	Private	10MM-24.9MM	1984
International Ingredient Corp	20	97	Branch	Private	10MM-24.9MM	1993

3279 Other Nonmetallic Mineral Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Sites	All Sites				
3M	500	71,847	Branch	Public	100MM-499.9MM	1967
Universal Silencer	65	14,589	Branch	Public	10MM-24.9MM	1959
Bjoin Limestone Inc	40	-	Single	Private	1MM-4.9MM	1973
Quarra Stone Co LLC	40	-	Single	Private	1MM-4.9MM	1989

3315 Foundries

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Grede Foundries Inc	825	3,246	Branch	Private	100MM-499.9MM	1953
Madison-Kipp Corp	600	-	Single	Private	50MM-99.9MM	1898
Citation Corp	180	5,373	Branch	Private	25MM-49.9MM	1930
Fall River Group Inc	160	235	Parent	Private		1953
Richland Center Foundry	150	-	Single	Private	10MM-24.9MM	1964
Berntsen Brass & Aluminum	100	-	Single	Private	5MM-9.9MM	1946
Stroh Controls Inc	50	-	Single	Private	5MM-9.9MM	1994

3322 Cutlery and Handtool Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Sites	All Sites				
Fiskars Consumer Products Inc	300	1,736	Branch	Private	25MM-49.9MM	1990
Wisconsin Knife Works Inc	100	-	Single	Private	10MM-24.9MM	1926
VNE Corp	65	-	Single	Private	5MM-9.9MM	1981

3325 Hardware Manufacturing

*No firms were identified in database. (This study used the Harris Infosource database. Harris is a fully owned subsidiary of Dun & Bradstreet. Companies providing data to D&B for the Harris database do so voluntarily. Therefore, the information is incomplete for this item because eligible firms chose not to participate.)

3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Mfg.

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
MPI Wisconsin Fineblanking	230	2,371	Branch	Private	10MM-24.9MM	1977
HyPro Inc	120	430	Branch	Private	10MM-24.9MM	1997
Brunner Manufacturing Inc	120	220	Parent	Private		1952
E K Machine Co Inc	100	-	Single	Private	5MM-9.9MM	1970
Latitude Corp	100	-	Single	Private	5MM-9.9MM	1985
Elroy Manufacturing	100	220	Branch	Private	10MM-24.9MM	
Addison Machine Engineering	60	165	Branch	Private	5MM-9.9MM	1977
Quality Machining Inc	60	-	Single	Private	5MM-9.9MM	1984
Necedah Screw Machine Products	55	-	Single	Private	5MM-9.9MM	1963
Endres Manufacturing Co Inc	50	-	Single	Private	1MM-4.9MM	1926
Production Machine Enterprises	50	-	Single	Private	1MM-4.9MM	1978
Cuba City Machine Inc	43	-	Single	Private	1MM-4.9MM	1974
Kelsch Machine Corp	40	-	Single	Private	1MM-4.9MM	1950
ITW Shakeproof	40	24,632	Branch	Public	5MM-9.9MM	1912
Daleo Machining Inc	35	-	Single	Private	1MM-4.9MM	1989
SCA Packaging North Amercian	32	2,296	Branch	Private	1MM-4.9MM	1962
Beloit Special Machining Co	30	-	Single	Private	1MM-4.9MM	1978
Richland Ltd	30	-	Single	Private	1MM-4.9MM	1970
T W Design & Manufacturing LLC	30	-	Single	Private	1MM-4.9MM	1989
ITW Shakeproof Automotive	30	24,632	Branch	Public	1MM-4.9MM	1983
Shakeproof Automotive	30	24,632	Branch	Public	1MM-4.9MM	1989
Draeving Machine & Tool Inc	25	-	Single	Private	1MM-4.9MM	1971
Middleton Machining & Welding	25	-	Single	Private	1MM-4.9MM	1990

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Webber Metal Products Inc	24	199	Branch	Private	1MM-4.9MM	1993
Westfield Machining & Mfg	21	-	Single	Private	1MM-4.9MM	1980
Metal Solutions Inc	20	-	Single	Private	1MM-4.9MM	1960

3332 Industrial Machinery Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Lyc0 Manufacturing Inc	70	-	Single	Private	10MM-24.9MM	1972
Yates-American Machine Co	40	52	Parent	Private		1883
Hughes Co Inc	40	-	Single	Private	5MM-9.9MM	1961
Johnson Industries Intl	38	-	Single	Private	5MM-9.9MM	1964
Stainless Steel Fabricating	33	-	Single	Private	1MM-4.9MM	1966
Advanced Greig Laminators Inc	25	-	Single	Private	1MM-4.9MM	1995
GBC Pro-Tech Engineering Co	25	2,918	Branch	Private	1MM-4.9MM	1987
Wolf Machine Inc	20	-	Single	Private	1MM-4.9MM	1946

3335 Metalworking Machinery Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Flambeau Inc	200	1,762	Branch	Private	10MM-24.9MM	1947
Portage Casting & Mold Inc	60	-	Single	Private	5MM-9.9MM	1972
Dumore Corp	58	-	Single	Private	5MM-9.9MM	1915
Ellis Manufacturing Co Inc	50	-	Single	Private	5MM-9.9MM	1950
Rapid Die & Molding Co	50	59	Parent	Private		1945
Apollo Tool Inc	40	-	Single	Private	1MM-4.9MM	1973
Del-Tool Co Inc	30	-	Single	Private	1MM-4.9MM	1967
Wisconsin Porcelain Co Inc	30	460	Branch	Private	5MM-9.9MM	1919
Mauston Tool Corp	25	-	Single	Private	1MM-4.9MM	1978
VersaTool & Die Machining	25	-	Single	Private	1MM-4.9MM	1956
Prairie Tool Co Inc	20	-	Single	Private	1MM-4.9MM	1920

3353 Electrical Equipment Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Rockwell Automation	550	16,905	Branch	Public	50MM-99.9MM	1971
Philips Advance	400	18,600	Branch	Private	50MM-99.9MM	1950
Merkle-Korff Industries Inc	125	4,726	Branch	Private	10MM-24.9MM	1984
Hankscraft Motors Inc	65	90	Parent	Private		1949
SoftSwitching Technologies	45	-	Single	Private	5MM-9.9MM	1995
Electric Motors Unlimited Inc	24	-	Single	Private	1MM-4.9MM	1952

3361 Motor Vehicle Manufacturing

*No firms were identified in database. (This study used the Harris Infosource database. Harris is a fully owned subsidiary of Dun & Bradstreet. Companies providing data to D&B for the Harris database do so voluntarily. Therefore, the information is incomplete for this item because eligible firms chose not to participate.)

3362 Motor Vehicle Body and Trailer Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
General Motors Corp	4,800	204,874	Branch	Public	1B-9.9B	1923
Stoughton Trailers Inc	350	475	Branch	Private	50MM-99.9MM	1994
Stoughton Trailers LLC	180	-	Single	Private	25MM-49.9MM	1972
Morgan Corp	150	1,215	Branch	Private	25MM-49.9MM	1950
Stoughton Trailers LLC	100	475	Parent	Private		1961
Maxi Products Co Inc	25	-	Single	Private	5MM-9.9MM	1986

3379 Other Furniture Related Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Springs Window Fashions LP	1,200	13,265	HQs	Private		1939
Simmons Co	350	2,261	Branch	Private	50MM-99.9MM	1980
Serta Mattress Co	150	1,235	Branch	Private	25MM-49.9MM	1989

10.3.4 Detailed Employment, Gross Product, & Gross Product per Employee, South Region

Table 10-3 Employment in the South Region's Driver Industries, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3115	Dairy Product Manufacturing	3,239	3,231	3,375	3,249	3,052	2,955	2,909	2,788
3279	Other Nonmetallic Mineral Product Manufacturing	900	887	896	835	773	758	756	691
3315	Foundries	2,919	3,540	3,464	3,079	2,853	2,775	2,758	2,530
3322	Cutlery and Handtool Manufacturing	1,180	1,239	1,139	979	908	807	776	685
3325	Hardware Manufacturing	730	690	660	560	510	460	430	400
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	6,209	7,835	7,930	7,237	6,832	6,499	6,502	6,620
3332	Industrial Machinery Manufacturing	4,118	4,191	2,852	2,540	2,258	2,031	1,899	1,843
3335	Metalworking Machinery Mfg.	6,890	7,487	6,336	5,814	4,763	4,208	3,947	3,660
3353	Electrical Equipment Manufacturing	4,618	3,451	3,167	2,922	2,826	2,897	3,096	3,189
3361	Motor Vehicle Manufacturing	4,478	4,985	4,945	4,488	4,138	4,149	4,030	3,848
3362	Motor Vehicle Body and Trailer Mfg.	540	529	548	467	416	443	432	390
3379	Other Furniture Related Product Mfg.	1,099	957	875	824	812	766	725	573

Table 10-4 CAGR* in Employment in the South Region's Driver Industries, 1993-2008

NAICS	Title	1993-1998	1998-2003	2003-2008
3115	Dairy Product Manufacturing	0.0%	-1.5%	-1.0%
3279	Other Nonmetallic Mineral Product Manufacturing	-0.2%	-2.6%	-1.5%
3315	Foundries	3.3%	-4.0%	-1.5%
3322	Cutlery and Handtool Manufacturing	0.8%	-6.9%	-2.7%
3325	Hardware Manufacturing	-0.9%	-6.5%	-2.3%
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	4.0%	-3.1%	0.3%
3332	Industrial Machinery Manufacturing	0.3%	-11.4%	-1.6%
3335	Metalworking Machinery Manufacturing	1.4%	-9.2%	-2.3%
3353	Electrical Equipment Manufacturing	-4.7%	-2.9%	1.6%

NAICS	Title	1993-1998	1998-2003	2003-2008
3361	Motor Vehicle Manufacturing	1.8%	-3.0%	-1.2%
3362	Motor Vehicle Body and Trailer Mfg.	-0.3%	-2.9%	-2.1%
3379	Other Furniture Related Product Mfg.	-2.3%	-3.6%	-4.7%

***Compound Annual Growth Rate—CAGR.** An average annual growth rate over a specified period of time. It is calculated as:
 $CAGR = (\text{present value} / \text{base value})^{(1 / \text{number of years})} - 1$

Table 10-5 Labor Location Quotients*—South Region's Driver Industries, 1993-2003

NAICS	Title	1993	1998	2001	2002	2003
3115	Dairy Product Manufacturing	4.61	5.06	4.95	4.63	4.45
3279	Other Nonmetallic Mineral Product Manufacturing	2.72	2.48	2.32	2.24	2.22
3315	Foundries	3.03	3.26	3.21	3.32	3.45
3322	Cutlery and Handtool Manufacturing	3.22	3.20	2.84	2.93	2.69
3325	Hardware Manufacturing	2.75	2.64	2.53	2.51	2.38
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Mfg.	4.26	4.34	4.32	4.45	4.33
3332	Industrial Machinery Manufacturing	5.87	5.07	3.54	3.58	3.37
3335	Metalworking Machinery Manufacturing	5.66	5.32	4.86	4.56	4.21
3353	Electrical Equipment Manufacturing	4.37	3.30	3.10	3.36	3.72
3361	Motor Vehicle Manufacturing	3.44	3.61	3.35	3.24	3.19
3362	Motor Vehicle Body and Trailer Manufacturing	0.80	0.64	0.61	0.57	0.60
3379	Other Furniture Related Product Manufacturing	4.96	3.73	3.09	3.15	3.05

* The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region.

Table 10-6 Manufacturing Gross Product in the South Region's Driver Industries, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3115	Dairy Product Manufacturing	\$ 207,832,237	\$ 260,890,034	\$ 301,327,592	\$ 320,159,826	\$ 296,611,000	\$ 297,988,611	\$ 304,733,222	\$ 337,038,607
3279	Other Nonmetallic Mineral Product Manufacturing	\$ 56,661,899	\$ 48,928,180	\$ 53,948,328	\$ 47,046,834	\$ 46,266,688	\$ 49,495,059	\$ 51,153,586	\$ 54,961,615
3315	Foundries	\$ 142,571,927	\$ 178,175,082	\$ 175,238,298	\$ 168,288,168	\$ 154,152,924	\$ 158,764,700	\$ 165,643,393	\$ 176,936,159
3322	Cutlery and Handtool Mfg.	\$ 68,201,947	\$ 75,155,494	\$ 69,150,023	\$ 62,370,443	\$ 56,135,685	\$ 51,999,680	\$ 50,475,584	\$ 53,520,735
3325	Hardware Manufacturing	\$ 42,217,989	\$ 43,369,003	\$ 42,138,300	\$ 37,529,572	\$ 34,439,670	\$ 32,325,654	\$ 32,030,177	\$ 35,150,322

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Mfg.	\$ 335,862,533	\$ 520,413,081	\$ 525,282,990	\$ 500,496,731	\$ 462,799,882	\$ 446,235,774	\$ 445,674,810	\$ 533,520,424
3332	Industrial Machinery Manufacturing	\$ 184,184,736	\$ 223,789,293	\$ 134,672,276	\$ 135,301,711	\$ 119,664,988	\$ 112,526,304	\$ 107,746,880	\$ 121,303,160
3335	Metalworking Machinery Mfg.	\$ 311,988,828	\$ 421,917,970	\$ 316,075,469	\$ 307,572,436	\$ 250,194,603	\$ 223,416,608	\$ 212,025,730	\$ 234,600,397
3353	Electrical Equipment Manufacturing	\$ 285,148,692	\$ 251,415,483	\$ 251,317,429	\$ 431,957,157	\$ 412,934,826	\$ 434,766,253	\$ 476,823,736	\$ 573,321,652
3361	Motor Vehicle Manufacturing	\$ 223,705,791	\$ 290,411,258	\$ 291,783,880	\$ 251,068,756	\$ 241,916,281	\$ 256,935,538	\$ 269,976,871	\$ 317,160,132
3362	Motor Vehicle Body and Trailer Mfg.	\$ 99,708,505	\$ 127,063,220	\$ 121,727,946	\$ 102,440,546	\$ 100,243,745	\$ 109,206,629	\$ 106,877,335	\$ 119,903,588
3379	Other Furniture Related Product Manufacturing	\$ 42,355,023	\$ 43,164,979	\$ 39,474,197	\$ 33,015,985	\$ 35,748,119	\$ 34,893,778	\$ 34,125,653	\$ 32,319,151

Table 10-7 CAGR* for Gross Product in the South Region's Driver Industries, 1993-2008

NAICS	Title	1993-1998	1998-2003	2003-2008
3115	Dairy Product Manufacturing	3.9%	2.2%	2.1%
3279	Other Nonmetallic Mineral Product Manufacturing	-2.4%	0.2%	1.8%
3315	Foundries	3.8%	-1.9%	1.8%
3322	Cutlery and Handtool Manufacturing	1.6%	-6.0%	0.5%
3325	Hardware Manufacturing	0.4%	-4.8%	1.4%
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	7.6%	-2.5%	3.0%
3332	Industrial Machinery Manufacturing	3.3%	-10.8%	1.3%
3335	Metalworking Machinery Manufacturing	5.2%	-10.1%	0.8%
3353	Electrical Equipment Manufacturing	-2.1%	9.6%	4.7%
3361	Motor Vehicle Manufacturing	4.4%	-2.0%	3.6%
3362	Motor Vehicle Body and Trailer Manufacturing	4.1%	-2.5%	1.6%
3379	Other Furniture Related Product Manufacturing	0.3%	-3.5%	-1.3%

*Compound Annual Growth Rate—CAGR. An average annual growth rate over a specified period of time. It is calculated as:

$$CAGR = (\text{present value} / \text{base value})^{(1 / \text{number of years})} - 1$$

Table 10-8 Output Location Quotients*—South Region's Driver Industries, 1993-2003

NAICS	Title	1993	1998	2001	2002	2003
3115	Dairy Product Manufacturing	4.09	4.94	6.21	5.66	5.72
3279	Other Nonmetallic Mineral Product Manufacturing	2.64	1.66	1.81	1.81	1.92
3315	Foundries	3.04	2.65	2.82	2.93	3.07
3322	Cutlery and Handtool Manufacturing	3.92	3.29	3.09	3.05	2.81
3325	Hardware Manufacturing	2.68	2.04	1.90	1.83	1.69
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Mfg.	4.39	4.16	4.14	4.11	3.95
3332	Industrial Machinery Manufacturing	4.03	3.19	2.14	2.21	2.11
3335	Metalworking Machinery Manufacturing	4.93	4.86	4.52	4.23	3.93
3353	Electrical Equipment Manufacturing	4.87	3.26	6.24	6.24	6.76
3361	Motor Vehicle Manufacturing	3.62	3.20	2.99	3.00	3.06
3362	Motor Vehicle Body and Trailer Manufacturing	5.64	5.04	3.98	3.94	4.12
3379	Other Furniture Related Product Manufacturing	5.65	4.44	3.33	3.39	3.32

* The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region.

Table 10-9 Manufacturing Productivity (Gross Product per Employee) of Driver Industries, South Region, 1993-1008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3115	Dairy Product Manufacturing	\$ 64,172	\$ 80,738	\$ 89,282	\$ 98,541	\$ 97,183	\$ 100,832	\$ 104,762	\$ 120,904
3279	Other Nonmetallic Mineral Product Manufacturing	\$ 62,985	\$ 55,132	\$ 60,210	\$ 56,370	\$ 59,876	\$ 65,308	\$ 67,663	\$ 79,493
3315	Foundries	\$ 48,848	\$ 50,335	\$ 50,592	\$ 54,651	\$ 54,041	\$ 57,213	\$ 60,059	\$ 69,936
3322	Cutlery and Handtool Mfg.	\$ 57,801	\$ 60,645	\$ 60,719	\$ 63,739	\$ 61,822	\$ 64,445	\$ 65,012	\$ 78,126
3325	Hardware Manufacturing	\$ 57,833	\$ 62,854	\$ 63,851	\$ 67,026	\$ 67,543	\$ 70,300	\$ 74,523	\$ 87,940
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Mfg.	\$ 54,089	\$ 66,422	\$ 66,237	\$ 69,160	\$ 67,739	\$ 68,660	\$ 68,548	\$ 80,598
3332	Industrial Machinery Mfg.	\$ 44,721	\$ 53,392	\$ 47,218	\$ 53,263	\$ 53,003	\$ 55,406	\$ 56,727	\$ 65,830
3335	Metalworking Machinery Mfg.	\$ 45,283	\$ 56,350	\$ 49,887	\$ 52,901	\$ 52,529	\$ 53,088	\$ 53,721	\$ 64,094
3353	Electrical Equipment Mfg.	\$ 61,748	\$ 72,852	\$ 79,359	\$ 147,808	\$ 146,144	\$ 150,072	\$ 154,022	\$ 179,768
3361	Motor Vehicle Manufacturing	\$ 49,958	\$ 58,259	\$ 59,001	\$ 55,944	\$ 58,460	\$ 61,925	\$ 66,985	\$ 82,419
3362	Motor Vehicle Body and Trailer	\$ 184,716	\$ 240,337	\$ 222,266	\$ 219,303	\$ 240,764	\$ 246,380	\$ 247,171	\$ 307,579

NAICS Title		1993	1998	2000	2001	2002	2003	2004	2008
	Manufacturing								
3379	Other Furniture Related Product Manufacturing	\$ 38,523	\$ 45,106	\$ 45,088	\$ 40,071	\$ 44,048	\$ 45,524	\$ 47,056	\$ 56,418

10.4 Wisconsin Executive Perspectives in the South Region

Region Responses to the WMEP Study Questionnaire's "Open Ended" Questions

(NB: Incomplete answers are due to the space limits of the online questionnaire. In some cases, a partial word or intended meaning has been inferred and, therefore, completed. In such cases, the extrapolation appears in brackets. Where an inference could not be made, ellipses indicate the omission of the letters or words. Where provided by the respondent, job title and industry sector are included.)

As you consider your industry and business for the next 5 to 10 years, what are the most prominent workforce-related concerns?

Continuing to find honest hard working employees looking to work as part of a team. Many people are interested only in individual rewards.

--President, Laser Printer Toner Cartridges

Continuing to get new workers to enter the trade.

--Owner, Plastic Injection Molds

Finding candidates that want to learn and increase their knowledge base.

--Machined Parts

Finding skilled, experienced CNC machinists and other laborers in a generally non-manufacturing area of the state, maintaining the current benefits programs as costs continue to increase . . .

--Vice President Operation, Sanitary Pumps

Health care costs are by far the greatest concern. Second, we have over 90 traveling crews erecting homes and buildings in the field. The crews are getting harder to fill, as market wages increase.

--CEO, Factory Built Homes and Buildings

Increased technical needs for general labor activities. Offshore sourcing of lower cost materials is requiring automation of existing activities.

--Plant Manager, Foodservice Supplies

Lack of professional and skilled labor in Juneau county to cover initial development of the team, and then growth and turnover. Their [sic] are limited existing personnel . . .

--President, House Wares

Securing enough entry level production workers to meet demand. These individuals will be trained internally but must have good work ethic, including good attendance.

--Vice President Operations, Industrial and Commercial Vehicle and Equipment Seating

As you consider your industry and business for the next 5 to 10 years, what are the most prominent advantages that the Wisconsin workforce can offer?

A strong representation of businesses in this industry in Wisconsin.

--Owner, Plastics Injection Molds

Excellent work ethic, good educational backgrounds (at least high school graduate), and willingness to be trained for the job at hand.

--Vice President Operations, Sanitary Pumps

Good work ethic.

--Vice President Operations, Industrial and Commercial Vehicle and Equipment Seating

In general, solid values and a good education.

--President, House Wares

Most people in the Wisconsin workforce do have a good work ethic. Most also have a good attitude.

--President, Laser Printer Toner Cartridges

Strong knowledge base in manufacturing gained through a strong emphasis on improving the knowledge base in the state.

--Machined Parts

Work ethic. Ability to understand the goals of our company and work as part of a team to achieve those goals. Desire to build a career at a company they can care about, because the company cares about them.

--CEO, Factory Built Homes and Buildings

What changes, if any, would you like to see in the Wisconsin higher education system to better meet the long-term needs of your industry and firm in the state?

Have no problem with current product coming from the Wisconsin higher education system.

--Vice President Operations, Industrial and Commercial Vehicle and Equipment Seating

Improved math skills.

--Machined Parts

Promote the trades as a lucrative and fulfilling career for young people.

--Owner, Plastic Injection Molds

Require 3-6 month internships in their field of study that will provide some practical experience to enhance their educational experience.

--Vice President Operations, Sanitary Pumps

The standard prescriptions of business publications for education are, as stated earlier, bunk. Except for a few technical specialties, we don't need people who've been narrowed on a vocational track

--CEO, Factory Built Homes and Buildings

UW and MATC both seem to me to be doing a very good job.

--CEO, Laser Printer Toner Cartridges

Describe any innovative workforce attraction or development programs that you would like to see expanded in Wisconsin.

Biggest challenge is to have enough entry level workers for production functions.

--Vice President Operations, Industrial and Commercial Vehicle and Equipment Seating

More workshops on how to increase you employees learning base.

--Machined Parts

Programs to improve communication within a company. We have English, Spanish and Hmong workers. Can we bring language courses or instructors on site?

--CEO, Laser Printer Toner Cartridges

School to work with an emphasis on the company developing the jobs. We would like to tap the tech school grads but have limited money to invest in their early development.

--President, House Wares

Training for quality and continuous improvement.

--Plant Manager, Food Service Supplies

We must mitigate the terrifying increases in health care costs, in order to keep health care available to our employees.

--CEO, Factory Built Homes and Buildings

What are the business challenges that your organization faces—what most keeps you up at night?

Controlling health insurance costs and being able to attract enough workers to meet demand.

--Vice President Operations, Industrial and Commercial Vehicle and Equipment Seating

Finding skilled workers, finding high quality, low cost raw materials, and managing sustainable growth.

--Vice President Operations, Sanitary Pumps

Health Care. Ability to fill traveling field crews. Off-season lack of business, as we've moved away from simple pole barns and trailers to complex products going into complex projects.

--CEO, Factory Built Homes and Buildings

Reducing costs and improving the bottom line.

--Plant Manager, Food Service Supplies

Steady flow of business.

--Owner, Plastic Injection Molds

Technology is changing so fast and so radically that it is hard to predict or plan too far into the future. Global competition is another wild card. The internet can also radically impact a business.

--President, Laser Printer Toner Cartridges

To be able to compete not only with the top notch companies in Wisconsin but be able to compete with the competition from overseas. To be able to retain and improve my employee base.

--Machined Parts

Remaining competitive vs. China etc.

--President, House Wares

What are the business strengths and/or advantages your organization has by being located in Wisconsin?

Good work ethic

--Plant Manager Foodservice Supplies

Great work ethic of employees. Good education system, good access to training within higher education systems, both technical colleges and four year degree institutions.

--Vice President Operations, Industrial and Commercial Vehicle and Equipment Seating

None in particular.

--President, House Wares

Our quality people from Wisconsin have built this business over the years. Our people are very focused on producing a high quality product and providing the very best customer service. . . .

--Vice President Operations, Sanitary Pumps

Proximity to customers, Strong work force.

--Owner, Plastic Injection Molds

Strengths would include dedicated workers. Also the overall cost of doing business is much less than in a larger area like Chicago. The biggest advantage for me is the quality of life in Wisconsin.

--President, Laser Printer Toner Cartridges

The ability to work with companies that believe in manufacturing in Wisconsin. The ability to use the resources available to improve and increase our knowledge base.

--Machined Parts

We are inheritors of the Wisconsin progressive tradition, with fundamentally different attitudes toward regulation, our customers, our dealers, our employees, our communities and our suppliers. . . .

--CEO, Factory Built Homes and Buildings

11 Southeast Region

11.1 Introduction

Driver industry and industry cluster analyses were conducted for each of the seven economic regions in the State of Wisconsin. This section provides a summary of the findings from the analysis for the Southeast Region, as well as, detailed information related to each of the regional driver industries identified. For the purposes of this analysis, the Southeast Region is defined to include the counties of Dodge, Fond du Lac, Green Lake, Jefferson, Kenosha, Manitowoc, Milwaukee, Ozaukee, Racine, Sheboygan, Walworth, Washington, and Waukesha.

The next sub-section provides an overview and summary of the findings from the analyses conducted. This is followed by detailed descriptions of each of the regional driver industries and their associated industry cluster. Next, perspectives on the state of manufacturing in the region appear in tabular form. And, finally, Wisconsin's manufacturing executives identify key issues affecting them in the region.

11.2 Summary of Regional Driver Industries & Industry Clusters

The driver analysis for the Southeast Region identified 23 regional driver industries. These industries include:

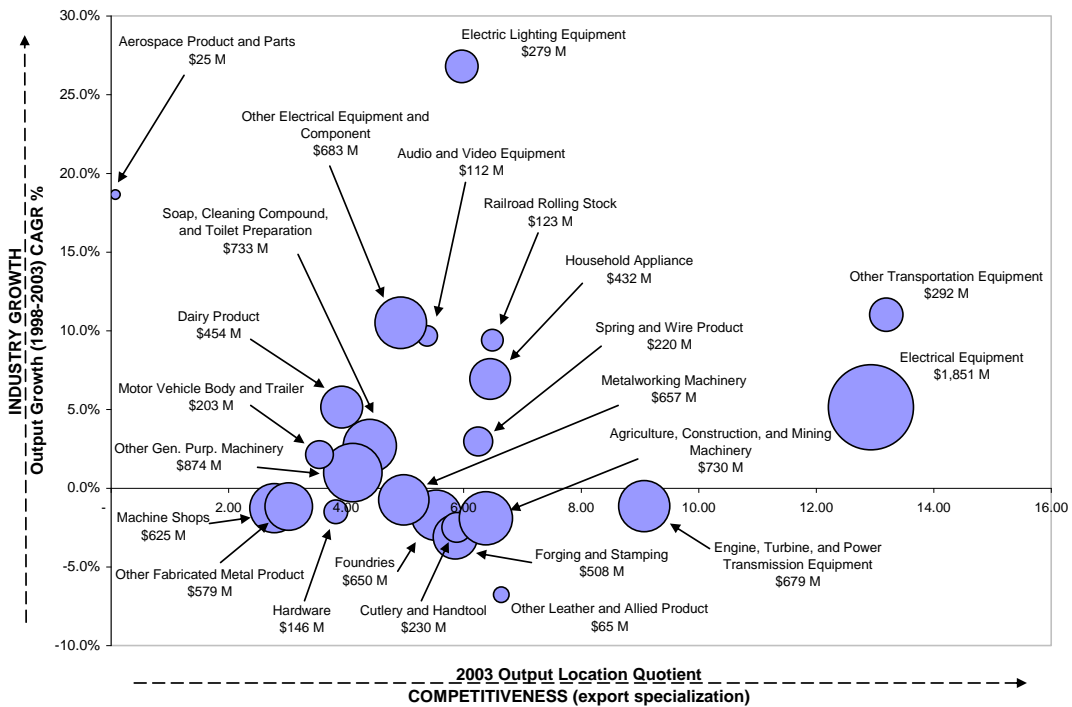
- 3115 Dairy Product Manufacturing
- 3169 Other Leather and Allied Product Manufacturing
- 3256 Soap, Cleaning Compound, and Toilet Preparation Manufacturing
- 3315 Foundries
- 3321 Forging and Stamping
- 3322 Cutlery and Handtool Manufacturing
- 3325 Hardware Manufacturing
- 3326 Spring and Wire Product Manufacturing
- 3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
- 3329 Other Fabricated Metal Product Manufacturing
- 3331 Agriculture, Construction, and Mining Machinery Manufacturing
- 3335 Metalworking Machinery Manufacturing
- 3336 Engine, Turbine, and Power Transmission Equipment Manufacturing
- 3339 Other General Purpose Machinery Manufacturing
- 3343 Audio and Video Equipment Manufacturing
- 3351 Electric Lighting Equipment Manufacturing
- 3352 Household Appliance Manufacturing
- 3353 Electrical Equipment Manufacturing
- 3359 Other Electrical Equipment and Component Manufacturing
- 3362 Motor Vehicle Body and Trailer Manufacturing
- 3364 Aerospace Product and Parts Manufacturing
- 3365 Railroad Rolling Stock Manufacturing

11.2.1 How Are the Southeast Regions Driver Industries Doing?

This chart shows the relative economic health of driver industries measured by two factors – their “competitiveness” in terms of export orientation or specialization on the X axis (horizontal), and their “growth” on the Y axis (vertical). Competitiveness is measured in terms of the output location quotients which is a ratio of the industry’s concentration in the region compared to the industry’s concentration nationally. In general, a location quotient above 1 indicates that the industry is more concentrated in the region than it is nationally. This concentration suggests that the industry exports its product from the region and that the region offers competitive advantages to the industry over other areas throughout the country. An industry is increasingly more competitive as it moves to the right on the X axis. And the more competitive it is, the more it sells goods outside of its own region, thereby generating money for the region in which it operates.

Industry growth is measured in terms of compound annual growth rates over the last five years and is shown on the Y axis. An industry is growing faster as it moves upward from zero; it is declining if it is below zero. The area (size) of each circle represents the gross product of each industry and indicates the industry’s relative size as compared to the other industries. Through this picturing of all of the region’s drivers in one perspective, a sense of the overall strategies and services that will be needed in that region begins to emerge.

Figure 11-1 Overview of the Southeast Region’s Drivers



Interpretation: Of this region’s 23 driver industries, only Aerospace Product and Parts is not able to produce enough components to sell outside of the region, but it is growing. Electric Lighting Equipment is the bright spot in growth, while Other Transportation Equipment and Electrical Equipment are becoming very competitive. Most of the other industries seem well positioned competitively, but they will need help to stimulate their growth.

11.2.2 Driver and Industry Cluster Relationships in the Southeast Region

Based on these results, an industry cluster analysis was conducted for each of the driver industries. Tables 11-1 and 11-2 provide a summary of the results from these analyses and identify regional and national supplier industries that are common to multiple regional driver industries.

The supplier industries identified in Table 11-1 are found in the regional economy and provide goods or services to multiple driver industries. Many, in fact, are driver industries themselves. The importance of these industries to the overall competitiveness of the driver industries can not be overstated. By providing quality goods and services to the driver industries, these supplier industries help the regional driver industries produce and deliver the products their consumers demand. Attempts to impact the competitiveness of the industries that supply inputs to multiple regional driver industries can indirectly impact the competitiveness of those driver industries.

Table 11-1 Regional & National Supplier Industries Common to Regional Driver Industries

NAICS	Title	Regional Driver**	Count of Drivers	
			Regional Suppliers	National Suppliers
42*	Wholesale Trade		23	23
484*	Truck Transportation		22	22
3261	Plastics Product Manufacturing		16	16
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	X	12	18
4931	Warehousing and Storage		10	11
3353	Electrical Equipment Manufacturing	X	9	9
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	X	8	6
3359	Other Electrical Equipment and Component Manufacturing	X	7	10
3344	Semiconductor and Other Electronic Component Manufacturing		7	9
5413	Architectural, Engineering, and Related Services		7	9
3363	Motor Vehicle Parts Manufacturing		6	7
3335	Metalworking Machinery Manufacturing	X	6	6
5415	Computer Systems Design and Related Services		6	6
3259	Other Chemical Product and Preparation Manufacturing		5	7
3321	Forging and Stamping	X	4	19

NAICS	Title	Regional Driver**	Count of Drivers	
			Regional Suppliers	National Suppliers
3251	Basic Chemical Manufacturing		4	5
5411	Legal Services		4	6
2380	Specialty Trade Contractors		3	3
3231	Printing and Related Support Activities		3	2
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance		3	8
3272	Glass and Glass Product Manufacturing		3	5
3313	Alumina and Aluminum Production and Processing		3	13
3325	Hardware Manufacturing	X	3	4
3329	Other Fabricated Metal Product Manufacturing	X	3	14
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing		3	4
3326	Spring and Wire Product Manufacturing	X	2	8
5418	Advertising and Related Services		2	3
3324	Boiler, Tank, and Shipping Container Manufacturing		2	3
3332	Industrial Machinery Manufacturing		2	2
3331	Agriculture, Construction, and Mining Machinery Manufacturing	X	2	1
3328	Coating, Engraving, Heat Treating, and Allied Activities		2	4
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing		2	2
3312	Steel Product Manufacturing from Purchased Steel		2	13
3219	Other Wood Product Manufacturing		2	3
<p>*An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices. **Not all of a Region's drivers are also suppliers. Those marked with an X are suppliers.</p>				

Table 11-2 is similar to Table 11-1 in that it shows industries that supply inputs to multiple driver industries. The difference is that the industries identified in Table 11-2 either do not exist in the region or they are smaller industries that are not likely to be able to provide inputs at a sufficient scale to meet the needs of the driver industries. Attempts to attract or grow these industries within the region may help reduce the import of goods and services by the region's driver industries.

Table 11-2 National Supplier Industries Common to Regional Driver Industries

NAICS	Title	Count of Drivers
		National Suppliers
3311	Iron and Steel Mills and Ferroalloy Manufacturing	18

		<u>Count of Drivers</u>
NAICS	Title	National Suppliers
5419	Other Professional, Scientific, and Technical Services	16
3315	Foundries	15
3314	Nonferrous Metal (except Aluminum) Production and Processing	14
3222	Converted Paper Product Manufacturing	13
3323	Architectural and Structural Metals Manufacturing	12
3255	Paint, Coating, and Adhesive Manufacturing	10
5417	Scientific Research and Development Services	9
3241	Petroleum and Coal Products Manufacturing	8
3262	Rubber Product Manufacturing	8
517*	Telecommunications	8
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	7
3221	Pulp, Paper, and Paperboard Mills	4
3279	Other Nonmetallic Mineral Product Manufacturing	4
3339	Other General Purpose Machinery Manufacturing	4
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing	4
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	3
3399	Other Miscellaneous Manufacturing	3
4821	Rail Transportation	3
483*	Water Transportation	3
5151	Radio and Television Broadcasting	3
5414	Specialized Design Services	3
2122	Metal Ore Mining	2
3132	Fabric Mills	2
3211	Sawmills and Wood Preservation	2
3322	Cutlery and Handtool Manufacturing	2
3342	Communications Equipment Manufacturing	2
3351	Electric Lighting Equipment Manufacturing	2
3352	Household Appliance Manufacturing	2
3364	Aerospace Product and Parts Manufacturing	2
3369	Other Transportation Equipment Manufacturing	2
481*	Air Transportation	2
5111	Newspaper, Periodical, Book, and Directory Publishers	2
5182	Data Processing, Hosting, and Related Services	2

*An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

11.2.3 Filtering & Refinement of Quantitative Results

The analysis used to identify driver industries is a quantitative analysis based on secondary data and captures industries that exhibit some form of competitive advantage. While the model is extremely good at identifying regional driver industries, certain

results often require qualitative insight to filter and refine the results. One way in which to identify industries either to remove or add as driver industries is to receive local perspectives on the lists of driver industries identified by the model. The following are responses to some of the comments related to the driver industries identified by the quantitative analysis for the Southeast Region.

Overall, the Southeast Region was a very difficult region to evaluate because of its industrial diversity and general economic strength. Most of the industries that were identified as needing further review are definitely important ones simply based on their size and the value of the products they produce. For many of these industries, the fact that they do not appear to be heavily concentrated in the region as compared to the nation as a whole resulted in their not being classified as driver industries.

First, “Industry 3114: Fruit and Vegetable Preserving and Specialty Food Manufacturing,” was identified as an important regional industry. While this industry is still large in terms of employment, it has declined significantly since 1993. In terms of gross product, the industry is also fairly large. Unlike employment, however, the gross product of the industry has remained fairly constant since 1993. Based on output and labor location quotients, the industry appears to be slightly more concentrated in the region than it is nationally. Clearly, this is an important regional industry but it lacks other competitive characteristics of a driver industry.

Second, “Industry 3231: Printing and Related Support Activities,” including the company Quad Graphics, Inc., was identified. This is a large regional industry in terms of employment and gross product. However, it was not identified as a regional driver because some of the other competitive characteristics were only moderate in size.

The third industry identified included those industries that produce cleaning products. The company S.C. Johnson & Son Inc. was identified as an example and, based on this example, the primary industry referred to would be “Industry 3256: Soap, Cleaning Compound, and Toilet Preparation Manufacturing.” This industry was identified as a regional driver industry.

Fourth, two companies involved in small engine manufacturing were identified, including Briggs & Stratton Power Products and Kohler Co. Both of these companies have operations in the “Industry 3353: Electrical Equipment Manufacturing,” which was identified as a driver industry. Both companies also have operations in other related industries including “Industry 3336: Engine, Turbine, and Power Transmission Equipment Manufacturing” (Briggs & Stratton) and “Industry 3329: Other Fabricated Metal Product Manufacturing” (Kohler). Again, both of these industries were identified as regional driver industries.

A fifth set of industries identified were those related to the manufacture of medical diagnostic equipment and controls. The primary industry for manufacturers of these types of products is “Industry 3345: Navigational, Measuring, Electromedical, and Control Instruments Manufacturing.” While this industry remains quite large in terms of

employment and gross product, its employment has declined by approximately 25% since 1993 and its gross product has declined by nearly 50%. The industry was not identified as a regional driver industry primarily because the industry was not found to have a large concentration in the region relative to the nation as a whole (both in terms of output and labor location quotients).

Finally, the sixth industry identified was “Industry 3391: Medical Equipment and Supplies Manufacturing.” This industry is also an important regional industry that was not identified as a driver industry. The industry experienced only a slight decline in total employment between 1993 and 2002. During this same time period, the gross product of the industry actually increased. The industry, however, did not exhibit other characteristics that would suggest it enjoys significant competitive advantages in the region as compared to other areas of the country.

11.3 Detailed Descriptions of the Regional Driver Industries

11.3.1 Driver Industry Definitions

3115 Dairy Product Manufacturing

This industry group comprises establishments that manufacture dairy products from raw milk, processed milk, and dairy substitutes.

31151 Dairy Product (except Frozen) Manufacturing

31152 Ice Cream and Frozen Dessert Manufacturing

3169 Other Leather and Allied Product Manufacturing

This industry comprises establishments primarily engaged in manufacturing leather products (except footwear and apparel) from purchased leather or leather substitutes (e.g., fabric, plastics).

3256 Soap, Cleaning Compound, and Toilet Preparation Manufacturing

This industry comprises establishments primarily engaged in manufacturing and packaging soap and other cleaning compounds, surface active agents, and textile and leather finishing agents used to reduce tension or speed the drying process and establishments primarily engaged in preparing, blending, compounding, and packaging toilet preparations, such as perfumes, shaving preparations, hair preparations, face creams, lotions (including sunscreens), and other cosmetic preparations.

3315 Foundries

This industry group comprises establishments primarily engaged in pouring molten metal into molds or dies to form castings. Establishments making castings and further manufacturing, such as machining or assembling, a specific manufactured product are classified in the industry of the finished product. Foundries may perform operations, such as cleaning and deburring, on the castings they manufacture. More involved processes, such as tapping, threading, milling, or machining to tight tolerances, that transform castings into more finished products are classified elsewhere in the manufacturing sector based on the product being made.

Establishments in this industry group make castings from purchased metals or in integrated secondary smelting and casting facilities. When the production of primary metals is combined with making castings, the establishment is classified in 331 with the primary metal being made.

332 Fabricated Metal Product Manufacturing (Partial)

Industries in the Fabricated Metal Product Manufacturing subsector transform metal into intermediate or end products, other than machinery, computers and electronics, and metal furniture or treating metals and metal formed products fabricated elsewhere. Important fabricated metal processes are forging, stamping, bending, forming, and machining, used to shape individual pieces of metal; and other processes, such as welding and assembling, used to join separate parts together. Establishments in this subsector may use one of these processes or a combination of these processes.

3321 Forging and Stamping

3322 Cutlery and Handtool Manufacturing

3325 Hardware Manufacturing

3326 Spring and Wire Product Manufacturing

3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing

3329 Other Fabricated Metal Product Manufacturing

333 Machinery Manufacturing

Industries in the Machinery Manufacturing subsector create end products that apply mechanical force, for example, the application of gears and levers, to perform work. Some important processes for the manufacture of machinery are forging, stamping, bending, forming, and machining that are used to shape individual pieces of metal. Processes, such as welding and assembling are used to join separate parts together. Although these processes are similar to those used in metal fabricating establishments, machinery manufacturing is different because it typically employs multiple metal forming processes in manufacturing the various parts of the machine. Moreover, complex assembly operations are an inherent part of the production process.

3331 Agriculture, Construction, and Mining Machinery Manufacturing

3335 Metalworking Machinery Manufacturing

3336 Engine, Turbine, and Power Transmission Equipment Manufacturing

3339 Other General Purpose Machinery Manufacturing

This industry comprises establishments primarily engaged in manufacturing general purpose machinery (except these groups: ventilation, heating, air-conditioning, and commercial refrigeration equipment; metal working machinery; engines, turbines, and power transmission equipment; pumps and compressors; and material handling equipment).

33391 Pump and Compressor Manufacturing

33392 Material Handling Equipment Manufacturing

33399 All Other General Purpose Machinery Manufacturing

3343 Audio and Video Equipment Manufacturing

This industry comprises establishments primarily engaged in manufacturing electronic audio and video equipment for home entertainment, motor vehicle, public address and musical instrument amplifications. Examples of products made by these establishments are video cassette recorders, televisions, stereo equipment, speaker systems, household-type video cameras, jukeboxes, and amplifiers for musical instruments and public address systems.

335 Electrical Equipment, Appliance, and Component Manufacturing (Complete)

Industries in the Electrical Equipment, Appliance, and Component Manufacturing subsector manufacture products that generate, distribute and use electrical power. Electric Lighting Equipment Manufacturing establishments produce electric lamp bulbs, lighting fixtures, and parts. Household Appliance Manufacturing establishments make both small and major electrical appliances and parts. Electrical Equipment Manufacturing establishments make goods, such as electric motors, generators, transformers, and switchgear apparatus. Other Electrical Equipment and Component Manufacturing establishments make devices for storing electrical power (e.g., batteries), for transmitting electricity (e.g., insulated wire), and wiring devices (e.g., electrical outlets, fuse boxes, and light switches).

3351 Electric Lighting Equipment Manufacturing

3352 Household Appliance Manufacturing

3353 Electrical Equipment Manufacturing

3359 Other Electrical Equipment and Component Manufacturing

This industry group comprises establishments manufacturing electrical equipment and components (except electric lighting equipment, household-type appliances, transformers, switchgear, relays, motors, and generators).

336 Transportation Equipment Manufacturing (Partial)

Industries in the Transportation Equipment Manufacturing subsector produce equipment for transporting people and goods. Transportation equipment is a type of machinery. An entire subsector is devoted to this activity because of the significance of its economic size in all three North American countries.

Establishments in this subsector utilize production processes similar to those of other machinery manufacturing establishments—bending, forming, welding, machining, and assembling metal or plastic parts into components and finished products. However, the assembly of components and subassemblies and their further assembly into finished vehicles tend to be a more common production process in this subsector than in the Machinery Manufacturing subsector.

NAICS has industry groups for the manufacture of equipment for each mode of transport—road, rail, air and water. Parts for motor vehicles warrant a separate industry group because of their importance and because parts manufacture requires less assembly, and the establishments that manufacture only parts are not as vertically integrated as those that make complete vehicles.

Land use motor vehicle equipment not designed for highway operation (e.g., agricultural equipment, construction equipment, and materials handling equipment) is classified in the appropriate NAICS subsector based on the type and use of the equipment.

3362 Motor Vehicle Body and Trailer Manufacturing

3364 Aerospace Product and Parts Manufacturing

3365 Railroad Rolling Stock Manufacturing

3369 Other Transportation Equipment Manufacturing

11.3.2 Industry Clusters

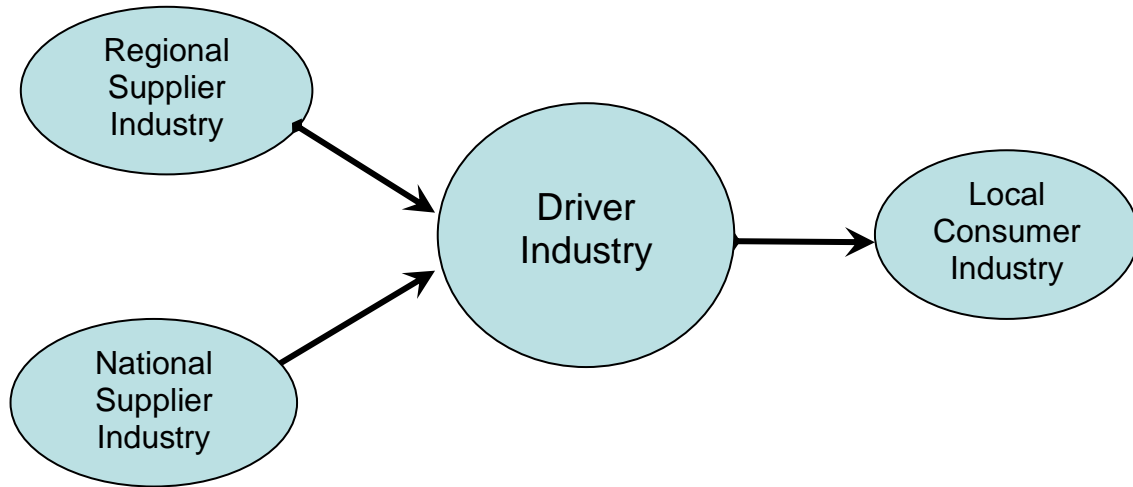
Industries contained within an industry cluster are related to driver industries in three ways, two supplier relationships and one consumer relationship.

Supplier relationships are defined by the backward linkages that a driver industry has with either (1) other regional industries (Regional Suppliers) or (2) industries not located within the region (National Supplier). Both types of supplier relationships are based on linkages identified using information from input-output tables from the IMPLAN model. For supplier relationships with other regional industries, the IMPLAN model is ‘regionalized’ to reflect the industries that exist within the region. For supplier relationships with industries not located within the region, the national IMPLAN model is used.

For both types of supplier relationships, only the most significant supplier industries are listed. The significance of the supplier industry is based on the relative amount of the driver industry’s total outlay that is used to purchase goods or services from the supplier industry. In the case where supplier industries appear in the lists for both types of supplier industries, the specific industry is removed from the list of national supplier industries.

The consumer industries are identified by reversing the relationship used to identify supplier industries. The consumer industries are those industries to which a driver industry sells a significant portion of its total output.

Figure 11-2 Industry Clusters



Industry Clusters

NB: An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

3115 Dairy Product Manufacturing

<u>Supplier Industries - Typical Regional Industry</u>		<u>Supplier Industries - Typical National Industry</u>	
FR	Farms	3222	Converted Paper Product Manufacturing
3115	Dairy Product Manufacturing	3112	Grain and Oilseed Milling
3332	Industrial Machinery Manufacturing	3113	Sugar and Confectionery Product Manufacturing
4931	Warehousing and Storage	481*	Air Transportation
3261	Plastics Product Manufacturing	3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
484*	Truck Transportation	5419	Other Professional, Scientific, and Technical Services
2211	Electric Power Generation, Transmission and Distribution	5324	Commercial and Industrial Machinery and Equipment Rental and Leasing
3324	Boiler, Tank, and Shipping Container Manufacturing	8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3119	Other Food Manufacturing	3219	Other Wood Product Manufacturing

Consumer Industries - Typical Regional Industry

722*	Food services and drinking places
3115	Dairy Product Manufacturing
6244	Child Day Care Services
622*	Hospitals
3113	Sugar and Confectionery Product Manufacturing

3169 Other Leather and Allied Product Manufacturing

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
3161	Leather and Hide Tanning and Finishing

Supplier Industries - Typical National Industry

42*	Wholesale Trade
3132	Fabric Mills

Consumer Industries - Typical Regional Industry

3231	Printing and Related Support Activities
3149	Other Textile Product Mills
3162	Footwear Manufacturing
4931	Warehousing and Storage
813b*	Civic, social, professional and similar organizations
7112	Spectator Sports

3256 Soap, Cleaning Compound, and Toilet Preparation Manufacturing

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
3251	Basic Chemical Manufacturing
3261	Plastics Product Manufacturing
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing
484*	Truck Transportation
3272	Glass and Glass Product Manufacturing
3231	Printing and Related Support Activities
3259	Other Chemical Product and Preparation Manufacturing
5418	Advertising and Related Services
3116	Animal Slaughtering and Processing
3255	Paint, Coating, and Adhesive Manufacturing
4931	Warehousing and Storage
5111	Newspaper, Periodical, Book, and Directory Publishers

Supplier Industries - Typical National Industry

3222	Converted Paper Product Manufacturing
3241	Petroleum and Coal Products Manufacturing
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
5151	Radio and Television Broadcasting
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
5417	Scientific Research and Development Services
3321	Forging and Stamping
5419	Other Professional, Scientific, and Technical Services
4821	Rail Transportation

Supplier Industries - Typical Regional Industry

3324	Boiler, Tank, and Shipping Container Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

Consumer Industries - Typical Regional Industry

8121	Personal Care Services
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing
3251	Basic Chemical Manufacturing
622*	Hospitals
5617	Services to Buildings and Dwellings
FR	Farms
42*	Wholesale Trade
3241	Petroleum and Coal Products Manufacturing
3161	Leather and Hide Tanning and Finishing
8123	Drycleaning and Laundry Services

Supplier Industries - Typical National Industry**3315 Foundries****Supplier Industries - Typical Regional Industry**

42*	Wholesale Trade
484*	Truck Transportation
5419	Other Professional, Scientific, and Technical Services
3335	Metalworking Machinery Manufacturing
3328	Coating, Engraving, Heat Treating, and Allied Activities
3313	Alumina and Aluminum Production and Processing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3332	Industrial Machinery Manufacturing

Supplier Industries - Typical National Industry

3314	Nonferrous Metal (except Aluminum) Production and Processing
3315	Foundries
3311	Iron and Steel Mills and Ferroalloy Manufacturing
2122	Metal Ore Mining
3329	Other Fabricated Metal Product Manufacturing
3222	Converted Paper Product Manufacturing
3321	Forging and Stamping
2123	Nonmetallic Mineral Mining and Quarrying
3279	Other Nonmetallic Mineral Product Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing

Consumer Industries - Typical Regional Industry

Consumer Industries - Typical Regional Industry

3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3363	Motor Vehicle Parts Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3329	Other Fabricated Metal Product Manufacturing
3325	Hardware Manufacturing

3321 Forging and Stamping

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
484*	Truck Transportation
3363	Motor Vehicle Parts Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3321	Forging and Stamping
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3335	Metalworking Machinery Manufacturing
3312	Steel Product Manufacturing from Purchased Steel

Supplier Industries - Typical National Industry

3323	Architectural and Structural Metals Manufacturing
3313	Alumina and Aluminum Production and Processing
3314	Nonferrous Metal (except Aluminum) Production and Processing
3329	Other Fabricated Metal Product Manufacturing
3222	Converted Paper Product Manufacturing
3335	Metalworking Machinery Manufacturing
5419	Other Professional, Scientific, and Technical Services
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
517*	Telecommunications
3259	Other Chemical Product and Preparation Manufacturing

Consumer Industries - Typical Regional Industry

3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3369	Other Transportation Equipment Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing
3363	Motor Vehicle Parts Manufacturing
3322	Cutlery and Handtool Manufacturing
8111	Automotive Repair and Maintenance
3312	Steel Product Manufacturing from Purchased Steel
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing

Consumer Industries - Typical Regional Industry

3315	Foundries
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing

3322 Cutlery and Handtool Manufacturing

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
484*	Truck Transportation
3261	Plastics Product Manufacturing
3231	Printing and Related Support Activities
3313	Alumina and Aluminum Production and Processing
3259	Other Chemical Product and Preparation Manufacturing
5418	Advertising and Related Services
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
2380	Specialty Trade Contractors

Supplier Industries - Typical National Industry

3311	Iron and Steel Mills and Ferroalloy Manufacturing
3329	Other Fabricated Metal Product Manufacturing
3321	Forging and Stamping
3222	Converted Paper Product Manufacturing
483*	Water Transportation
3315	Foundries
3322	Cutlery and Handtool Manufacturing
3241	Petroleum and Coal Products Manufacturing
3312	Steel Product Manufacturing from Purchased Steel
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing

Consumer Industries - Typical Regional Industry

2370	Heavy and Civil Engineering Construction
6244	Child Day Care Services
2360	Construction of Buildings
722*	Food services and drinking places
3322	Cutlery and Handtool Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
624*	Social assistance, except child day care services
3333	Commercial and Service Industry Machinery Manufacturing
3325	Hardware Manufacturing
3399	Other Miscellaneous Manufacturing

3325 Hardware Manufacturing

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
3261	Plastics Product Manufacturing
484*	Truck Transportation
3353	Electrical Equipment Manufacturing
3325	Hardware Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing

Supplier Industries - Typical National Industry

3311	Iron and Steel Mills and Ferroalloy Manufacturing
3321	Forging and Stamping
3222	Converted Paper Product Manufacturing
3315	Foundries
3322	Cutlery and Handtool Manufacturing
3314	Nonferrous Metal (except Aluminum) Production and Processing
3326	Spring and Wire Product Manufacturing
3312	Steel Product Manufacturing from Purchased Steel
3313	Alumina and Aluminum Production and Processing
5419	Other Professional, Scientific, and Technical Services

Consumer Industries - Typical Regional Industry

3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3325	Hardware Manufacturing
3391	Medical Equipment and Supplies Manufacturing
2360	Construction of Buildings
8111	Automotive Repair and Maintenance
3324	Boiler, Tank, and Shipping Container Manufacturing
3261	Plastics Product Manufacturing
3219	Other Wood Product Manufacturing
3372	Office Furniture (including Fixtures) Manufacturing
3399	Other Miscellaneous Manufacturing

3326 Spring and Wire Product Manufacture**Supplier Industries - Typical Regional Industry**

42*	Wholesale Trade
3312	Steel Product Manufacturing from Purchased Steel
3326	Spring and Wire Product Manufacturing
484*	Truck Transportation

Supplier Industries - Typical National Industry

3311	Iron and Steel Mills and Ferroalloy Manufacturing
3329	Other Fabricated Metal Product Manufacturing
3314	Nonferrous Metal (except Aluminum) Production and Processing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing

Consumer Industries - Typical Regional Industry

Consumer Industries - Typical Regional Industry

3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3391	Medical Equipment and Supplies Manufacturing
3326	Spring and Wire Product Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
5511	Management of Companies and Enterprises
3379	Other Furniture Related Product Manufacturing
3339	Other General Purpose Machinery Manufacturing
3325	Hardware Manufacturing
3365	Railroad Rolling Stock Manufacturing
8111	Automotive Repair and Maintenance

3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
5415	Computer Systems Design and Related Services
3335	Metalworking Machinery Manufacturing
3325	Hardware Manufacturing
3326	Spring and Wire Product Manufacturing
484*	Truck Transportation

Supplier Industries - Typical National Industry

3311	Iron and Steel Mills and Ferroalloy Manufacturing
3312	Steel Product Manufacturing from Purchased Steel
3315	Foundries
3314	Nonferrous Metal (except Aluminum) Production and Processing
3313	Alumina and Aluminum Production and Processing
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing
5419	Other Professional, Scientific, and Technical Services
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

Consumer Industries - Typical Regional Industry

3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3363	Motor Vehicle Parts Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3329	Other Fabricated Metal Product Manufacturing
GVSL*	State and Local Government

Consumer Industries - Typical Regional Industry

3331	Agriculture, Construction, and Mining Machinery Manufacturing
3321	Forging and Stamping
3118	Bakeries and Tortilla Manufacturing

3329 Other Fabricated Metal Product Manufacturing

Supplier Industries - Typical Regional Industry

5415	Computer Systems Design and Related Services
42*	Wholesale Trade
3259	Other Chemical Product and Preparation Manufacturing
484*	Truck Transportation
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3251	Basic Chemical Manufacturing
3329	Other Fabricated Metal Product Manufacturing
3328	Coating, Engraving, Heat Treating, and Allied Activities
5411	Legal Services
3261	Plastics Product Manufacturing
3321	Forging and Stamping
3231	Printing and Related Support Activities
3335	Metalworking Machinery Manufacturing

Supplier Industries - Typical National Industry

3311	Iron and Steel Mills and Ferroalloy Manufacturing
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3313	Alumina and Aluminum Production and Processing
3221	Pulp, Paper, and Paperboard Mills
3222	Converted Paper Product Manufacturing
3315	Foundries
3323	Architectural and Structural Metals Manufacturing
3314	Nonferrous Metal (except Aluminum) Production and Processing
3312	Steel Product Manufacturing from Purchased Steel
3211	Sawmills and Wood Preservation

Consumer Industries - Typical Regional Industry

8114	Personal and Household Goods Repair and Maintenance
713*	Other amusement, gambling, and recreation industries
3369	Other Transportation Equipment Manufacturing
7139	Other Amusement and Recreation Industries
2123	Nonmetallic Mineral Mining and Quarrying
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

Consumer Industries - Typical Regional Industry

5616	Investigation and Security Services
3329	Other Fabricated Metal Product Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
2122	Metal Ore Mining

3331 Agriculture, Construction, and Mining Machinery Manufacturing

<u>Supplier Industries - Typical Regional Industry</u>	<u>Supplier Industries - Typical National Industry</u>
42* Wholesale Trade	3311 Iron and Steel Mills and Ferroalloy Manufacturing
3336 Engine, Turbine, and Power Transmission Equipment Manufacturing	3262 Rubber Product Manufacturing
484* Truck Transportation	3315 Foundries
3261 Plastics Product Manufacturing	3323 Architectural and Structural Metals Manufacturing
3363 Motor Vehicle Parts Manufacturing	51Info* Information services
3329 Other Fabricated Metal Product Manufacturing	3241 Petroleum and Coal Products Manufacturing
3344 Semiconductor and Other Electronic Component Manufacturing	3321 Forging and Stamping
3359 Other Electrical Equipment and Component Manufacturing	3339 Other General Purpose Machinery Manufacturing
3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	3255 Paint, Coating, and Adhesive Manufacturing
5413 Architectural, Engineering, and Related Services	3312 Steel Product Manufacturing from Purchased Steel
3331 Agriculture, Construction, and Mining Machinery Manufacturing	
3353 Electrical Equipment Manufacturing	

Consumer Industries - Typical Regional Industry

8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
FR	Farms
8114	Personal and Household Goods Repair and Maintenance
3331	Agriculture, Construction, and Mining Machinery Manufacturing
2123	Nonmetallic Mineral Mining and Quarrying
5617	Services to Buildings and Dwellings
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing

Consumer Industries - Typical Regional Industry

GVSL*	State and Local Government
8111	Automotive Repair and Maintenance
2111	Oil and Gas Extraction

3335 Metalworking Machinery Manufacturing

<u>Supplier Industries - Typical Regional Industry</u>	<u>Supplier Industries - Typical National Industry</u>
42* Wholesale Trade	3314 Nonferrous Metal (except Aluminum) Production and Processing
3261 Plastics Product Manufacturing	3311 Iron and Steel Mills and Ferroalloy Manufacturing
3353 Electrical Equipment Manufacturing	3315 Foundries
2380 Specialty Trade Contractors	3321 Forging and Stamping
5415 Computer Systems Design and Related Services	3255 Paint, Coating, and Adhesive Manufacturing
3335 Metalworking Machinery Manufacturing	3279 Other Nonmetallic Mineral Product Manufacturing
484* Truck Transportation	3339 Other General Purpose Machinery Manufacturing
3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	3329 Other Fabricated Metal Product Manufacturing
517* Telecommunications	3323 Architectural and Structural Metals Manufacturing
3344 Semiconductor and Other Electronic Component Manufacturing	5324 Commercial and Industrial Machinery and Equipment Rental and Leasing
3336 Engine, Turbine, and Power Transmission Equipment Manufacturing	5412 Accounting, Tax Preparation, Bookkeeping, and Payroll Services

Consumer Industries - Typical Regional Industry

3315	Foundries
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3335	Metalworking Machinery Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3363	Motor Vehicle Parts Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3321	Forging and Stamping
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3261	Plastics Product Manufacturing

Consumer Industries - Typical Regional Industry

3369	Other Transportation Equipment Manufacturing
3272	Glass and Glass Product Manufacturing

3336 Engine, Turbine, and Power Transmission Equipment Manufacturing

<u>Supplier Industries - Typical Regional Industry</u>	<u>Supplier Industries - Typical National Industry</u>
42* Wholesale Trade	3311 Iron and Steel Mills and Ferroalloy Manufacturing
3336 Engine, Turbine, and Power Transmission Equipment Manufacturing	3323 Architectural and Structural Metals Manufacturing
3363 Motor Vehicle Parts Manufacturing	3329 Other Fabricated Metal Product Manufacturing
484* Truck Transportation	3339 Other General Purpose Machinery Manufacturing
3321 Forging and Stamping	5419 Other Professional, Scientific, and Technical Services
3353 Electrical Equipment Manufacturing	3364 Aerospace Product and Parts Manufacturing
3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	
2380 Specialty Trade Contractors	
3315 Foundries	

Consumer Industries - Typical Regional Industry

2211	Electric Power Generation, Transmission and Distribution
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
2212	Natural Gas Distribution
3331	Agriculture, Construction, and Mining Machinery Manufacturing
8111	Automotive Repair and Maintenance
3366	Ship and Boat Building
3353	Electrical Equipment Manufacturing
3315	Foundries
3369	Other Transportation Equipment Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

3339 Other General Purpose Machinery Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
42*	Wholesale Trade	3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
3339	Other General Purpose Machinery Manufacturing	3311	Iron and Steel Mills and Ferroalloy Manufacturing
5415	Computer Systems Design and Related Services	3326	Spring and Wire Product Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	3323	Architectural and Structural Metals Manufacturing
3261	Plastics Product Manufacturing	3315	Foundries
3359	Other Electrical Equipment and Component Manufacturing	3321	Forging and Stamping
3353	Electrical Equipment Manufacturing	3314	Nonferrous Metal (except Aluminum) Production and Processing
484*	Truck Transportation	3329	Other Fabricated Metal Product Manufacturing
3259	Other Chemical Product and Preparation Manufacturing	3363	Motor Vehicle Parts Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	3255	Paint, Coating, and Adhesive Manufacturing
3335	Metalworking Machinery Manufacturing		
3344	Semiconductor and Other Electronic Component Manufacturing		

Consumer Industries - Typical Regional Industry

5324	Commercial and Industrial Machinery and Equipment Rental and Leasing
FR	Farms
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
2211	Electric Power Generation, Transmission and Distribution
2212	Natural Gas Distribution
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
532*	General and consumer goods rental except video tapes and discs
2360	Construction of Buildings
3328	Coating, Engraving, Heat Treating, and Allied Activities
3231	Printing and Related Support Activities

3343 Audio and Video Equipment Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
42*	Wholesale Trade	3359	Other Electrical Equipment and Component Manufacturing
5415	Computer Systems Design and Related Services	3222	Converted Paper Product Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing	3341	Computer and Peripheral Equipment Manufacturing
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing	3321	Forging and Stamping
3261	Plastics Product Manufacturing		
484*	Truck Transportation		

Consumer Industries - Typical Regional Industry

8114	Personal and Household Goods Repair and Maintenance
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
8112	Electronic and Precision Equipment Repair and Maintenance
3116	Animal Slaughtering and Processing
3344	Semiconductor and Other Electronic Component Manufacturing
3363	Motor Vehicle Parts Manufacturing
6244	Child Day Care Services
517*	Telecommunications
42*	Wholesale Trade

3351 Electric Lighting Equipment Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
42*	Wholesale Trade	3222	Converted Paper Product Manufacturing
3272	Glass and Glass Product Manufacturing	3321	Forging and Stamping
3353	Electrical Equipment Manufacturing	3314	Nonferrous Metal (except Aluminum) Production and Processing
3359	Other Electrical Equipment and Component Manufacturing	3311	Iron and Steel Mills and Ferroalloy Manufacturing
3261	Plastics Product Manufacturing	3313	Alumina and Aluminum Production and Processing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	3315	Foundries
484*	Truck Transportation	3351	Electric Lighting Equipment Manufacturing
5414	Specialized Design Services	5413	Architectural, Engineering, and Related Services
4931	Warehousing and Storage	3251	Basic Chemical Manufacturing
		4931	Warehousing and Storage

Consumer Industries - Typical Regional Industry

3351	Electric Lighting Equipment Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing
3231	Printing and Related Support Activities
3149	Other Textile Product Mills
3363	Motor Vehicle Parts Manufacturing
622*	Hospitals
5511	Management of Companies and Enterprises
8112	Electronic and Precision Equipment Repair and Maintenance
2211	Electric Power Generation, Transmission and Distribution
3342	Communications Equipment Manufacturing

3352 Household Appliance Manufacturing

Supplier Industries - Typical Regional Industry	
42*	Wholesale Trade
5614	Business Support Services
3261	Plastics Product Manufacturing
484*	Truck Transportation
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
5324	Commercial and Industrial Machinery and Equipment Rental and Leasing
3251	Basic Chemical Manufacturing
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
3353	Electrical Equipment Manufacturing
5321	Automotive Equipment Rental and Leasing
3359	Other Electrical Equipment and Component Manufacturing
5413	Architectural, Engineering, and Related Services
4931	Warehousing and Storage

Supplier Industries - Typical National Industry	
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3321	Forging and Stamping
5418	Advertising and Related Services
3222	Converted Paper Product Manufacturing
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3315	Foundries
5151	Radio and Television Broadcasting
3255	Paint, Coating, and Adhesive Manufacturing
5111	Newspaper, Periodical, Book, and Directory Publishers

Consumer Industries - Typical Regional Industry

8114	Personal and Household Goods Repair and Maintenance
3352	Household Appliance Manufacturing
8121	Personal Care Services
3362	Motor Vehicle Body and Trailer Manufacturing
2360	Construction of Buildings
3333	Commercial and Service Industry Machinery Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
2380	Specialty Trade Contractors
622*	Hospitals

3353 Electrical Equipment Manufacturing

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
3344	Semiconductor and Other Electronic Component Manufacturing
3353	Electrical Equipment Manufacturing
3261	Plastics Product Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
484*	Truck Transportation
3359	Other Electrical Equipment and Component Manufacturing
3241	Petroleum and Coal Products Manufacturing
5413	Architectural, Engineering, and Related Services
4931	Warehousing and Storage

Supplier Industries - Typical National Industry

3255	Paint, Coating, and Adhesive Manufacturing
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3321	Forging and Stamping
3314	Nonferrous Metal (except Aluminum) Production and Processing
3315	Foundries
3271	Clay Product and Refractory Manufacturing
3329	Other Fabricated Metal Product Manufacturing
3323	Architectural and Structural Metals Manufacturing
3312	Steel Product Manufacturing from Purchased Steel
3221	Pulp, Paper, and Paperboard Mills

Consumer Industries - Typical Regional Industry

3351	Electric Lighting Equipment Manufacturing
3353	Electrical Equipment Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing

Consumer Industries - Typical Regional Industry

517*	Telecommunications
2360	Construction of Buildings
3399	Other Miscellaneous Manufacturing
3255	Paint, Coating, and Adhesive Manufacturing
2211	Electric Power Generation, Transmission and Distribution
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
3325	Hardware Manufacturing

3359 Other Electrical Equipment and Component Manufacturing

<u>Supplier Industries - Typical Regional Industry</u>	<u>Supplier Industries - Typical National Industry</u>		
3344	Semiconductor and Other Electronic Component Manufacturing	3272	Glass and Glass Product Manufacturing
42*	Wholesale Trade	3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3261	Plastics Product Manufacturing	3241	Petroleum and Coal Products Manufacturing
3359	Other Electrical Equipment and Component Manufacturing	3314	Nonferrous Metal (except Aluminum) Production and Processing
3251	Basic Chemical Manufacturing	3221	Pulp, Paper, and Paperboard Mills
484*	Truck Transportation	3279	Other Nonmetallic Mineral Product Manufacturing
3259	Other Chemical Product and Preparation Manufacturing	3311	Iron and Steel Mills and Ferroalloy Manufacturing
2122	Metal Ore Mining	3321	Forging and Stamping
3219	Other Wood Product Manufacturing	3222	Converted Paper Product Manufacturing
5413	Architectural, Engineering, and Related Services	3219	Other Wood Product Manufacturing
4931	Warehousing and Storage		

Consumer Industries - Typical Regional Industry

5419	Other Professional, Scientific, and Technical Services
517*	Telecommunications
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
8114	Personal and Household Goods Repair and Maintenance
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing

Consumer Industries - Typical Regional Industry

3353	Electrical Equipment Manufacturing
481*	Air Transportation
5611	Office Administrative Services
5152	Cable and Other Subscription Programming

3362 Motor Vehicle Body and Trailer Manufacturing

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
3363	Motor Vehicle Parts Manufacturing
484*	Truck Transportation
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3362	Motor Vehicle Body and Trailer Manufacturing
3261	Plastics Product Manufacturing
3313	Alumina and Aluminum Production and Processing
5619	Other Support Services
3219	Other Wood Product Manufacturing
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing
3272	Glass and Glass Product Manufacturing
3211	Sawmills and Wood Preservation
5413	Architectural, Engineering, and Related Services
4931	Warehousing and Storage
3325	Hardware Manufacturing

Supplier Industries - Typical National Industry

3329	Other Fabricated Metal Product Manufacturing
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3361	Motor Vehicle Manufacturing
3321	Forging and Stamping
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
3359	Other Electrical Equipment and Component Manufacturing
3262	Rubber Product Manufacturing
3369	Other Transportation Equipment Manufacturing
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing
3323	Architectural and Structural Metals Manufacturing

Consumer Industries - Typical Regional Industry

3362	Motor Vehicle Body and Trailer Manufacturing
8111	Automotive Repair and Maintenance
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing

3364 Aerospace Product and Parts Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	3329	Other Fabricated Metal Product Manufacturing
42*	Wholesale Trade	3325	Hardware Manufacturing
3364	Aerospace Product and Parts Manufacturing	3328	Coating, Engraving, Heat Treating, and Allied Activities
484*	Truck Transportation	3313	Alumina and Aluminum Production and Processing
3344	Semiconductor and Other Electronic Component Manufacturing	5417	Scientific Research and Development Services
3261	Plastics Product Manufacturing	5411	Legal Services
4931	Warehousing and Storage	3315	Foundries
3359	Other Electrical Equipment and Component Manufacturing	3321	Forging and Stamping
5413	Architectural, Engineering, and Related Services	3399	Other Miscellaneous Manufacturing
5415	Computer Systems Design and Related Services	3333	Commercial and Service Industry Machinery Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing		
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing		

Consumer Industries - Typical Regional Industry

481*	Air Transportation
488*	Scenic and sightseeing trans and support activities for transportation
492*	Couriers and messengers
3364	Aerospace Product and Parts Manufacturing
2211	Electric Power Generation, Transmission and Distribution
5417	Scientific Research and Development Services
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing

3365 Railroad Rolling Stock Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
42*	Wholesale Trade	3365	Railroad Rolling Stock Manufacturing
3353	Electrical Equipment Manufacturing	3311	Iron and Steel Mills and Ferroalloy Manufacturing
484*	Truck Transportation	3323	Architectural and Structural Metals Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
3363	Motor Vehicle Parts Manufacturing	3315	Foundries
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	3326	Spring and Wire Product Manufacturing
5413	Architectural, Engineering, and Related Services	3241	Petroleum and Coal Products Manufacturing
4931	Warehousing and Storage	3329	Other Fabricated Metal Product Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	3351	Electric Lighting Equipment Manufacturing
3321	Forging and Stamping	5417	Scientific Research and Development Services
		3312	Steel Product Manufacturing from Purchased Steel

Consumer Industries - Typical Regional Industry

3365	Railroad Rolling Stock Manufacturing
4821	Rail Transportation
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3353	Electrical Equipment Manufacturing
3325	Hardware Manufacturing
3352	Household Appliance Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3333	Commercial and Service Industry Machinery Manufacturing
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing

3369 Other Transportation Equipment Manufacturing

Supplier Industries - Typical Regional Industry		Supplier Industries - Typical National Industry	
42*	Wholesale Trade	3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	3311	Iron and Steel Mills and Ferroalloy Manufacturing
484*	Truck Transportation	3344	Semiconductor and Other Electronic Component Manufacturing
3363	Motor Vehicle Parts Manufacturing	3369	Other Transportation Equipment Manufacturing
3261	Plastics Product Manufacturing	3314	Nonferrous Metal (except Aluminum) Production and Processing
4931	Warehousing and Storage	3262	Rubber Product Manufacturing

Supplier Industries - Typical Regional Industry

3329 Other Fabricated Metal Product
Manufacturing

Supplier Industries - Typical National Industry

3255 Paint, Coating, and Adhesive Manufacturing

5413 Architectural, Engineering, and Related
Services

5417 Scientific Research and Development
Services

3321 Forging and Stamping

**Consumer Industries - Typical Regional
Industry**

3369 Other Transportation Equipment
Manufacturing

3336 Engine, Turbine, and Power Transmission
Equipment Manufacturing

8111 Automotive Repair and Maintenance

3362 Motor Vehicle Body and Trailer
Manufacturing

3331 Agriculture, Construction, and Mining
Machinery Manufacturing

488* Scenic and sightseeing trans and support
activities for transportation

3325 Hardware Manufacturing

3353 Electrical Equipment Manufacturing

621b* Other ambulatory health care services

3333 Commercial and Service Industry
Machinery Manufacturing

11.3.3 Top Firms by Driver Industry in the Southeast Region

3115 Dairy Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
American Dairy Brands	425	3,658	Branch	Private	100MM-499.9MM	
Alto Dairy Cooperative	400	505	Parent	Private		1943
Grande Cheese Co	370	800	HQs	Private		1941
Kraft Foods Inc	250	41,810	Branch	Private	100MM-499.9MM	1924
Sargento Foods Inc	250	-	Single	Private	100MM-499.9MM	1950
Gehl's Guernsey Farms Inc	215	-	Single	Private	50MM-99.9MM	1896
Golden Guernsey Dairy	200	1,467	Branch	Private	50MM-99.9MM	1930
Masters Gallery Foods Inc	180	-	Single	Private	50MM-99.9MM	1976
Great Lakes Cheese Of WI	170	1,305	Branch	Private	50MM-99.9MM	1982
Schneider Cheese Inc	165	-	Single	Private	50MM-99.9MM	1945
Baker Cheese Factory Inc	150	-	Single	Private	50MM-99.9MM	1916
Grande Cheese Co	150	800	Parent	Private		
Level Valley Creamery Inc	150	225	Parent	Private		1937
Saputo Cheese USA Inc	150	1,745	Branch	Private	50MM-99.9MM	1932
Kemps	100	3,931	Branch	Private	25MM-49.9MM	1940
Butter Buds Food Ingredients	100	475	Branch	Private	50MM-99.9MM	1978
Old Fashioned Foods Inc	100	-	Single	Private	50MM-99.9MM	1979
Sartori Food Corp	100	130	Branch	Private	50MM-99.9MM	1939
Kerry Specialty Ingredients	100	20,973	Branch	Private	50MM-99.9MM	1972
Saputo Cheese USA Inc	100	1745	Branch	Private	50MM-99.9MM	1910
Verifine Dairy Products Corp	75	33,805	Branch	Public	25MM-49.9MM	1911
Specialty Cheese Co Inc	65	75	Parent	Private		1938
NRV Inc	50	505	Branch	Private	10MM-24.9MM	1980
Specialty Cheese Co Inc	50	-	Single	Private	25MM-49.9MM	1993
Cedar Valley Cheese Inc	40	-	Single	Private	10MM-24.9MM	1947
Grande Cheese Co	40	800	Branch	Private	10MM-24.9MM	1941
Cedar Crest Specialties Inc	40	77	Branch	Private	10MM-24.9MM	1976
Uncle Harry's Fine Food Prod	35	-	Single	Private	10MM-24.9MM	1984
Park Cheese Co Inc	30	60	Parent	Private		1890
Park Cheese Co Inc	30	60	Branch	Private	10MM-24.9MM	1890
Sartori Foods	30	130	Parent	Private		1939
Beechwood Cheese Factory Inc	20	-	Single	Private	10MM-24.9MM	1978
Widmer's Cheese Cellars Inc	20	-	Single	Private	10MM-24.9MM	1922

3169 Other Leather and Allied Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Admanco Inc	300	-	Single	Private	25MM-49.9MM	1922
Walsh Co Inc	54	-	Single	Private	1MM-4.9MM	1914
GWW Inc	50	-	Single	Private	5MM-9.9MM	1961
Hood Leather Goods	50	-	Single	Private	1MM-4.9MM	1944

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Kenosha Leatherette & Display	50	-	Single	Private	1MM-4.9MM	1949
Enger Kress Co	25	-	Single	Private	1MM-4.9MM	1885
Contract Stitching Inc	22	-	Single	Private	1MM-4.9MM	1989

3256 Soap, Cleaning Compound, and Toilet Preparation Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
S C Johnson & Son Inc	1,259	2,591	Branch	Private	100MM-499.9MM	1886
Northern Labs Inc	250	336	Parent	Private		1968
Kleen Test Products Inc	185	1,568	Branch	Private	100MM-499.9MM	2000
US Chemical Corp	150	2,591	Branch	Private	50MM-99.9MM	1886
Kleen Test Products	150	1,568	Branch	Private	50MM-99.9MM	1989
General Converters & Assemblrs	100	250	Parent	Private		1969
Northern Labs Inc	80	336	Branch	Private	25MM-49.9MM	1998
D W Davies & Co Inc	50	-	Single	Private	10MM-24.9MM	1956
Sellars Absorbent Materials	50	70	Parent	Private		1985
Fiebing Co Inc	40	-	Single	Private	10MM-24.9MM	1895
Share Corp	40	140	Parent	Private		1971
Essential Industries Inc	35	50	Parent	Private		1963
Harri Hoffmann Co	35	-	Single	Private	10MM-24.9MM	1940
Heartland Labs	30	55	Branch	Private	10MM-24.9MM	1972
Milport Enterprises Inc	28	108	Branch	Private	10MM-24.9MM	1994
Heartland Labs	25	55	Parent	Private		1985
North American BioIndustries	25	-	Single	Private	10MM-24.9MM	1992
Advance Chemical Co	23	-	Single	Private	5MM-9.9MM	1931
Safeway Industries Inc	20	-	Single	Private	5MM-9.9MM	1979
US Sanitizing Inc	20	-	Single	Private	5MM-9.9MM	1977

3315 Foundries

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
J L French Corp	1,200	2,361	HQs	Private		1968
EST Co	550	21,325	Branch	Public	50MM-99.9MM	1947
Signicast Corp	500	-	Single	Private	50MM-99.9MM	1959
Intermet Racine	500	4,620	Branch	Public	50MM-99.9MM	2000
MetalTek International Inc	400	700	Parent	Private		1945
Albany Chicago Co	400	577	Branch	Private	50MM-99.9MM	1951

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Aluminum Casting & Engineering	392	-	Single	Private	50MM-99.9MM	1940
International Truck & Engine	300	11,429	Branch	Private	25MM-49.9MM	1946
Metal Technologies West	300	600	Branch	Private	25MM-49.9MM	1999
Signicast Corp	300	-	Single	Private	25MM-49.9MM	1959
Wisconsin Aluminum Foundry Co	300	-	Single	Private	25MM-49.9MM	1909
Grede Foundries Inc	250	3,246	Branch	Private	25MM-49.9MM	1920
Maynard Steel Casting Co Inc	250	-	Single	Private	25MM-49.9MM	1912
Eck Industries Inc	250	275	Parent	Private		1948
Watry Industries Inc	200	-	Single	Private	10MM-24.9MM	1957
Stainless Foundry & Engg	200	-	Single	Private	25MM-49.9MM	1946
J & L Fiber Services Inc	180	11,743	Branch	Public	10MM-24.9MM	1960
Amcast Automotive	180	1,707	Branch	Public	10MM-24.9MM	1929
Stroh Die Casting Co Inc	175	-	Single	Private	10MM-24.9MM	1903
Motor Castings Co	160	172	Parent	Private		1919
Grede Foundries Inc	150	3,246	Parent	Private		1920
Willman Industries Inc	150	-	Single	Private	10MM-24.9MM	1987
EGS Electrical Group	150	-	Single	Private	10MM-24.9MM	1904
Castalloy Inc	140	512,943	Branch	Private	10MM-24.9MM	1970
Waukesha Cramer Inc	120	-	Single	Private	10MM-24.9MM	1912
West Allis Gray Iron	115	-	Single	Private	10MM-24.9MM	1997
Precision Metalsmiths Inc	110	200	Branch	Private	10MM-24.9MM	1964
Westwood Aluminum Castings Inc	110	-	Single	Private	10MM-24.9MM	1996
Kirsh Foundry Inc	101	-	Single	Private	10MM-24.9MM	1938
Mid-City Foundry Co Inc	100	138	Parent	Private		1941
Slinger Manufacturing Co Inc	100	168	Parent	Private		1944
Craft Cast Co Inc	100	-	Single	Private	10MM-24.9MM	1984
Spuncast Inc	100	-	Single	Private	10MM-24.9MM	1976
Advance Die Casting Co	100	-	Single	Private	10MM-24.9MM	1920
Ehlert Tool Co Inc	100	-	Single	Private	10MM-24.9MM	1955
Bremer Manufacturing Co Inc	100	-	Single	Private	10MM-24.9MM	1937
Premier Aluminum Inc	100	149	Branch	Private	10MM-24.9MM	1988
Hypro Inc	100	430	Branch	Private	10MM-	1994

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
					24.9MM	
Northern Precision Casting Co	100	-	Single	Private	10MM-24.9MM	1961
Manitowoc Grey Iron Foundry	80	-	Single	Private	10MM-24.9MM	1946
Wisconsin Precision Casting	80	-	Single	Private	5MM-9.9MM	1964
AFW Foundry Inc	80	-	Single	Private	10MM-24.9MM	1953
Badger Alloys Inc	70	-	Single	Private	10MM-24.9MM	1966
Starline Manufacturing Co Inc	70	385	Branch	Private	10MM-24.9MM	1954
Milwaukee Precision Casting	60	-	Single	Private	5MM-9.9MM	1990
Woodland/Alloy Casting Inc	60	-	Single	Private	5MM-9.9MM	1943
Northern Steel Casting Kenosha	55	-	Single	Private	5MM-9.9MM	1996
MetalTek International	50	700	Branch	Private	5MM-9.9MM	1987
Oconomowoc Manufacturing Corp	50	-	Single	Private	5MM-9.9MM	1964
Allcast Inc	50	-	Single	Private	5MM-9.9MM	1968
Sharon Foundry Inc	49	-	Single	Private	5MM-9.9MM	1958
Premier Aluminum Inc	49	149	Parent	Private		1988
AFK Corp	45	-	Single	Private	5MM-9.9MM	1977
Austin Gray Iron Foundry Corp	40	-	Single	Private	5MM-9.9MM	1945
IPS/Belgium Foundry	40	-	Single	Private	5MM-9.9MM	2003
Milwaukee Malleable & Gray	40	52	Branch	Private	5MM-9.9MM	1895
Mid-City Foundry Co	38	138	Branch	Private	5MM-9.9MM	1990
Rheocast Co	35	235	Branch	Private	1MM-4.9MM	1977
Seal Fab Corp	35	-	Single	Private	5MM-9.9MM	1989
Midwest Die Casting Corp	30	-	Single	Private	1MM-4.9MM	1927
Perma-Brass Inc	30	-	Single	Private	1MM-4.9MM	1992
Walworth Foundries Inc	25	-	Single	Private	1MM-4.9MM	1949
Hydra-Seal Inc	20	-	Single	Private	1MM-4.9MM	1978
Cast Tools Inc	20	-	Single	Private	1MM-4.9MM	1971
J W Reichel & Sons Inc	20	-	Single	Private	1MM-4.9MM	1960
B & P Alloys Inc	20	-	Single	Private	1MM-4.9MM	1980
Northern Stainless Corp	20	-	Single	Private	1MM-4.9MM	1988

3321 Forging and Stamping

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Sites	All Sites				
Ladish Co Inc	704	1,062	Parent	Public		1905
Mayville Engineering Co Inc	450	-	Single	Private	50MM-99.9MM	1946
GKN Sinter Metals-Germantown	350	5,720	HQs	Private		1963
Federal-Mogul Sintered Prods	300	19,038	Branch	Public	25MM-49.9MM	1985
Jagemann Stamping Co	200	-	Single	Private	25MM-49.9MM	1946
Production Stamping Corp	200	-	Single	Private	25MM-49.9MM	1948
GKN Sinter Metals	180	5,720	Branch	Private	10MM-24.9MM	1997
Eclipse Manufacturing Co	175	287	Parent	Private		1939
Unit Drop Forge Co Inc	150	-	Single	Private	25MM-49.9MM	1918
Burgess-Norton Manufacturing	150	7,742	Branch	Private	10MM-24.9MM	1970
Kickhaefer Manufacturing Co	145	200	Parent	Private		1908

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Sites	All Sites				
Milwaukee Forge	135	-	Single	Private	25MM-49.9MM	1913
Kapco Inc	120	-	Single	Private	10MM-24.9MM	1972
Wrico Stamping Co	115	696	Branch	Private	10MM-24.9MM	1966
Eckmann Pressed Metal	100	375	Branch	Private	10MM-24.9MM	1932
Gerett Products	100	1,020	Branch	Private	10MM-24.9MM	1935
Midwest Products & Engineering	100	-	Single	Private	10MM-24.9MM	1978
R & B Wagner Inc	100	-	Single	Private	10MM-24.9MM	1938
Wisconsin Metal Products Co	100	-	Single	Private	10MM-24.9MM	1915
GKN Sinter Metals Inc	80	5,720	Branch	Private	5MM-9.9MM	1963
DexM Corp	70	-	Single	Private	5MM-9.9MM	1934
Res Manufacturing Co	70	222	Branch	Private	5MM-9.9MM	1907
Spincraft	70	3,226	Branch	Public	5MM-9.9MM	1918
McKey Perforating Co Inc	65	-	Single	Private	5MM-9.9MM	1950
KMC Stampings	55	200	Branch	Private	5MM-9.9MM	1908
Luitink Mfg Co LLC	55	1,348	Branch	Private	5MM-9.9MM	1888
Accord Manufacturing Inc	50	-	Single	Private	5MM-9.9MM	1989
Atlas Metal Parts Co Inc	50	-	Single	Private	5MM-9.9MM	1908
Matenaer Corp	50	-	Single	Private	5MM-9.9MM	1972
Sauk Technologies	50	-	Single	Private	5MM-9.9MM	2002
Vulcan Industries Corp	50	-	Single	Private	5MM-9.9MM	1951
Universal Wire & Stamping Inc	45	-	Single	Private	5MM-9.9MM	1987
D & H Industries Inc	42	-	Single	Private	5MM-9.9MM	
APW Ltd	40	3,193	Parent	Private		2000
Spindustries LLC	40	-	Single	Private	5MM-9.9MM	1952
Winco Stamping Inc	40	48	Parent	Private		1950
Dynamic Stampings Inc	35	-	Single	Private	1MM-4.9MM	1976
Quality Stamping & Tube Corp	35	-	Single	Private	1MM-4.9MM	1982
Riverworks	35	-	Single	Private	1MM-4.9MM	1948
Branko Perforating FWD Inc	30	-	Single	Private	1MM-4.9MM	1978
Dickmann Manufacturing Co Inc	30	-	Single	Private	1MM-4.9MM	1957
Milwaukee Chaplet & Mfg Co	30	-	Single	Private	1MM-4.9MM	1920
Acro Metal Stamping Co	25	-	Single	Private	1MM-4.9MM	1938
Metalspun Products Co Inc	21	-	Single	Private	1MM-4.9MM	1948
General Press & Fabricating Co	20	85	Branch	Private	1MM-4.9MM	1984
Thermoset Inc	20	182	Branch	Private	1MM-4.9MM	1975

3322 Cutlery and Handtool Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Sites	All Sites				
Mirro Co	1,000	22,579	Branch	Public	100MM-499.9MM	1893
Simplicity Manufacturing Inc	500	1,751	HQs	Private		1922
Regal Ware Inc	450	515	Branch	Private	50MM-99.9MM	1911
Regal Ware Inc	375	397	Parent	Private		1919
Empire Level Manufacturing	200	212	Parent	Private		1918
Snap-on Tools Co	200	3,240	Branch	Public	25MM-49.9MM	1981
A & E Hand Tools	175	375	Branch	Private	10MM-24.9MM	1935
Kondex Corp	150	222	Branch	Private	10MM-24.9MM	1974
A & E Inc	100	375	Parent	Private		1932
Kinetic Co Inc	60	-	Single	Private	10MM-24.9MM	1948
Master Appliance Corp	50	-	Single	Private	5MM-9.9MM	1958

3325 Hardware Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Sites	All Sites				
Master Lock Co	600	21,946	HQs	Public		1923
Strattec Security Corp	500	527	Parent	Public		1995
E R Wagner Casters & Wheels	100	420	Branch	Private		1960
Hoppe North America Inc	100	100	Branch	Private		1987
Estran Corp	25	-	Single	Private		1974
Watertown Table Slide Co	25	-	Single	Private		1886

3326 Spring and Wire Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Sites	All Sites				
Genesis Cable Systems LLC	220	91,417	Branch	Public	25MM-49.9MM	1996
Spiller Spring Co	200	2,803	HQs	Private		1922
Exacto Spring Corp	175	-	Single	Private	10MM-24.9MM	1960
Milwaukee Wire Products	150	1,053	Branch	Private	10MM-24.9MM	1936
Lucas-Milhaupt Inc	130	6,247	Branch	Public	10MM-24.9MM	1942
R & L Spring Co	110	-	Single	Private	10MM-24.9MM	1972
Associated Spring	75	2,815	Branch	Public	5MM-9.9MM	1951
Fortress Forms Inc	75	105	Parent	Private		1963
Wisconsin Coil Spring Inc	70	-	Single	Private	5MM-9.9MM	1958
Jeninga Bros Metal Forming	60	-	Single	Private	5MM-9.9MM	1964
Racine Iron & Wire Works Inc	45	-	Single	Private	5MM-9.9MM	1872
Spiros Industries Inc	30	-	Single	Private	1MM-4.9MM	1991
C I Banker Wire & Iron Works	30	-	Single	Private	1MM-4.9MM	1912
Butler Wire & Metal Products	25	-	Single	Private	1MM-4.9MM	1966

3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Citation Corp	500	5,373	Branch	Private	25MM-49.9MM	1961
General Automotive Mfg LLC	320	-	Single	Private	25MM-49.9MM	1951
Petersen Machine Co Inc	300	-	Single	Private	25MM-49.9MM	1952
Pioneer Products Inc	300	-	Single	Private	25MM-49.9MM	1966
Superior Die Set Corp	300	349	Parent	Private		1923
Manitowoc Tool & Machining LLC	250	-	Single	Private	10MM-24.9MM	1966
Maysteel Corp	250	1,990	Branch	Private	10MM-24.9MM	1937
Ace Precision Machining Corp	200	-	Single	Private	10MM-24.9MM	1982
Basic American Metal Products	200	250	Branch	Private	10MM-24.9MM	1959
Herker Industries Inc	180	-	Single	Private	10MM-24.9MM	1952
Wiza Industries Inc	175	-	Single	Private	10MM-24.9MM	1979
Swiss-Tech LLC	160	-	Single	Private	10MM-24.9MM	1965
E C Styberg Engineering Co	153	-	Single	Private	10MM-24.9MM	1927
National Rivet & Manufacturing	148	-	Single	Private	10MM-24.9MM	1928
Carlson Tool & Manufacturing	130	-	Single	Private	10MM-24.9MM	1958
R & B Grinding Co Inc	130	-	Single	Private	10MM-24.9MM	1958
V & L Tool Inc	130	-	Single	Private	10MM-24.9MM	1969

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Wrought Washer Manufacturing	130	180	Parent	Private		1887
Rumar Mfg Corp	125	-	Single	Private	10MM-24.9MM	1972
AAA Sales & Engineering Inc	120	-	Single	Private	10MM-24.9MM	1968
HyPro Inc	120	430	Parent	Private		1969
Mechanical Industries Inc	115	-	Single	Private	10MM-24.9MM	1968
Denco Manufacturing Co	110	-	Single	Private	10MM-24.9MM	1979
Metalcut Products Inc	110	-	Single	Private	10MM-24.9MM	1989
Trace-A-Matic Corp	110	160	Parent	Private		1968
Qualified Products LLC	105	-	Single	Private	5MM-9.9MM	1989
A & E Grinding Inc	100	-	Single	Private	5MM-9.9MM	2002
Advanced Manufacturing Tech	100	-	Single	Private	5MM-9.9MM	1991
Anderson Machining Service Inc	100	-	Single	Private	5MM-9.9MM	1980
Citation Corp	100	5,373	Branch	Private	5MM-9.9MM	1985
Mayville Engineering	100	-	Single	Private	5MM-9.9MM	1925
National Technologies Inc	100	-	Single	Private	5MM-9.9MM	1959
Stecker Machine Co Inc	100	-	Single	Private	5MM-9.9MM	1974
Sussek Machine Corp	100	-	Single	Private	5MM-9.9MM	1960
Toolrite Manufacturing Co Inc	100	-	Single	Private	5MM-9.9MM	1967
Universal Brixius Inc	100	-	Single	Private	5MM-9.9MM	1962
Urban Manufacturing Co Inc	100	-	Single	Private	5MM-9.9MM	1978
Iseli Co	100	16,861	Branch	Public	10MM-24.9MM	1952
Whitewater Manufacturing Co	80	-	Single	Private	5MM-9.9MM	1943
Barton Products Corp	80	-	Single	Private	5MM-9.9MM	1945
Roband Corp	80	-	Single	Private	5MM-9.9MM	1966
Raybar Inc	72	-	Single	Private	5MM-9.9MM	1976
Vulcan Lead Inc	72	100	Parent	Private		1941
American Metal Technologies	70	-	Single	Private	5MM-9.9MM	2000
HTT Inc	70	-	Single	Private	5MM-9.9MM	1985
Milwaukee Machine Works	70	-	Single	Private	5MM-9.9MM	2000
Monarch Corp	70	-	Single	Private	5MM-9.9MM	1933
Instrument Development Corp	65	-	Single	Private	5MM-9.9MM	1987
Alaark Tooling & Automation	60	-	Single	Private	5MM-9.9MM	1987
Howard Precision Metals Inc	60	-	Single	Private	5MM-9.9MM	1928
Sjoberg Tool & Mfg Corp	58	-	Single	Private	5MM-9.9MM	1975
Mantel Machine Products Inc	55	-	Single	Private	5MM-9.9MM	1951
Weldall Manufacturing Inc	55	-	Single	Private	5MM-9.9MM	1973
Spirit Manufacturing Inc	52	-	Single	Private	1MM-4.9MM	1997
A S Pindel Corp	50	-	Single	Private	1MM-4.9MM	1947
Adron Tool Corp	50	-	Single	Private	1MM-4.9MM	1969
Alloy Welding & Sheet Metal	50	-	Single	Private	1MM-4.9MM	1973
Converting Biophile Labs	50	-	Single	Private	1MM-4.9MM	1996
Dave's Job Shop Inc	50	-	Single	Private	1MM-4.9MM	1975
ExacTech Inc	50	-	Single	Private	1MM-4.9MM	1992
G & V Machine Co Inc	50	-	Single	Private	1MM-4.9MM	1946
In-Place Machining Co	50	-	Single	Private	1MM-4.9MM	1955
Integrated Tool & Machine	50	-	Single	Private	1MM-4.9MM	1997
KLH Industries Inc	50	-	Single	Private	1MM-4.9MM	1987
Letsch Manufacturing Co	50	-	Single	Private	1MM-4.9MM	1965
Owens Industries Inc	50	-	Single	Private	1MM-4.9MM	1945
Product Service & Mfg Corp	50	-	Single	Private	1MM-4.9MM	1973
Standard Machine Inc	50	-	Single	Private	1MM-4.9MM	1976
Trace-A-Matic Corp	50	160	Branch	Private	1MM-4.9MM	

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Waas Boring & Cable Inc	50	-	Single	Private	1MM-4.9MM	1968
Coupling Nut Supply	50	-	Single		5MM-9.9MM	1994
ITW Shake Proof Industrial Prd	50	24,632	Branch	Public	5MM-9.9MM	1934
Pivot Point Inc	50	-	Single	Private	5MM-9.9MM	1982
Wrought Washer Manufacturing	50	180	Branch	Private	5MM-9.9MM	1990
Global Power Components Corp	49	-	Single	Private	1MM-4.9MM	
Aztalan Engineering Inc	47	-	Single	Private	1MM-4.9MM	1978
Lake Country Corp	47	-	Single	Private	1MM-4.9MM	1985
Reynolds Machine Co Inc	47	-	Single	Private	1MM-4.9MM	1940
Bullseye Industries Inc	45	55	Parent	Private		1995
Butler Tool Inc	45	-	Single	Private	1MM-4.9MM	1945
Custom Production Grinding Inc	45	-	Single	Private	1MM-4.9MM	1983
Die Concepts Inc	45	-	Single	Private	1MM-4.9MM	1988
Wiscraft Inc	45	-	Single	Private	1MM-4.9MM	1903
Michaels Machine Co Inc	45	-	Single	Private	1MM-4.9MM	1945
Precision Screw Thread Corp	45	-	Single	Private	5MM-9.9MM	1951
Hanel Corp	44	-	Single	Private	1MM-4.9MM	1963
Allis Tool & Machine Corp	40	-	Single	Private	1MM-4.9MM	1953
Bothe Associates Inc	40	-	Single	Private	1MM-4.9MM	1948
Converse Industries Inc	40	-	Single	Private	1MM-4.9MM	1960
F Ziegler Enterprises Ltd	40	-	Single	Private	1MM-4.9MM	1975
Fall River Manufacturing Co	40	235	Branch	Private	1MM-4.9MM	1923
Jordan Machinery Corp	40	-	Single	Private	1MM-4.9MM	1942
Karak Machine Corp	40	-	Single	Private	1MM-4.9MM	1978
Mac Metal Products Of WI Inc	40	-	Single	Private	1MM-4.9MM	1968
Marlow & Sons Machining Inc	40	-	Single	Private	1MM-4.9MM	1973
Monitor Corp	40	85	Parent	Private		1973
Neosho Trompler Inc	40	-	Single	Private	1MM-4.9MM	1967
OEMMCCO Inc	40	-	Single	Private	1MM-4.9MM	1972
Tobin Machining Co Inc	40	-	Single	Private	1MM-4.9MM	1923
Wesco Machine Products Inc	40	-	Single	Private	1MM-4.9MM	1974
Busch Precision Inc	38	-	Single	Private	1MM-4.9MM	1907
Frantz Machine Products Inc	38	-	Single	Private	1MM-4.9MM	1975
Kahlenberg Brothers Co	38	-	Single	Private	1MM-4.9MM	1895
EVM Inc	38	-	Single	Private	1MM-4.9MM	1962
Arrow Tool & Stamping Co Inc	35	-	Single	Private	1MM-4.9MM	1947
Becker Machine Co Inc	35	-	Single	Private	1MM-4.9MM	1946
Bestech Tool Corp	35	-	Single	Private	1MM-4.9MM	1977
Federal Tool & Engineering Inc	35	-	Single	Private	1MM-4.9MM	1925
Kirsan Engineering Inc	35	135	Branch	Private	1MM-4.9MM	1967
Precision Plus Inc	35	-	Single	Private	1MM-4.9MM	1982
Remington Manufacturing Inc	35	-	Single	Private	1MM-4.9MM	1955
Rolled Threads Unlimited LLC	35	-	Single	Private	1MM-4.9MM	1985
Universal Metrics Inc	35	-	Single	Private	1MM-4.9MM	1976
Xact Wire EDM Corp	35	46	Parent	Private		1984
W S Machine & Tool Inc	33	-	Single	Private	1MM-4.9MM	1992
Z & Z Machine Products Inc	33	-	Single	Private	1MM-4.9MM	1970
Accurate Metal Products Inc	32	-	Single	Private	1MM-4.9MM	1995
Coleman Tool Manufacturing	32	62	Branch	Private	1MM-4.9MM	1971
Advance Screw Products Inc	32	-	Single	Private	1MM-4.9MM	1967
A C I Industries Inc	30	-	Single	Private	1MM-4.9MM	1983
Badge Parts Inc	30	-	Single	Private	1MM-4.9MM	1975

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Centerline Industries Inc	30	-	Single	Private	1MM-4.9MM	1984
HyPro Inc	30	430	Branch	Private	1MM-4.9MM	1969
Milwaukee Broach Co Inc	30	-	Single	Private	1MM-4.9MM	1985
Rostad Aluminum Corp	30	-	Single	Private	1MM-4.9MM	1953
Sullivan Corp	30	55	Parent	Private		1970
Fortress Mfg Inc	30	105	Branch	Private	1MM-4.9MM	1963
Columbia Grinding Inc	28	-	Single	Private	1MM-4.9MM	1954
Vulcan Lead Inc	28	100	Branch	Private	1MM-4.9MM	1978
Herdeman Corp	27	-	Single	Private	1MM-4.9MM	1966
A C Tool Machine Co Inc	26	-	Single	Private	1MM-4.9MM	1979
Ajax Metal Products Inc	25	-	Single	Private	1MM-4.9MM	1958
Ajusta Mfg Inc	25	-	Single	Private	1MM-4.9MM	1976
Diversified Tooling Innovation	25	-	Single	Private	1MM-4.9MM	1988
Horizon Systems Machining Inc	25	-	Single	Private	1MM-4.9MM	1989
Hydraulic Service & Mfg Inc	25	-	Single	Private	1MM-4.9MM	1977
Innovative Technologies Corp	25	-	Single	Private	1MM-4.9MM	1998
Ladish Co Inc	25	1,062	Branch	Public	1MM-4.9MM	1905
Machining Concepts Inc	25	-	Single	Private	1MM-4.9MM	1995
Milwaukee N/C Machining Co	25	85	Branch	Private	1MM-4.9MM	1982
Precision Metal Fabricating	25	-	Single	Private	1MM-4.9MM	1995
Rite Engineering Co	25	-	Single	Private	1MM-4.9MM	1947
Specialty Machining	25	-	Single	Private	1MM-4.9MM	1975
TJ Grinding Inc	25	-	Single	Private	1MM-4.9MM	1981
Howard G Hinz Co Inc	25	-	Single	Private	1MM-4.9MM	1958
Bohr Precision Machining Inc	24	-	Single	Private	1MM-4.9MM	1978
Tape Machining Corp	24	-	Single	Private	1MM-4.9MM	1964
Mica Tool & Manufacturing Inc	23	-	Single	Private	1MM-4.9MM	1979
Bachhuber Manufacturing Corp	22	-	Single	Private	1MM-4.9MM	1983
Parameters Industries Inc	22	-	Single	Private	1MM-4.9MM	1982
Perkins Engineering Co Inc	22	-	Single	Private	1MM-4.9MM	1951
JSA Tool & Engineering Inc	21	-	Single	Private	1MM-4.9MM	1994
Zierden Co	21	-	Single	Private	1MM-4.9MM	1937
Accu-Turn Inc	20	-	Single	Private	1MM-4.9MM	1981
Argo Industries Inc	20	-	Single	Private	1MM-4.9MM	1986
Component Engineering Inc	20	-	Single	Private	1MM-4.9MM	1993
Daco Precision Inc	20	-	Single	Private	1MM-4.9MM	1984
Diameters Inc	20	-	Single	Private	1MM-4.9MM	1974
Frentzel Products Inc	20	-	Single	Private	1MM-4.9MM	1945
Integrity Saw & Tool Inc	20	-	Single	Private	1MM-4.9MM	1986
Milwaukee Slide & Spindle	20	265	Branch	Private	1MM-4.9MM	1975
T & K Specialty Products Inc	20	-	Single	Private	1MM-4.9MM	1967
Weix Industries Inc	20	-	Single	Private	1MM-4.9MM	1985
Westosha Tool Co Inc	20	-	Single	Private	1MM-4.9MM	1967
Accurate Automatic Parts Inc	20	-	Single	Private	1MM-4.9MM	1943
TNS Machining Facilities Inc	20	-	Single	Private	1MM-4.9MM	1981
ITW Shakeproof Inc	20	24,632	Branch	Public	1MM-4.9MM	1985

3329 Other Fabricated Metal Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Kohler Co	7,510	16,129	Parent	Private		1873
Husco International Inc	600	660	Parent	Private		1950
Citation Wisconsin Castings	400	5,373	Branch	Private	50MM-99.9MM	1986
Bradley Corp	300	501	Parent	Private		1921
E R Wagner Manufacturing Co	300	420	Parent	Private		1899
Steel-Craft Corp	200	450	Branch	Private	25MM-49.9MM	1976
Johnson Controls Inc	160	-	Single	Private	25MM-49.9MM	
RB Royal Industries Inc	150	-	Single	Private	10MM-24.9MM	1942
Bradley Corp	150	501	Branch	Private	10MM-24.9MM	1921
Polar Ware Co	150	349	Parent	Private		1907
Formrite Co's	125	-	Single	Private	10MM-24.9MM	1950
Supreme Cores Inc	105	-	Single	Private	5MM-9.9MM	1978
Federal Manufacturing Co	105	-	Single	Private	10MM-24.9MM	1945
Alfa Laval Inc	100	984	Branch	Private	10MM-24.9MM	
Sumitomo Carbide Manufacturing	100	3,102	Branch	Private	10MM-24.9MM	1991
Milwaukee Valve Co Inc	70	595	Parent	Private		1901
HUSCO International Inc	60	660	Branch	Private	10MM-24.9MM	1998
Dramm Corp	58	-	Single	Private	5MM-9.9MM	1945
Breuer Metal Craftsmen Inc	55	-	Single	Private	5MM-9.9MM	1950
Marchant Schmidt Inc	55	-	Single	Private	5MM-9.9MM	1947
Scot Industries Inc	54	535	Branch	Private	5MM-9.9MM	1951
Summit Packaging Systems Inc	50	400	Branch	Private	5MM-9.9MM	1976
Advance Fittings Corp	50	-	Single	Private	5MM-9.9MM	1985
Gardner Equipment Co Inc	50	-	Single	Private	5MM-9.9MM	1907
Expert Foundry Services Inc	50	-	Single	Private	1MM-4.9MM	1996
A H Stock Manufacturing Corp	50	-	Single	Private	5MM-9.9MM	1943
Argon Industries Inc	50	2,590	Branch	Public	5MM-9.9MM	2002
General Metalworks Corp	50	-	Single	Private	5MM-9.9MM	1993
Vollrath Inc	50	1,348	Branch	Private	5MM-9.9MM	1994
Irving Polishing & Mfg Co Inc	45	-	Single	Private	5MM-9.9MM	1945
Flodar Fluid Power Fittings	38	112	Branch	Private	5MM-9.9MM	1945
Hydra-Tool	37	112	Branch	Private	1MM-4.9MM	
Airtrol Components Inc	35	-	Single	Private	5MM-9.9MM	1977
Elwood Corp	35	-	Single	Private	5MM-9.9MM	1973
Atlas Pipe Threading Co	35	-	Single	Private	1MM-4.9MM	1937
Healy Manufacturing Inc	35	-	Single	Private	1MM-4.9MM	1993
Hystro Products Inc	30	-	Single	Private	5MM-9.9MM	1955
Krieger Barrels	30	-	Single	Private	1MM-4.9MM	1944
Excel-A-Tec Inc	30	-	Single	Private	1MM-4.9MM	1987
Finn Pattern Co Inc	25	-	Single	Private	1MM-4.9MM	1985
Stainless Products Inc	24	-	Single	Private	1MM-4.9MM	1971
Peterson Custom Stainless Inc	21	-	Single	Private	1MM-4.9MM	1991
L C Thomsen Inc	20	-	Single	Private	1MM-4.9MM	1932
J P Pattern Inc	20	-	Single	Private	1MM-4.9MM	1965

3331 Agriculture, Construction, and Mining Machinery Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Sites	All Sites				
CNH Global	4,000	11,535	Branch	Public	500MM-	1842

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Sites	All Sites				
					999.9MM	
John Deere & Co	1,500	21,511	Branch	Public	100MM-499.9MM	1911
Bucyrus International Inc	700	913	HQs	Private		1880
Wacker Corp	600	600	Branch	Private	100MM-499.9MM	1957
P & H Mining Equipment	600	3,760	HQs	Public		1884
Gehl Co	400	825	Parent	Public		1859
Kelch Corp	350	2,050	Branch	Private	50MM-99.9MM	1956
Fisher-Barton Inc	300	415	HQs	Private		1973
Telsmith Inc	250	2,453	Branch	Public	50MM-99.9MM	1906
Amerequip Corp	200	232	Branch	Private	25MM-49.9MM	1987
Jacobsen	200	34,579	Branch	Public	50MM-99.9MM	1972
Western Products	200	585	Branch	Private	50MM-99.9MM	1951
Miller-St Nazianz Inc	150	-	Single	Private	25MM-49.9MM	1899
R E Phelon Co Inc	150	500	Branch	Private	25MM-49.9MM	1979
Metso Minerals Industries Inc	135	832	Parent	Private		1886
CNH Global	100	11,535	Parent	Public		1974
Schmidt Engineering & Eqpt	100	520	Branch	Private	25MM-49.9MM	1978
Lippmann-Milwaukee Inc	100	-	Single	Private	10MM-24.9MM	1976
Passini Group	75	210	Parent	Private		1973
RexCon LLC	75	168	Branch	Private	10MM-24.9MM	1992
Spancrete Industries Inc	75	773	HQs	Private		1946
Kolpin Outdoors Inc	60	250	Parent	Private		1969
M-B-W Inc	60	68	Branch	Private	10MM-24.9MM	1967
Mixer Systems Inc	60	-	Single	Private	10MM-24.9MM	1979
Sno-Way International Inc	55	-	Single	Private	10MM-24.9MM	1979
Scag Power Equipment	30	-	Single	Private	5MM-9.9MM	1982
Maxon Industries Inc	30	-	Single	Private	5MM-9.9MM	1972
Spancrete Machinery	30	773	HQs	Private		1946
Feldmann Engineering & Mfg	25	-	Single	Private	5MM-9.9MM	1947
D & D Aquarius	22	-	Single	Private	5MM-9.9MM	1964

3335 Metalworking Machinery Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Giddings & Lewis LLC	439	55,862	HQs	Private		1859
Miniature Precision Components	400	824	Parent	Private		1972
Tulip Corp	300	430	Branch	Private	25MM-49.9MM	1977
Brunk Industries Inc	225	-	Single	Private	10MM-24.9MM	1962
Moldmakers Inc	175	960	HQs	Private		1982
Daco Jaw Inc	175	-	Single	Private	10MM-24.9MM	1974
Kaysun Corp	150	-	Single	Private	10MM-24.9MM	1990
Triangle Tool Corp	150	205	Parent	Private		1964
MG Systems & Welding Inc	150	-	Single	Private	25MM-49.9MM	1958
Walter Waukesha Inc	150	-	Single	Private	10MM-24.9MM	1957
Plastic Molded Concepts Inc	135	-	Single	Private	10MM-24.9MM	1975
Moldmakers Inc	110	960	Branch	Private	10MM-24.9MM	1982
Micro Precision	110	-	Single	Private	10MM-24.9MM	1983
Norstar Aluminum Molds Inc	100	158	Parent	Private		1955
Ram Tool Inc	100	-	Single	Private	10MM-24.9MM	1979

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Danly/IEM	100	579	Branch	Private	10MM-24.9MM	1996
Accurate Products Mfg Corp	100	-	Single	Private	10MM-24.9MM	1970
Carbide Specialists Inc	100	-	Single	Private	10MM-24.9MM	1967
Balax Inc	100	-	Single	Private	10MM-24.9MM	1960
Capitol Engineering Co	80	18,821	Branch	Public	5MM-9.9MM	1969
Mantz Automation Inc	75	85	Parent	Private		1989
Kaufman Mfg Co	75	-	Single	Private	10MM-24.9MM	1928
Frank L Wells Co	75	130	Parent	Private		1893
K & S Tool & Die Corp	70	-	Single	Private	5MM-9.9MM	1974
Artos Engineering Co	70	74	Parent	Private		1911
Gruber Tool & Die Inc	65	-	Single	Private	5MM-9.9MM	1970
X-Cel Tooling Inc	65	-	Single	Private	5MM-9.9MM	1987
Willer Tool Corp	60	-	Single	Private	5MM-9.9MM	1967
Gormac Products Inc	58	-	Single	Private	10MM-24.9MM	1947
Apple Steel Rule Die Co Inc	53	99	Parent	Private		1985
Waukesha Tool & Stamping Inc	53	-	Single	Private	5MM-9.9MM	1971
Astro Tool & Die Co Inc	52	-	Single	Private	5MM-9.9MM	1965
Ultra Tool & Mfg Inc	52	-	Single	Private	5MM-9.9MM	1946
Earth Tool Corp	51	-	Single	Private	5MM-9.9MM	1989
Dynamic Tool & Design Inc	50	-	Single	Private	5MM-9.9MM	1976
Xten Industries LLC	50	-	Single	Private	5MM-9.9MM	2002
Fox Systems Inc	50	-	Single	Private	5MM-9.9MM	1985
Ace Stamping & Machine Co Inc	50	-	Single	Private	5MM-9.9MM	1955
CDM Tool & Mfg Co Inc	50	-	Single	Private	5MM-9.9MM	1961
Quadra Inc	50	-	Single	Private	5MM-9.9MM	1954
Seljan Tool Co Inc	50	-	Single	Private	5MM-9.9MM	1966
Tools Inc	50	-	Single	Private	5MM-9.9MM	1958
Precise Corp	50	-	Single	Private	5MM-9.9MM	1941
Omega Tool Inc	49	-	Single	Private	5MM-9.9MM	1954
Joy-Mark Fiber Ceramics Inc	48	-	Single	Private	5MM-9.9MM	1978
R J Zeman Tool & Manufacturing	48	-	Single	Private	1MM-4.9MM	1966
Stanek Tool Corp	45	-	Single	Private	1MM-4.9MM	1924
Dynacast	40	605	Branch	Private	1MM-4.9MM	1965
Pattern Technologies Inc	40	-	Single	Private	1MM-4.9MM	1994
Plas-TEC Tool & Dienamics Inc	40	-	Single	Private	1MM-4.9MM	1988
Schaefer Tool & Manufacturing	40	-	Single	Private	1MM-4.9MM	1962
Ellison Machinery Co	40	-	Single	Private	5MM-9.9MM	1982
Snider Mold Co Inc	38	-	Single	Private	1MM-4.9MM	1961
AW Precision LLC	35	349	Branch	Private	1MM-4.9MM	2003
Reich Tool & Design Inc	35	-	Single	Private	1MM-4.9MM	1965
ELENCO Carbide Tool Corp	35	-	Single	Private	1MM-4.9MM	1968
Miro Tool & Manufacturing Inc	35	-	Single	Private	1MM-4.9MM	1988
Megomat USA Inc	35	-	Single	Private	5MM-9.9MM	1990
Production Tool Corp	32	42	Parent	Private		1948
Ci-Dell Plastics Inc	30	-	Single	Private	1MM-4.9MM	1986
ETW Inc	30	-	Single	Private	1MM-4.9MM	1944
GKN Sinter Metals Tool & Die	30	5,720	Branch	Private	1MM-4.9MM	1963
Toolcraft Co Inc	30	-	Single	Private	1MM-4.9MM	1960
Tooling Technologies Inc	30	-	Single	Private	1MM-4.9MM	1994
Wisconsin Engraving Co/Unitex	30	-	Single	Private	1MM-4.9MM	1925
Drillmaster Tool LLC	30	-	Single	Private	5MM-9.9MM	1975
Mechtrix Corp	30	-	Single	Private	5MM-9.9MM	1981

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Mayville Die & Tool Inc	27	-	Single	Private	1MM-4.9MM	1935
Chapter 2 Inc	26	-	Single	Private	1MM-4.9MM	1972
A J Tool Co Inc	25	-	Single	Private	1MM-4.9MM	1975
Metal Forms Corp	25	-	Single	Private	1MM-4.9MM	1909
Wisconsin Machine Tool Corp	25	-	Single	Private	1MM-4.9MM	1993
DeVor Tool & Die Inc	25	-	Single	Private	1MM-4.9MM	1956
Marini Tool & Die Co Inc	25	-	Single	Private	1MM-4.9MM	1951
Miller Tool & Die Co Inc	25	-	Single	Private	1MM-4.9MM	1975
Muthig Industries Inc	25	-	Single	Private	1MM-4.9MM	1965
Gromax Precision Die & Mfg Inc	24	-	Single	Private	1MM-4.9MM	1981
Tru-Fit Steel Rule Dies Of WI	22	-	Single	Private	1MM-4.9MM	1966
Tri-Star Tool & Machine Inc	21	-	Single	Private	1MM-4.9MM	1996
Gain Industries Inc	20	-	Single	Private	1MM-4.9MM	1989
Becker Inc	20	-	Single	Private	1MM-4.9MM	1923
Imperial Tool & Plastics Corp	20	-	Single	Private	1MM-4.9MM	1978
Kald Tool & Die Inc	20	-	Single	Private	1MM-4.9MM	1995
Lenard Tool & Machine Inc	20	-	Single	Private	1MM-4.9MM	1968
Mill Tool & Mfg Corp	20	-	Single	Private	1MM-4.9MM	1954
Midwest Cutting Tools Inc	20	-	Single	Private	1MM-4.9MM	1990
Tool Fabrication Corp	20	-	Single	Private	1MM-4.9MM	1970
Belco Industries Inc	20	-	Single	Private	1MM-4.9MM	1975
HMF Innovations Inc	20	-	Single	Private	1MM-4.9MM	1970

3336 Engine, Turbine, and Power Transmission Equipment Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Mercury Marine	3,200	18,821	Branch	Public	1B-9.9B	1939
Generac Power Systems Corp	1,100	1,500	Parent	Private		1959
Falk Corp	1,000	61,349	Division HQ	Public		1892
Waukesha Engine Dresser Inc	1,000	3,465	Branch	Private	100MM-499.9MM	1906
BRP US Inc	700	11,520	Branch	Private	100MM-499.9MM	
Generac Power Systems	300	1,500	Branch	Private	50MM-99.9MM	1959
Falk Corp	300	61,349	Branch	Public	25MM-49.9MM	1892
Hayes Brake LLC	300	305	Branch	Private	25MM-49.9MM	1946
Briggs & Stratton Corp	269	6,247	Parent	Public		1909
Briggs & Stratton Corp	268	6,247	Branch	Public	50MM-99.9MM	1908
ABB Power Drives	250	9,691	Branch	Public	25MM-49.9MM	1985
Grove Gear	200	4,950	Branch	Public	25MM-49.9MM	1947
Wolter Power Systems	200	632	Branch	Private	50MM-99.9MM	1975
Mercury Racing	170	18,821	Branch	Public	50MM-99.9MM	1970
Danfoss Graham Inc	160	429	Branch	Private	10MM-24.9MM	1936
Inland Detroit Diesel-Allison	150	300	Parent	Private		1958
Orion Corp	110	577	Parent	Private		1968
Milwaukee Gear Co	100	-	Single	Private	10MM-24.9MM	1918
Johnson Brass & Machine Fndry	100	-	Single	Private	10MM-24.9MM	1905
Accurate Specialties Inc	65	415	Parent	Private		1972
Precision Gears Inc	60	-	Single	Private	5MM-9.9MM	1919
Krueger Bearings Inc	55	-	Single	Private	5MM-9.9MM	1971

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Gas Atmospheres	50	1,527	Branch	Private	10MM-24.9MM	1947
Multi Products Co Inc	50	-	Single	Private	5MM-9.9MM	1940
Milwaukee Bearing & Machining	50	-	Single	Private	5MM-9.9MM	1955
NORAM	42	-	Single	Private	5MM-9.9MM	1961
Beere Precision Products Inc	40	-	Single	Private	5MM-9.9MM	1947
Falk Corp	37	61,349	Branch	Public	5MM-9.9MM	1999
Butler Gear Co Inc	35	-	Single	Private	5MM-9.9MM	1960
Weimer Bearing & Transmission	35	48	Parent	Private		1930
Magnetek Division Inc	30	-	Single	Private	1MM-4.9MM	2002
Waukesha Bearings Corp	25	17,619	Division HQ	Public		1950
Fusion Babbiting Co Inc	23	-	Single	Private	1MM-4.9MM	1988
Planetgear Operations	20	26,025	Branch	Private	1MM-4.9MM	1892

3339 Other General Purpose Machinery Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
QuadTech Inc	600	11,122	HQs	Private		1979
Pentair Water	500	9,722	HQs	Public		1934
Rietschle Thomas	500	1,014	Branch	Public	100MM-499.9MM	1952
Manitowoc Cranes Inc	500	4,469	Branch	Public	50MM-99.9MM	1997
Snap-On Inc	450	3,240	Parent	Public		1920
Putzmeister Inc	300	1,436	Branch	Private	50MM-99.9MM	1965
Perlick Corp	300	-	Single	Private	50MM-99.9MM	1917
Alto-Shaam Inc	300	-	Single	Private	25MM-49.9MM	1969
Pentair Water Treatment	300	6,073	Branch	Public	25MM-49.9MM	1958
Guhring Inc	250	270	Parent	Private		1978
Oilgear Co Inc	250	454	Parent	Public		1921
Milwaukee Electric Tools Corp	200	5,298	HQs	Public		1924
KHS-Inc	200	2,371	HQs	Private		1971
Klockner KHS Inc	200	2,371	Branch	Private	25MM-49.9MM	1971
Twin Disc Inc	200	713	Branch	Public	25MM-49.9MM	
Zenar Corp	170	-	Single	Private	25MM-49.9MM	1972
Dorner Manufacturing Corp	155	175	Parent	Private		1965
Eutectic Corp	150	4,630	Branch	Public	25MM-49.9MM	1975
Poclain Hydraulics Inc	135	135	Branch	Private	10MM-24.9MM	1991
International Thermal Systems	125	-	Single	Private	10MM-24.9MM	2000
Schenck Accurate Inc	125	125	Branch	Private	10MM-24.9MM	1946
Aantek Inc	120	-	Single	Private	10MM-24.9MM	1994
Pemco Inc	120	120	Branch	Private	10MM-24.9MM	1960
San Jamar	100	110	Branch	Private	10MM-24.9MM	1984
Morris Material Handling Inc	100	523	Parent	Private		1998
Orbis Corp	100	4,125	HQs	Private		2000
Triton Corp	100	-	Single	Private	10MM-24.9MM	1975
Sohn Manufacturing Inc	100	-	Single	Private	10MM-24.9MM	1950
Modern Equipment Co Inc	100	1,527	HQs	Private		1919
Pillar Induction Co LLC	100	112	Parent	Private		2002
Hader-Seitz Inc	100	190	Branch	Private	10MM-24.9MM	1993
Milwaukee Cylinder	100	969	Branch	Public	10MM-24.9MM	1953
Galland Henning Nopak Inc	100	-	Single	Private	10MM-24.9MM	1887

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Acro Automation Systems Inc	100	-	Single	Private	10MM-24.9MM	1936
Production Specialties Group	100	-	Single	Private	10MM-24.9MM	1990
Rockwell Automation Inc	100	16,905	Parent	Public		1903
Dynex Rivett Inc	90	100	Parent	Private		1977
PneumaTech Inc	80	-	Single	Private	10MM-24.9MM	1966
Digi-Star LLC	80	-	Single	Private	10MM-24.9MM	1996
Jordan Controls Inc	77	-	Single	Private	10MM-24.9MM	1990
Jorgensen Conveyors Inc	75	-	Single	Private	10MM-24.9MM	1950
Pflow Industries Inc	70	-	Single	Private	10MM-24.9MM	1976
Manitowoc Co Inc	70	4,469	Parent	Public		1902
MEE Enterprises Inc	70	115	Parent	Private		1940
Banner Welder Inc	70	-	Single	Private	10MM-24.9MM	1949
SCOT Pump	65	75	Parent	Private		1955
Associate Engineering Corp	65	-	Single	Private	10MM-24.9MM	1959
Watertronics Inc	62	-	Single	Private	10MM-24.9MM	1986
Weil Pump Co	60	-	Single	Private	10MM-24.9MM	1927
Superior Crane Corp	55	-	Single	Private	5MM-9.9MM	1985
Oil-Rite Corp	55	-	Single	Private	5MM-9.9MM	1932
HFI Fluid Power Products	53	-	Single	Private	5MM-9.9MM	1965
Saelens Corp	50	-	Single	Private	5MM-9.9MM	1971
Crown Lift Trucks	50	4,220	Branch	Private	10MM-24.9MM	1998
F M S/Magnacraft Inc	50	-	Single	Private	5MM-9.9MM	1990
Lindberg	50	13,334	Branch	Public	5MM-9.9MM	1935
Trico Mfg Corp	50	-	Single	Private	5MM-9.9MM	1917
Bryant Products Inc	48	-	Single	Private	5MM-9.9MM	1981
Diamond Precision Products	45	-	Single		5MM-9.9MM	1986
Actuant Corp	45	969	Parent	Public		1964
Nigrelli Systems Inc	45	-	Single	Private	5MM-9.9MM	1983
Peterbilt Of Wisconsin Inc	43	519	HQs	Private		1969
J M Grimstad Inc	40	45	Parent	Private		1934
Blower Application Co	40	-	Single	Private	5MM-9.9MM	1934
RBA Inc	40	-	Single	Private	5MM-9.9MM	1985
Lube Devices Inc	37	112	Parent	Private		1962
Ivarson Inc	35	-	Single	Private	5MM-9.9MM	1963
Ritter Technology LLC	35	724	Branch	Private	5MM-9.9MM	1957
Construction Forms Inc	33	102	HQs	Private		1970
Bushman Equipment Inc	33	-	Single	Private	5MM-9.9MM	1950
West Bend Equipment Co Inc	33	-	Single	Private	5MM-9.9MM	1950
C H & E Manufacturing Co Inc	30	160	Branch	Private	5MM-9.9MM	1908
ITT A-C Pump Corp	30	14,589	Branch	Public	5MM-9.9MM	1987
Milwaukee Sprayer Mfg Co Inc	30	-	Single	Private	5MM-9.9MM	1932
Crane Manufacturing & Service	30	-	Single	Private	5MM-9.9MM	1961
Myers Manufacturing Inc	30	-	Single	Private	5MM-9.9MM	1983
Topper Industrial Inc	30	-	Single	Private	5MM-9.9MM	1994
Spee-Dee Packaging Machinery	30	-	Single	Private	1MM-4.9MM	1940
Hydraulic Gear Inc	30	-	Single	Private	1MM-4.9MM	1945
Norman Equipment Co	30	105	Branch	Private	5MM-9.9MM	1946
Centrisys Corp	30	-	Single	Private	1MM-4.9MM	2000
Davis & Thompson Co	30	60	Branch	Private	1MM-4.9MM	1918
American Bin & Conveyor Inc	28	-	Single	Private	1MM-4.9MM	1988
Berlon Industries	27	-	Single	Private	5MM-9.9MM	1937
Babush Material Handling Sys	25	-	Single	Private	1MM-4.9MM	1924

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
KCI Konecranes International	25	731	Branch	Private	1MM-4.9MM	1996
Overhead Material Handling Inc	25	-	Single	Private	1MM-4.9MM	1988
Wisconsin Lifting Specialists	25	-	Single	Private	1MM-4.9MM	1969
Sterling Handling Equipment	25	-	Single	Private	5MM-9.9MM	1904
United Welding & Manufacturing	25	-	Single	Private	5MM-9.9MM	1942
Hypneumat Inc	25	-	Single	Private	5MM-9.9MM	1950
HeatTek Inc	25	-	Single	Private	1MM-4.9MM	1999
Infratrol Manufacturing Corp	25	-	Single	Private	1MM-4.9MM	1956
Hader Inc	25	190	Parent	Private		1951
Enerpac	25	-	Single	Private	1MM-4.9MM	1964
J & R Engineering Co Inc	25	-	Single	Private	1MM-4.9MM	1980
Perschke Automotive Co	22	-	Single	Private	1MM-4.9MM	1961
FJR Manufacturing Inc	21	-	Single	Private	1MM-4.9MM	1982
Vector Technologies Ltd	20	-	Single	Private	1MM-4.9MM	1992
Holland Mfg Inc	20	-	Single	Private	1MM-4.9MM	1978
Hydraulic Component Svcs Inc	20	35	Parent	Private		1975
Hartmann Controls Inc	20	-	Single	Private	1MM-4.9MM	1965
Autologik	20	175	Branch	Private	1MM-4.9MM	2000

3343 Audio and Video Equipment Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Koss Corp	150	-	Single	Public		1953
American Audio Systems	50	-	Single	Private		1989
Clearwing Productions Inc	30	-	Single	Private		1975

3351 Electric Lighting Equipment Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Beta/Kramer Lighting	440	-	Single	Private	50MM-99.9MM	1987
Ruud Lighting	250	500	Parent	Private		1982
Visa Lighting	220	-	Single	Private	25MM-49.9MM	1943
Oldenburg Group Inc	168	748	Parent	Private		1943
SPI Lighting Inc	150	-	Single	Private	25MM-49.9MM	1977
Magnum Products LLC	100	-	Single	Private	10MM-24.9MM	1988
Manning Lighting Inc	80	-	Single	Private	10MM-24.9MM	1950
Phoenix Products Co Inc	70	73	Parent	Private		1892
Orion Energy Systems	60	-	Single	Private	10MM-24.9MM	1996
Hobby Hill Lighting Inc	50	168	Branch	Private	5MM-9.9MM	1985
Racine Metal-Fab Ltd	50	-	Single	Private	5MM-9.9MM	1968
Genii Lamps Inc	25	-	Single	Private	5MM-9.9MM	1953

3352 Household Appliance Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
In-Sink-Erator	1,000	41,755	Branch	Public	100MM-499.9MM	1937

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Andis Co	300	-	Single	Private	50MM-99.9MM	1922
Hatco Corp	75	375	Parent	Private		1950
Desert Aire Corp	70	1,384	Branch	Public	10MM-24.9MM	1975

3353 Electrical Equipment Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Rockwell Automation	4,000	16,905	HQs	Public		1903
Briggs & Stratton Power Prods	850	6,247	Branch	Public	100MM-499.9MM	2001
Kohler Power Systems Group	600	16,129	Branch	Private	50MM-99.9MM	1873
Cherry Electrical Products	600	-	Single	Private	100MM-499.9MM	1953
AMETEK/Lamb Electric Inc	550	4,548	Branch	Public	50MM-99.9MM	1920
Cooper Power Systems	550	12,866	Branch	Public	100MM-499.9MM	1933
Pieper Electric Inc	500	568	Parent	Private		1947
DRS Power & Control Techs Inc	500	5,503	HQs	Public		1911
Waukesha Electric Systems Inc	455	13,334	HQs	Public		1970
Cooper Power Systems	450	12,866	HQs	Public		1833
ABB Inc	400	9,691	Branch	Public	50MM-99.9MM	1988
Cooper Power Systems	200	12,866	Branch	Public	25MM-49.9MM	1833
Magne Tek	200	-	Single	Private	25MM-49.9MM	1981
Mamco Corp	180	210	Parent	Private		1939
Deltrol Controls Inc	150	275	Parent	Private		1962
Hubbell Special Products Inc	125	-	Single	Private	10MM-24.9MM	1988
Yaskawa Electric America	120	1,348	HQs	Private		1972
Cooper Power Systems	100	12,866	Branch	Public	10MM-24.9MM	1948
Cramer Coil & Transformer Co	100	-	Single	Private	10MM-24.9MM	1964
P & H Mining Equipment	100	-	Single	Private	10MM-24.9MM	1884
Unico Inc	100	-	Single	Private	10MM-24.9MM	1967
A O Smith Corp	85	5,048	HQs	Private		1874
MTE Corp	75	-	Single	Private	10MM-24.9MM	1940
TCI Trans-Coil Inc	70	-	Single	Private	10MM-24.9MM	1964
S & C Electric Co	60	1,910	Branch	Private	5MM-9.9MM	1970
Bombardier Recreational Prod	60	11,520	Branch	Private	10MM-24.9MM	1996
Professional Power Products	55	-	Single	Private	10MM-24.9MM	1992
Wellsco Controls Inc	55	130	Branch	Private	5MM-9.9MM	1893
Gettys Group	50	-	Single	Private	5MM-9.9MM	1959
Motor Specialty Inc	50	-	Single	Private	5MM-9.9MM	1947
Bevco Engineering Co Inc	50	-	Single	Private	5MM-9.9MM	1965
Curtis Industries Inc	50	75	Parent	Private		1935
Logemann Brothers Co	50	-	Single	Private	5MM-9.9MM	1882
Powers Holdings Inc	50	-	Single	Private	5MM-9.9MM	
Protech Electric Motors Inc	45	-	Single	Private	5MM-9.9MM	1993
Protech Industrial Controls	45	-	Single	Private	5MM-9.9MM	1993
Repete Corp	35	-	Single	Private	5MM-9.9MM	1965
Fondy Auto Electric	35	46	Parent	Private		1968
Marlin Technologies Inc	32	-	Single	Private	5MM-9.9MM	1946
Hamilton Sundstrand	31	61,349	Branch	Public	5MM-9.9MM	1999
Badger Electric Motor Inc	30	60	Parent	Private		1978

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Absolute Automation Systems	30	-	Single	Private	5MM-9.9MM	1999
L & S Electric Inc	25	115	Branch	Private	1MM-4.9MM	
CIM Products Inc	25	-	Single	Private	1MM-4.9MM	1987
Enhancers Inc	25	-	Single	Private	1MM-4.9MM	1987
Hydro Electronic Devices Inc	25	-	Single	Private	1MM-4.9MM	1986
Dietz Electric Co Inc	20	-	Single	Private	1MM-4.9MM	1974
Dyne Systems Co LLC	20	-	Single	Private	1MM-4.9MM	1982

3359 Other Electrical Equipment and Component Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Honeywell Access Systems	1,254	-	Single	Private	100MM-499.9MM	
Gardner Bender Inc	500	969	Branch	Public	50MM-99.9MM	1964
Cherry Electronics Corp	450	-	Single	Private	50MM-99.9MM	1953
Cooper Power Systems	420	12,866	Branch	Public	100MM-499.9MM	1833
APW Mayville	315	3,193	Branch	Private	25MM-49.9MM	1947
Hamlin	300	2,023	Branch	Private	25MM-49.9MM	1949
Creation Technologies	300	3,193	Branch	Private	25MM-49.9MM	1953
Helwig Carbon Products Inc	278	-	Single	Private	50MM-99.9MM	1928
C & D Technologies Inc	270	1,660	Branch	Public	50MM-99.9MM	1999
Schunk Graphite Technology LLC	175	264	Branch	Private	25MM-49.9MM	1979
Xymox Technologies Inc	130	236	Parent	Private		1978
Wago Corp	125	1,729	Branch	Private	10MM-24.9MM	1979
Quick Cable Corp	100	-	Single	Private	10MM-24.9MM	1999
Enercon Industries Corp	100	120	Parent	Private		1974
Nova Industries Inc	100	-	Single	Private	10MM-24.9MM	1973
Affiliated Products Inc	80	-	Single	Private	10MM-24.9MM	1985
Nabco Entrances Inc	75	197	Branch	Private	10MM-24.9MM	1956
Anderson Manufacturing Co Inc	70	-	Single	Private	5MM-9.9MM	1976
KSM Industries Inc	70	71	Branch	Private	10MM-24.9MM	1971
Johnson Controls Inc	50	36,442	Branch	Public	10MM-24.9MM	1973
Monopanel Technologies Inc	50	-	Single	Private	5MM-9.9MM	1991
Baldor Generators Inc	50	-	Single	Private	5MM-9.9MM	2003
TG3 Electronics Inc	45	-	Single	Private	10MM-24.9MM	1986
Enclosures Inc	40	-	Single	Private	5MM-9.9MM	1992
Genco Industries & Mfg Co	40	-	Single	Private	5MM-9.9MM	1969
Storage Battery Systems Inc	40	43	Parent	Private		1913
Duct-O-Wire	30	65	Branch	Private	5MM-9.9MM	1955
Gardtec Inc	30	-	Single	Private	1MM-4.9MM	1987
Holt Electric Motor Co Inc	30	90	Branch	Private	1MM-4.9MM	1872
American Superconductor Corp	25	285	Branch	Public	5MM-9.9MM	
Clinton Power Co	25	29	Branch	Private	1MM-4.9MM	1910
Reliance Controls Corp	20	-	Single	Private	1MM-4.9MM	1909

3362 Motor Vehicle Body and Trailer Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Karavan Trailers Inc	250	-	Single	Private	25MM-49.9MM	1986
Dueco Inc	200	321	HQs	Private		1984
LDV Inc	200	280	Branch	Private	25MM-49.9MM	1977
Five Star Fabricating Inc	75	-	Single	Private	10MM-24.9MM	1980
VELVAC Inc	50	-	Single	Private	10MM-24.9MM	1934
Coleman Tool & Mfg Corp	30	62	Parent	Private		1971
F Barkow Inc	20	-	Single	Private	1MM-4.9MM	1986
DMC	20	-	Single	Private	1MM-4.9MM	1975
Lakeland Sports Center Inc	20	38	Branch	Private	1MM-4.9MM	

3364 Aerospace Product and Parts Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
American Champion Aircraft	100	-	Single	Private	25MM-49.9MM	1979
FRA Engterprises Inc	100	-	Single	Private	25MM-49.9MM	1970
Dawley Aviation Inc	35	-	Single	Private	5MM-9.9MM	1992
Aero-Fabricators Inc	30	-	Single	Private	1MM-4.9MM	1970
Rapco Inc	30	-	Single	Private	1MM-4.9MM	1980

3365 Railroad Rolling Stock Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
PowerBrace Corp	100	296	Branch	Private		1960
Nordco Inc	75	-	Single	Private		1925
Racine Railroad Products Inc	35	-	Single	Private		1970
Motive Equipment Inc	28	-	Single	Private		1985

3369 Other Transportation Equipment Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Trek Bicycle Corp	800	1,620	Parent	Private		1976
Klein Bicycle Corp	500	1,620	Branch	Private	50MM-99.9MM	1975
Trek Bicycle Corp	250	1,620	Branch	Private	25MM-49.9MM	
Harley-Davidson Motor Co Inc	150	7,203	HQs	Public		1903
Buell Motorcycle Co	140	7,203	Branch	Public	25MM-49.9MM	1987
Waterford Precision Cycles	20	-	Single	Private	1MM-4.9MM	1993

11.3.4 Detailed Employment, Gross Product, & Gross Product per Employee, Southeast Region

Table 11-3 Employment in the Southeast Region's Driver Industries, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3115	Dairy Product Manufacturing	4,898	4,555	5,034	5,261	5,284	5,110	5,145	5,195
3169	Other Leather and Allied Product Manufacturing	2,349	1,675	1,393	1,330	1,148	1,061	1,039	1,369
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	3,668	3,878	4,128	4,099	4,176	4,245	4,224	4,262
3315	Foundries	11,095	12,769	12,455	11,157	10,450	9,984	10,163	10,370
3321	Forging and Stamping	5,847	6,150	5,382	4,844	4,542	4,393	4,518	4,253
3322	Cutlery and Handtool Manufacturing	3,098	3,319	3,084	2,809	2,613	2,417	2,313	2,175
3325	Hardware Manufacturing	1,839	1,884	1,681	1,529	1,405	1,297	1,264	1,214
3326	Spring and Wire Product Manufacturing	1,549	3,000	3,263	3,127	2,959	3,007	3,234	4,000
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	10,185	12,619	13,002	12,100	11,133	10,908	11,260	11,331
3329	Other Fabricated Metal Product Manufacturing	11,444	13,616	13,818	13,261	12,004	11,419	11,662	11,195
3331	Agriculture, Construction, and Mining Machinery Manufacturing	8,856	11,443	10,824	9,747	8,768	7,920	7,771	8,175
3335	Metalworking Machinery Manufacturing	7,306	9,888	9,381	8,546	7,699	7,341	7,448	8,039
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	10,195	11,204	10,207	9,231	8,520	9,090	9,241	8,564
3339	Other General Purpose Machinery Manufacturing	11,284	12,859	12,515	11,494	10,025	9,326	9,339	9,797
3343	Audio and Video Equipment Manufacturing	50	598	1,114	1,350	1,583	1,798	2,038	1,835
3351	Electric Lighting Equipment Manufacturing	490	857	1,194	1,340	1,544	1,720	2,078	2,515
3352	Household Appliance Manufacturing	4,278	4,555	4,467	4,040	3,711	3,351	3,254	3,156
3353	Electrical Equipment Manufacturing	12,804	15,500	14,634	12,973	11,252	9,994	9,271	9,127
3359	Other Electrical Equipment and Component Manufacturing	3,468	4,167	4,208	3,871	3,661	3,331	3,371	3,641
3362	Motor Vehicle Body and Trailer Manufacturing	1,049	1,575	1,781	1,598	1,623	1,651	1,695	1,757
3364	Aerospace Product and Parts Manufacturing	40	60	90	109	129	157	176	252
3365	Railroad Rolling Stock Manufacturing	830	1,396	1,592	1,410	1,296	1,268	1,225	1,505
3369	Other Transportation Equipment Manufacturing	1,859	2,502	3,313	3,395	3,572	3,882	4,322	5,107

Table 11-4 CAGR* for Employment in the Southeast Region's Driver Industries, 1993-2008

NAICS	Title	1993-1998	1998-2003	2003-2008
3115	Dairy Product Manufacturing	-1.2%	1.9%	0.3%
3169	Other Leather and Allied Product Mfg.	-5.5%	-7.3%	4.3%
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	0.9%	1.5%	0.1%
3315	Foundries	2.4%	-4.0%	0.6%
3321	Forging and Stamping	0.8%	-5.5%	-0.5%
3322	Cutlery and Handtool Manufacturing	1.2%	-5.1%	-1.7%
3325	Hardware Manufacturing	0.4%	-6.0%	-1.1%
3326	Spring and Wire Product Manufacturing	11.6%	0.0%	4.9%
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	3.6%	-2.4%	0.6%
3329	Other Fabricated Metal Product Mfg.	2.9%	-2.9%	-0.3%
3331	Agriculture, Construction, and Mining Machinery Manufacturing	4.4%	-5.9%	0.5%
3335	Metalworking Machinery Manufacturing	5.2%	-4.8%	1.5%
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	1.6%	-3.4%	-1.0%
3339	Other General Purpose Machinery Mfg.	2.2%	-5.2%	0.8%
3343	Audio and Video Equipment Manufacturing	51.2%	20.1%	0.3%
3351	Electric Lighting Equipment Manufacturing	9.8%	12.3%	6.5%
3352	Household Appliance Manufacturing	1.1%	-5.0%	-1.0%
3353	Electrical Equipment Manufacturing	3.2%	-7.1%	-1.5%
3359	Other Electrical Equipment and Component Manufacturing	3.1%	-3.7%	1.5%
3362	Motor Vehicle Body and Trailer Mfg.	7.0%	0.8%	1.0%
3364	Aerospace Product and Parts Manufacturing	6.9%	17.5%	8.2%
3365	Railroad Rolling Stock Manufacturing	9.1%	-1.6%	2.9%
3369	Other Transportation Equipment Mfg.	5.1%	7.6%	4.7%

***Compound Annual Growth Rate—CAGR.** An average annual growth rate over a specified period of time. It is calculated as: $CAGR = (\text{present value} / \text{base value})^{(1 / \text{number of years})} - 1$

Table 11-5 Labor Location Quotients*—Southeast Region’s Driver Industries, 1993-2003

NAICS	Title	1993	1998	2001	2002	2003
3115	Dairy Product Manufacturing	3.39	3.50	4.02	4.06	3.92
3169	Other Leather and Allied Product Manufacturing	7.20	5.64	6.02	6.09	6.24
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	2.80	3.00	3.37	3.64	3.75
3315	Foundries	5.58	5.77	5.83	6.16	6.33
3321	Forging and Stamping	4.64	4.25	4.04	4.22	4.21
3322	Cutlery and Handtool Manufacturing	4.10	4.21	4.08	4.26	4.10
3325	Hardware Manufacturing	3.37	3.55	3.46	3.51	3.41
3326	Spring and Wire Product Manufacturing	1.98	3.65	4.31	4.44	4.93
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	3.39	3.43	3.62	3.68	3.70
3329	Other Fabricated Metal Product Manufacturing	3.64	4.16	4.30	4.26	4.22
3331	Agriculture, Construction, and Mining Machinery Manufacturing	4.21	4.78	4.69	4.62	4.38
3335	Metalworking Machinery Manufacturing	2.91	3.45	3.58	3.74	3.74
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	9.03	9.95	9.06	8.89	10.09
3339	Other General Purpose Machinery Manufacturing	3.46	3.57	3.74	3.70	3.69
3343	Audio and Video Equipment Manufacturing	0.09	1.13	2.97	3.96	4.88
3351	Electric Lighting Equipment Manufacturing	0.64	1.02	1.77	2.25	2.64
3352	Household Appliance Manufacturing	3.85	4.24	4.15	3.97	3.77
3353	Electrical Equipment Manufacturing	5.88	7.28	6.89	6.77	6.53
3359	Other Electrical Equipment and Component Manufacturing	1.92	2.29	2.24	2.54	2.50
3362	Motor Vehicle Body and Trailer Manufacturing	0.76	0.94	1.05	1.12	1.14
3364	Aerospace Product and Parts Manufacturing	0.01	0.01	0.02	0.03	0.04
3365	Railroad Rolling Stock Manufacturing	2.81	4.03	5.29	6.06	5.91
3369	Other Transportation Equipment Manufacturing	5.02	6.38	9.02	9.67	10.43

* The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region.

Table 11-6 Manufacturing Gross Product in the Southeast Region's Driver Industries, 1993-2008

NAICS Title	1993	1998	2000	2001	2002	2003	2004	2008
3115 Dairy Product Manufacturing	\$ 306,204,792	\$ 335,831,011	\$ 382,967,183	\$ 441,812,297	\$ 454,838,458	\$ 453,886,962	\$ 475,620,488	\$ 547,277,945
3169 Other Leather and Allied Product Manufacturing	\$ 105,229,101	\$ 98,909,679	\$ 80,430,545	\$ 71,049,555	\$ 64,268,156	\$ 64,905,722	\$ 64,461,346	\$ 99,114,720
3256 Soap, Cleaning Compound, and Toilet Preparation Mfg.	\$ 442,318,931	\$ 625,840,641	\$ 716,161,026	\$ 663,900,775	\$ 686,804,774	\$ 733,209,144	\$ 773,504,629	\$ 937,176,312
3315 Foundries	\$ 529,514,419	\$ 721,534,959	\$ 694,238,943	\$ 667,801,965	\$ 627,068,731	\$ 650,066,387	\$ 690,232,423	\$ 806,090,778
3321 Forging and Stamping	\$ 318,461,704	\$ 613,397,293	\$ 596,784,330	\$ 547,862,813	\$ 498,452,558	\$ 507,712,475	\$ 537,412,584	\$ 615,108,055
3322 Cutlery and Handtool Mfg.	\$ 191,552,634	\$ 267,203,462	\$ 262,053,661	\$ 241,674,250	\$ 227,653,821	\$ 229,553,920	\$ 231,478,656	\$ 255,745,714
3325 Hardware Manufacturing	\$ 120,488,311	\$ 159,951,763	\$ 161,108,965	\$ 150,130,973	\$ 144,089,246	\$ 145,988,962	\$ 146,377,909	\$ 165,489,248
3326 Spring and Wire Product Manufacturing	\$ 87,572,014	\$ 184,669,228	\$ 200,342,651	\$ 196,785,617	\$ 186,735,031	\$ 220,038,945	\$ 260,441,074	\$ 401,657,388
3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	\$ 478,168,167	\$ 675,056,568	\$ 681,240,368	\$ 629,259,003	\$ 583,564,440	\$ 624,940,262	\$ 656,751,196	\$ 794,394,139
3329 Other Fabricated Metal Product Manufacturing	\$ 692,312,359	\$ 621,540,220	\$ 642,690,817	\$ 620,568,628	\$ 585,900,375	\$ 578,971,812	\$ 602,662,094	\$ 645,290,582
3331 Agriculture, Construction, and Mining Machinery Mfg.	\$ 514,156,123	\$ 820,076,315	\$ 754,373,467	\$ 824,947,099	\$ 748,257,829	\$ 730,171,355	\$ 723,955,355	\$ 878,110,884
3335 Metalworking Machinery Mfg.	\$ 472,203,203	\$ 686,962,363	\$ 618,964,203	\$ 696,507,143	\$ 636,961,515	\$ 656,687,738	\$ 697,924,909	\$ 898,166,721
3336 Engine, Turbine, and Power Transmission Equipment Manufacturing	\$ 700,813,919	\$ 727,487,856	\$ 645,377,784	\$ 719,814,510	\$ 637,540,507	\$ 678,693,692	\$ 698,881,215	\$ 748,772,048
3339 Other General Purpose Machinery Manufacturing	\$ 601,539,874	\$ 824,536,010	\$ 796,165,225	\$ 915,303,057	\$ 845,917,874	\$ 874,141,988	\$ 909,268,589	\$ 1,135,613,693
3343 Audio and Video Equipment Manufacturing	\$ 4,022,883	\$ 64,187,763	\$ 105,951,775	\$ 62,598,639	\$ 82,087,146	\$ 111,687,683	\$ 136,373,474	\$ 142,563,836
3351 Electric Lighting Equipment Manufacturing	\$ 39,188,427	\$ 67,184,121	\$ 97,960,279	\$ 211,262,925	\$ 231,407,289	\$ 279,075,040	\$ 337,103,206	\$ 473,542,332
3352 Household Appliance Mfg.	\$ 277,331,195	\$ 288,825,023	\$ 261,181,140	\$ 459,861,538	\$ 433,595,427	\$ 431,633,865	\$ 470,513,182	\$ 550,012,359
3353 Electrical Equipment Mfg.	\$ 1,066,935,884	\$ 1,371,366,373	\$ 1,266,711,674	\$ 2,137,044,113	\$ 1,882,873,292	\$ 1,851,084,837	\$ 1,821,101,340	\$ 2,050,103,723
3359 Other Electrical Equipment and Component Mfg.	\$ 307,126,290	\$ 375,331,173	\$ 381,212,227	\$ 671,393,854	\$ 667,698,025	\$ 683,234,930	\$ 732,751,270	\$ 909,800,978
3362 Motor Vehicle Body and Trailer Manufacturing	\$ 107,299,993	\$ 178,815,878	\$ 185,301,584	\$ 164,777,897	\$ 182,252,831	\$ 202,883,157	\$ 214,075,984	\$ 284,524,645
3364 Aerospace Product and Parts Manufacturing	\$ 7,689,057	\$ 8,949,255	\$ 15,745,033	\$ 15,235,595	\$ 20,114,994	\$ 24,961,363	\$ 29,613,967	\$ 48,938,738
3365 Railroad Rolling Stock Mfg.	\$ 43,023,047	\$ 71,534,315	\$ 106,120,330	\$ 94,466,675	\$ 115,109,678	\$ 122,634,023	\$ 123,111,293	\$ 189,703,890
3369 Other Transportation Equipment Manufacturing	\$ 96,063,666	\$ 155,949,983	\$ 216,553,689	\$ 219,783,683	\$ 253,638,600	\$ 291,988,221	\$ 345,184,519	\$ 499,243,747

Table 11-7 CAGR* for Gross Product in the Southeast Region's Driver Industries, 1993-2008

NAICS	Title	1993-1998	1998-2003	2003-2008
3115	Dairy Product Manufacturing	1.6%	5.1%	3.2%
3169	Other Leather and Allied Product Mfg.	-1.0%	-6.8%	7.3%
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	6.0%	2.7%	4.2%
3315	Foundries	5.3%	-1.7%	3.7%
3321	Forging and Stamping	11.5%	-3.1%	3.2%
3322	Cutlery and Handtool Mfg.	5.7%	-2.5%	1.8%
3325	Hardware Manufacturing	4.8%	-1.5%	2.1%
3326	Spring and Wire Product Mfg.	13.2%	3.0%	10.6%
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Mfg.	5.9%	-1.3%	4.1%
3329	Other Fabricated Metal Product Mfg.	-1.8%	-1.2%	1.8%
3331	Agriculture, Construction, and Mining Machinery Manufacturing	8.1%	-1.9%	3.1%
3335	Metalworking Machinery Mfg.	6.4%	-0.7%	5.4%
3336	Engine, Turbine, and Power Transmission Equipment Mfg.	0.6%	-1.2%	1.7%
3339	Other General Purpose Machinery Mfg.	5.4%	1.0%	4.5%
3343	Audio and Video Equipment Mfg.	58.7%	9.7%	4.2%
3351	Electric Lighting Equipment Mfg.	9.4%	26.8%	9.2%
3352	Household Appliance Mfg.	0.7%	6.9%	4.1%
3353	Electrical Equipment Mfg.	4.3%	5.1%	1.7%
3359	Other Electrical Equipment and Component Manufacturing	3.4%	10.5%	4.9%
3362	Motor Vehicle Body and Trailer Mfg.	8.9%	2.1%	5.8%
3364	Aerospace Product and Parts Mfg.	2.6%	18.6%	11.9%
3365	Railroad Rolling Stock Mfg.	8.8%	9.4%	7.5%
3369	Other Transportation Equipment Mfg.	8.4%	11.0%	9.4%

***Compound Annual Growth Rate—CAGR.** An average annual growth rate over a specified period of time. It is calculated as: $CAGR = (\text{present value} / \text{base value})^{(1 / \text{number of years})} - 1$

Table 11-8 Output Location Quotients*—Southeast Region’s Driver Industries, 1993-2003

NAICS	Title	1993	1998	2001	2002	2003
3115	Dairy Product Manufacturing	2.83	2.93	3.96	3.98	3.93
3169	Other Leather and Allied Product Manufacturing	8.35	7.18	7.05	6.46	6.64
3256	Soap, Cleaning Compound, and Toilet Preparation Mfg.	3.51	3.65	4.22	4.46	4.41
3315	Foundries	5.31	4.95	5.10	5.40	5.54
3321	Forging and Stamping	4.22	5.66	5.93	5.81	5.86
3322	Cutlery and Handtool Manufacturing	5.14	5.52	5.81	5.98	5.89
3325	Hardware Manufacturing	3.55	3.65	3.84	3.89	3.83
3326	Spring and Wire Product Manufacturing	3.04	4.69	5.32	5.34	6.25
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	2.79	2.65	2.70	2.66	2.78
3329	Other Fabricated Metal Product Manufacturing	3.99	2.95	3.19	3.11	3.02
3331	Agriculture, Construction, and Mining Machinery Mfg.	4.66	5.58	6.72	6.50	6.38
3335	Metalworking Machinery Manufacturing	3.45	3.64	4.76	4.82	4.98
3336	Engine, Turbine, and Power Transmission Equipment Mfg.	10.07	8.41	8.99	8.42	9.07
3339	Other General Purpose Machinery Manufacturing	3.45	3.30	4.08	3.99	4.12
3343	Audio and Video Equipment Manufacturing	0.11	2.44	3.16	4.13	5.38
3351	Electric Lighting Equipment Manufacturing	1.08	1.25	4.12	4.94	5.97
3352	Household Appliance Manufacturing	4.79	3.83	6.90	6.71	6.45
3353	Electrical Equipment Manufacturing	8.61	8.18	13.70	12.93	12.93
3359	Other Electrical Equipment and Component Manufacturing	2.36	2.32	4.31	4.73	4.93
3362	Motor Vehicle Body and Trailer Manufacturing	2.85	3.28	3.11	3.40	3.55
3364	Aerospace Product and Parts Manufacturing	0.03	0.04	0.05	0.06	0.08
3365	Railroad Rolling Stock Manufacturing	3.96	4.98	5.64	6.54	6.49
3369	Other Transportation Equipment Manufacturing	7.87	10.09	11.46	11.86	13.20

* The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region.

Table 11-9 Manufacturing Productivity (Gross Product per Employee) of Driver Industries, Southeast Region, 1993-2008

NAICS Title	1993	1998	2000	2001	2002	2003	2004	2008
3115 Dairy Product Manufacturing	\$ 62,522	\$ 73,722	\$ 76,080	\$ 83,981	\$ 86,072	\$ 88,824	\$ 92,442	\$ 105,356
3169 Other Leather and Allied Product Manufacturing	\$ 44,800	\$ 59,064	\$ 57,750	\$ 53,417	\$ 55,986	\$ 61,157	\$ 62,053	\$ 72,398
3256 Soap, Cleaning Compound, and Toilet Preparation Manufacturing	\$ 120,582	\$ 161,401	\$ 173,468	\$ 161,947	\$ 164,462	\$ 172,716	\$ 183,128	\$ 219,868
3315 Foundries	\$ 47,728	\$ 56,507	\$ 55,739	\$ 59,855	\$ 60,006	\$ 65,111	\$ 67,918	\$ 77,735
3321 Forging and Stamping	\$ 54,465	\$ 99,736	\$ 110,886	\$ 113,103	\$ 109,738	\$ 115,584	\$ 118,953	\$ 144,638
3322 Cutlery and Handtool Manufacturing	\$ 61,822	\$ 80,499	\$ 84,974	\$ 86,033	\$ 87,140	\$ 94,959	\$ 100,085	\$ 117,589
3325 Hardware Manufacturing	\$ 65,515	\$ 84,902	\$ 95,828	\$ 98,213	\$ 102,539	\$ 112,547	\$ 115,786	\$ 136,353
3326 Spring and Wire Product Manufacturing	\$ 56,526	\$ 61,549	\$ 61,398	\$ 62,937	\$ 63,110	\$ 73,176	\$ 80,531	\$ 100,407
3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	\$ 46,948	\$ 53,493	\$ 52,394	\$ 52,005	\$ 52,418	\$ 57,293	\$ 58,324	\$ 70,109
3329 Other Fabricated Metal Product Manufacturing	\$ 60,494	\$ 45,647	\$ 46,511	\$ 46,795	\$ 48,810	\$ 50,704	\$ 51,677	\$ 57,641
3331 Agriculture, Construction, and Mining Machinery Manufacturing	\$ 58,060	\$ 71,665	\$ 69,697	\$ 84,632	\$ 85,342	\$ 92,189	\$ 93,156	\$ 107,410
3335 Metalworking Machinery Manufacturing	\$ 64,629	\$ 69,473	\$ 65,980	\$ 81,497	\$ 82,733	\$ 89,460	\$ 93,706	\$ 111,720
3336 Engine, Turbine, and Power Transmission Equipment Manufacturing	\$ 68,741	\$ 64,931	\$ 63,230	\$ 77,976	\$ 74,826	\$ 74,666	\$ 75,624	\$ 87,435
3339 Other General Purpose Machinery Manufacturing	\$ 53,307	\$ 64,123	\$ 63,618	\$ 79,630	\$ 84,385	\$ 93,735	\$ 97,357	\$ 115,917
3343 Audio and Video Equipment Manufacturing	\$ 80,497	\$ 107,323	\$ 95,093	\$ 46,371	\$ 51,844	\$ 62,107	\$ 66,902	\$ 77,688
3351 Electric Lighting Equipment Manufacturing	\$ 80,016	\$ 78,372	\$ 82,059	\$ 157,656	\$ 149,899	\$ 162,282	\$ 162,255	\$ 188,306
3352 Household Appliance Manufacturing	\$ 64,829	\$ 63,403	\$ 58,473	\$ 113,829	\$ 116,842	\$ 128,810	\$ 144,612	\$ 174,299
3353 Electrical Equipment Manufacturing	\$ 83,330	\$ 88,474	\$ 86,561	\$ 164,725	\$ 167,342	\$ 185,222	\$ 196,432	\$ 224,623
3359 Other Electrical Equipment and Component Manufacturing	\$ 88,553	\$ 90,081	\$ 90,591	\$ 173,434	\$ 182,357	\$ 205,097	\$ 217,354	\$ 249,874
3362 Motor Vehicle Body and Trailer Manufacturing	\$ 102,241	\$ 113,538	\$ 104,060	\$ 103,108	\$ 112,299	\$ 122,892	\$ 126,268	\$ 161,900
3364 Aerospace Product and Parts Manufacturing	\$ 192,321	\$ 149,633	\$ 175,856	\$ 139,536	\$ 156,359	\$ 158,758	\$ 167,878	\$ 193,859
3365 Railroad Rolling Stock Manufacturing	\$ 51,861	\$ 51,260	\$ 66,671	\$ 67,021	\$ 88,794	\$ 96,741	\$ 100,498	\$ 126,052
3369 Other Transportation Equipment Manufacturing	\$ 51,673	\$ 62,331	\$ 65,370	\$ 64,743	\$ 70,999	\$ 75,224	\$ 79,870	\$ 97,754

11.4 Wisconsin Executive Perspectives in the Southeast Region

Southeast Region Responses to the WMEP Study Questionnaire's "Open Ended" Questions

(NB: Incomplete answers are due to the space limits of the online questionnaire. In some cases, a partial word or intended meaning has been inferred and, therefore, completed. In such cases, the extrapolation appears in brackets. Where an inference could not be made, ellipses indicate the omission of the letters or words. Where provided by the respondent, job title and industry sector are included.)

As you consider your industry and business for the next 5 to 10 years, what are the most prominent workforce-related concerns?

Availability of qualified manufacturing personnel (plant labor).

--Packaging

Aging work force and few trained young employees. 2. Cost of health care 3. Cost of aging work force in general overhead including pensions, vacations and health related overhead costs (lost time).

--Owner/President, Heavy Duty Custom Designed Material Handling Equipment

A better educated workforce both Hourly and Salary. Finding the workforce locally as required.

--VP Operations, Marine Power Systems

Ability to find qualified workers willing to put up with the manufacturing environment for the wage that can be paid.

--Metal Stampings and Metal Stamping Dies

Availability of specialized skilled labor force.

--President/CEO, Custom Stainless Steel and Aluminum Manifolds and Pipe Fabrications

Cost of health insurance.

--President & CEO, Contract Assembly (Contract Manufacturing)

Cost of healthcare for employees.

--President, Roof Edge Systems

Finding entry level employees with adequate writing and math skills.

--Executive Vice President, High Purity Chemicals

Finding qualified, long term employees at all levels

--Director of Operations, Custom Plastic Thermoformed Components

Getting Skilled workers.

--Job Shop, Machined Castings

Getting qualified plant personnel who understand basic shop mathematics. Getting people who are dedicated and show up for work. Getting people who have no drug problems. Getting welders and people.

--President, Glass Doors for Fireplaces

Having employees available with the right skills and attitude.

--VP Manufacturing, Doors, Paneling

Health Insurance costs. State/local taxes. Training of low income workers.

--CEO, Wire Harnesses/Battery Cables

Health care Costs.

--President, Injected Molded Plastics

Health-care costs, educated workforce, workforce with good work ethic

--President/CEO, Electrical Connectors and Wiring Products

Improvement of skill levels, availability, aging, training

--COO, Architectural Metal Components

It is difficult to find workers in our county. Even though unemployment is high in Manitowoc county, we find that most unemployed don't want to work or won't be responsible enough to keep employment.

--General Manager, Veneered Paneling and Doors

Lack of skilled help.

--Hydraulic Workholding Fixtures

Our ability to find experienced machine designers who are proficient in mechanical, electrical, hydraulic and pneumatic design & build. We are more likely to have to train college students . . .

--COO, Manufacturing Solutions (Contract Manufacturing)

Qualified candidates within a commutable distance to work. Out of state workers unwilling to relocate due to WI tax issues.

--Electronic Contract Manufacturing

Recruiting and retaining talent overseas. Finding talent in the Midwest who are willing to explore and drive global opportunities.

--Labels

Retention and acquisition of qualified people

--Farm Equipment

Skilled labor. High cost of labor. Health insurance.

--VP, Plastic Machinery

There is no skilled labor available. All new hires need 100% training. Professionals within the industry are no better, and have not adapted to the changing business climate.

--VP Manufacturing, OEM Machined Components and Assemblies

When the economy really starts rolling, will there be enough qualified workers available[?]

--Chairman-CEO, Hose and Tube Assemblies and Precision Turned Products

Workers I can afford to pay and getting affordable health insurance for them.

--President, Wiring Harnesses

None. We foresee no need for a workforce since everything will be made in China.

--President, Custom Plastic Injection Molding

As you consider your industry and business for the next 5 to 10 years, what are the most prominent advantages that the Wisconsin workforce can offer?

No specific advantages come to mind. To the contrary, the high costs of doing business (Taxes, legal, regulatory) in Wisconsin will negatively impact our abilities to compete.

--Packaging

Ability to still get low wage labor with some skill.

--CEO, Wire Harnesses/Battery Cables

Availability of specialized skilled labor force.

--President/CEO, Custom Stainless Steel and Aluminum Manifolds and Pipe Fabrications

Continue to have well-educated people with good work ethic.

--President & CEO, Contract Assembly (Contract Manufacturing)

Generally speaking I think we (as a state) "over play" the quality of the work force issue. The "quality of the work force" issue is akin to the "quality of the products" issue. . . .

--President, Wire Harnesses

Good work ethic.

--Farm Equipment

Great technical education system.

--Hydraulic Workholding Systems

I can't think of even one. There is a poor pool of talent, taxes are high, and DWD is employer-hostile.

--Vice President, Manufacturing, OEM Machined Components and Assemblies

In Racine County, available workforce (we have high unemployment rate), also fairly well educated.

--President/CEO, Electrical Connectors and Wiring Products

Manufacturing support network of sub suppliers and quality job shops in a variety of different services.

--Owner/President, Heavy Duty Custom Designed Material Handling Equipment

None.

--President, Custom Plastic Injection Molding

Our long term employees are dedicated and loyal to the company. We have low turnover with these employees.

--President, Glass Doors for Fireplaces

Quality of workforce. Quantity of available people. Good work ethic. Diversified population. Quality Learning facilities.

--Chairman-CEO, Hose and Tube Assemblies and Precision Turned Products

Same as above better educated and local to handle problems in REAL TIME which allows the US to compete globally with reduced inventories.

--VP Operations, Marine Power Systems

Skill and attitude.

--VP Manufacturing, Doors, Paneling

Skill sets; Work Ethic.

--President, Injected Molded Plastics

Teamwork skills, metal working skills, adaptability, flexibility.

--COO, Architectural Metal Components

The efficiency and work ethic in the Midwest is great when compared to the southern states

--Metal Stampings and Metal Stamping Dies

The major colleges attract students to the area that will be the future manufacturing engineers and executives.

--COO, Manufacturing Slutions (Contract Manufacturing)

Trained employees available for manufacturing operations.

--VP Manufacturing, Roof Edge Systems

We have a highly educated population that contributes significantly to the "high tech" environment. I expect that will continue.

--Executive Vice President, High Purity Chemicals

Work ethic.

--Job Shop, Machine Castings

Work ethic as compared to other parts of the country. Outside contractor/services available in local WI area.

--VP, Plastics Machinery

Work ethic, discipline, creativity, availability of quality education and training.

--Labels

Work ethic, in general competitive wages compared to other states.

-- Electronics Contract Manufacturing

What changes, if any, would you like to see in the Wisconsin higher education system to better meet the long-term needs of your industry and firm in the state?

Trade school expansion vs. college.

--Packaging

Basic skill training. Blueprint reading. Language training for non-English personnel.

Basic math.

--CEO, Wire Harnesses/Battery Cables

Greater emphasis on basic math skills and communication skills.

--President & CEO, Contract Assembly (Contract Manufacturing)

Greater support in schools to form Schools of Technology vs. Schools of Engineering.

--VP Operations, Marine Power Systems

We need both types of mindset to compete.

--

Help to instill a solid work ethic in young people. This is severely lacking as of late.

--President/CEO, Custom Stainless Steel and Aluminum Manifolds and Pipe Fabrications

Higher education isn't the problem – it is primary and secondary levels.

--Director of Operations, Custom Plastic Thermoformed Components

Higher education system seems to be working well. We are getting good talent with college grads.

--President, Glass Doors for Fireplaces

I have no concerns about Wisconsin's higher education system. I am disappointed in the level of education offered and taught to entry level, high school graduates.

--Executive Vice President, High Purity Chemicals

In higher education we need to increase the focus on industrial and manufacturing engineering. It would be helpful if we would get students into the field to work with manufacturing early on . . .

--Owner/President, Heavy Duty Custom Designed Material Handling Equipment

Increased graduation rates.

--President, Roof Edge Systems

Kids that come from Tech schools are under-equipped to deal with the manufacturing environment. Manufacturing and "factory work" are painted as a lowly calling, and are shunned for "going to college".

--VP Manufacturing, OEM Machined Components and Assemblies

Make real world experience more accessible to students by helping small businesses absorb the cost of internships. Most large companies have intern programs that smaller companies are not willing to [fund].

--COO, Manufacturing Solutions (Contract Manufacturing)

Maybe more industry specific training programs.

--Chairman-CEO, Hose and Tube Assemblies and Precision Turned Products

More funding to technical education.

--Hydraulic Workholding Fixtures

More technical educated employees. I mean production personnel not office.

--VP Manufacturing, Doors, Paneling

Much much more emphasis on global strategy development.

--Labels

N/A

--President, Injected Molded Plastics

N/A

--President, Custom Plastic Injection Molding

Retain people that graduate with technical degrees. Most move out of state in my impression.

--Electronics Contract Manufacturing

Stop training everyone that manufacturing is bad.

--Job Shop, Machined Castings

Stress basic education – reading, writing, math, science, communication. Sports contribute to a sense of competition, the arts to creativity.

--President/CEO, Electrical Connectors and Wiring Products

Teach character and work ethic at school. Our future is more automation. CNC, metal machining. We need those skills taught. There is a shortage now. Our 4 week ad has produced four respondents.

--Vice President, Plastics Machinery

Teach students to speak and write correct English. Technical accounting or engineering skills are not enough.

--Farm Equipment

The education system along with all state administration efforts need to adopt lean principles! They need to come to grips with the fact that they must eliminate waste and deliver world class educati[on].

--President, Wiring Harnesses

The problem is not necessarily at the higher education level- finding employees who can read, write, do math and read a ruler is becoming more difficult. We need to train people very thoroughly in the [basics].

--COO, Architectural Metal Components

The technical schools must continue to work with industry to understand the new technology implemented in our field of stamping. . . .

--Metal Stampings and Metal Stamping Dies

Describe any innovative workforce attraction or development programs that you would like to see expanded in Wisconsin.

Trade schools.

--Packaging

Assistance with the cost of training.

--Vice President Manufacturing, OEM Machined Components and Assemblies

Basic Language courses. We draw from the Mexican community and this would be helpful. Machine operation/maintenance training. Along with lean manufacturing principles.

--CEO, Wire Harnesses/Battery Cables

Improved required math and English up through high school.

--President & CEO, Contract Assembly (Contract Manufacturing)

Increase the tool-room apprenticeship [sic] program to include "stamping technician," . . . [a] person able to learn presses and press controls including all training required for die sensor technology. . . .

--Metal Stampings and Metal Stamping Dies

It would be helpful to offer a work study program that would introduce students to the manufacturing environment during the course of their studies. They should be introduced to the business side of m[anufacturing].

--Owner/President Heavy Duty Custom Designed Material and Handling Equipment

Money for training.

--Hydraulic Workholding Fixtures

More affordable education. Lower tax rates. A first class health system. Attractive and affordable leisure time facilities. Quality of air and environment in general. Available and affordable utili[ties].

--Chairman-CEO, Hose and Tube Assemblies and Precision Turned Products

More focused schools, more charter schools.

--President/CEO, Electrical Connectors and Wiring Products

N/A

--President, Custom Plastic Injection Molding

N/A

--President, Injection Molded Plastics

None.

--President, Roof Edge Systems

Perhaps more apprenticeships for skilled labor positions.

--Labels

Return to high school graduation requirements that demand minimum proficiency levels in math, English and basic sciences. Far too many students are "passed" in order to move them through the system.

--Executive Vice President, High Purity Chemicals

School to Work program supported by the Fond du Lac Area of Commerce.

--VP Operations, Marine Power Systems

Small business internship programs to help students gain practical experience during their time in school so that they already have what companies are looking for once they graduate – experience to go.

--COO, manufacturing Solutions (Contract Manufacturing)

Some incentive to get education related to manufacturing

--VP Manufacturing, Doors, Paneling

The factory level employee is where we are having problems. We tried to hire a welder from the technical schools, but we did not have any luck. We need stronger training for plant personnel . .

--President. Glass Doors for Fireplaces

The state of Wisconsin could really differentiate itself in the eyes of business if it were to adopt a vision/strategy of being the "lean state". . . .

--President, Wiring Harnesses

Do something about #17 (i.e., “What changes, if any, would you like to see in Wisconsin’s higher education system to better meet the long-term needs of your industry and firm in the state?”)

--COO, Architectural Metal Components

What are the business challenges that your organization faces - what most keeps you up at night?

Manufacturing moving to China/Other. High Taxes. Health Care Costs. The risk inherent in our legal system.

--Packaging

100% quality, Health care costs, taxes.

--Metal Stampings and Metal Stamping Dies

An ineffective workforce. Resistance to change. Material cost instability. China.

--VP Manufacturing, OEM Machined Components

Competition from large multinationals and their capabilities to gain market share by buying deals.

--Farm Equipment

Employee issues (health insurance, workers comp, productivity, etc). Inability to raise prices for fear of losing business. We simply must be as competitive as possible and that means productivity.

--President, Wire Harnesses

Finding the right people, educating them and retaining them.

--Director of Operations, Custom Plastic Thermoformed Components

Health care costs, workforce development/teambuilding, high taxes & regulation.

--COO, Architectural Metal Components

Healthcare cost increases; competitiveness of the manufacturing sector.

--Motorcycles

How to improve the quality of earnings by increasing gross profit margins, while the general universe of suppliers is raising prices.

--Labels

Keeping EMS jobs in the states. . . . [L]ead times offshore have reduced and quality has gone up. All that leaves is location as a driving factor in customers decisions. Not enough new mfg businesses are being created].

--Electronic Contract Manufacturing

Labor issues mentioned.

--Vice President, Plastics Machinery

Lack of skilled labor, government is involved in everything and helps very little.

--Hydraulic Workholding Fixtures

Meeting costs for health insurance and benefits, increasing pressure for pay increases such as from sources minimum wage legislation that puts pressure on our wages which are above minimum.

--President & CEO, Contract Assembly (Contract Manufacturing)

No market Prices that are below cost.

--President, Custom Plastic Injection Molding

Operational Cost and Control of. Educated workforce both Hourly and Salary. Timing of Change to compete . . . Globally.

--VP Operations, Marine Power Systems

Profits and costs, costs that are out of our control such as health care, interest rates, taxes, overseas sourcing.

--President/CEO, Electrical Connectors and Wiring Products

Quality and on time delivery commitments.

--VP Manufacturing, Doors, Paneling

Sales efforts by independent manufacturing representatives.

--President, Roof Edge Systems

Sources of supply -- EPA greatly limits the number of companies that can do electroplating and anodizing. None are located in Wisconsin and very few in US. We are very limited as to who can supply u[s].

--President, Glass Doors for Fireplaces

Taxes, health insurance, government regulations, environmental regulations, workforce turnover, workforce availability.

--Chairman-CEO, Hose and Tube Assemblies and Precision Turned Products

Taxes, skilled worker availability, economy volatility.

--Job Shop, Machined Castings

The exodus of our customers to overseas markets. I'm confident in our ability to compete with off-shore sources in our industry; I'm worried about our customers' ability to compete globally in THEIR i[ndustries].

--President, Injection Molded Plastics

The risk of a hazmat incident on-site or in transport.

--Executive Vice President, High Purity Chemicals

The ups and downs of our sales. We have major projects that require many people and then when the projects are complete we historically have an over burdened payroll until the next big project hits.

--COO, manufacturing Solutions (Contract Manufacturing)

Trying to maintain health insurance benefits. The next step will be eliminating the benefit. Trying to lower manufacturing costs to keep competitive with a world market. . . .

--CEO, Wire Harnesses/Battery Cables

Uncertainty of demand for specialized equipment.

--Owner/President, Heavy Duty Custom Designed Material Handling Equipment

Unrestrained growth. Lack of diversification.

--President/CEO, Custom Stainless Steel and Aluminum Manifolds and Pipe Fabrications

What are the business strengths and/or advantages your organization has by being located in Wisconsin?

Able work force.

--President, Roof Edge Systems

Available workforce, central location (both to US and Canadian markets), reasonably well-educated workforce.

--President/CEO, Electrical Connectors and Wiring Products

Better workforce. More outside service companies related to metal machining.

--Vice President, Plastics Machinery

Central location, good labor pool, good infrastructure, changing seasons.

--Chairman-CEO, Hose and Tube Assemblies and Precision Turned Products

Centrally located so freight is not a big issue for our customers.

--President, Glass Doors for Fireplaces

Close to . . . [our]customers

--Job Shop, Machined Castings

Culture, history, availability of skilled workforce.

--Labels

Excellent quality of life.

--COO, Architectural Metal Components

Good logistics; good environment; fairly good standard of living.

--Director of Operations, Custom Plastic Thermoformed Components

Great technical education system.

--Hydraulic Workholding Fixtures

Local access to most of the customers in the industry we serve.

--President/CEO, Custom Stainless Steel and Aluminum Manifolds and Pipe Fabrications

Location so our major customers. . . . [R]easonable labor rates, close to Chicago.

--Electronics Contract Manufacturing

Location to some of our customers, but as they move South or overseas that will be gone. The high taxation in Wisconsin is making it difficult to function as a business and an individual.

--CEO, Wire Harnesses/Battery Cables

None.

--President, Custom Plastic Injection Molding

None.

--President, Injection Molded Plastics

Stability of existing work force. Strong base of quality suppliers of secondary manufacturing operations.

--Owner/President, Heavy Duty Custom Designed Material Handling Equipment

Steady workforce and good work ethic.

--Farm Equipment

Strength is the quality of our workforce and commitment to the company.

--VP Manufacturing, Doors, Paneling

Talented, extensive supply base built on historic strengths in mfg.

--Motorcycles

The Workforce both Hourly and Salary. Local suppliers for real time problem solving.

--VP Operations, Marine Power Systems

Transportation costs between our many Wisconsin suppliers and customers, a great resource in the WMEP to assist us with improvements, a better quality workforce than most locations.

--President & CEO, Contract Assembly (Contract Manufacturing)

WMEP has been a big part of our improvements. Aside from that, nothing else about the Wisconsin business climate really jumps out at me (and I was born and raised in Wisconsin). . . .

--President, Wiring Harnesses

We could be located in another state, so there are no real advantages.

--Packaging

We have access to a wide variety of suppliers for the manufacturing industry. However, the numbers are shrinking as many have gone out of business.

--COO, Manufacturing Solutions (Contract Manufacturing)

We have low utility costs in Jefferson. We are centrally located to continental customers.

--VP Manufacturing, OEM Machined Components and Assemblies

Wisconsin has a deeply rooted work ethic and practical, common-sense approach to problem solving.

--Executive Vice President, High Purity Chemicals

12 West Central I Region

12.1 Introduction

Driver industry and industry cluster analyses were conducted for each of the seven economic regions in the State of Wisconsin. This section provides a summary of the findings from the analysis for the West Central I Region, as well as, detailed information related to each of the regional driver industries identified. For the purposes of this analysis, the West Central I Region is defined to include the counties of Barron, Buffalo, Chippewa, Dunn, Eau Claire, Pepin, Pierce, Polk, and St. Croix.

The next sub-section provides an overview and summary of the findings from the analyses conducted. This is followed by detailed descriptions of each of the regional driver industries and their associated industry cluster. Next, perspectives on the state of manufacturing in the region appear in tabular form. And, finally, Wisconsin’s manufacturing executives identify key issues affecting them in the region.

12.2 Summary of Regional Driver Industries & Industry Clusters

The driver analysis for the West Central I Region identified 16 regional driver industries. These industries include:

- 3114 Fruit and Vegetable Preserving and Specialty Food Manufacturing
- 3115 Dairy Product Manufacturing
- 3162 Footwear Manufacturing
- 3211 Sawmills and Wood Preservation
- 3212 Veneer, Plywood, and Engineered Wood Product Manufacturing
- 3222 Converted Paper Product Manufacturing
- 3256 Soap, Cleaning Compound, and Toilet Preparation Manufacturing
- 3272 Glass and Glass Product Manufacturing
- 3321 Forging and Stamping
- 3322 Cutlery and Handtool Manufacturing
- 3324 Boiler, Tank, and Shipping Container Manufacturing
- 3325 Hardware Manufacturing
- 3332 Industrial Machinery Manufacturing
- 3333 Commercial and Service Industry Machinery Manufacturing
- 3353 Electrical Equipment Manufacturing
- 3359 Other Electrical Equipment and Component Manufacturing

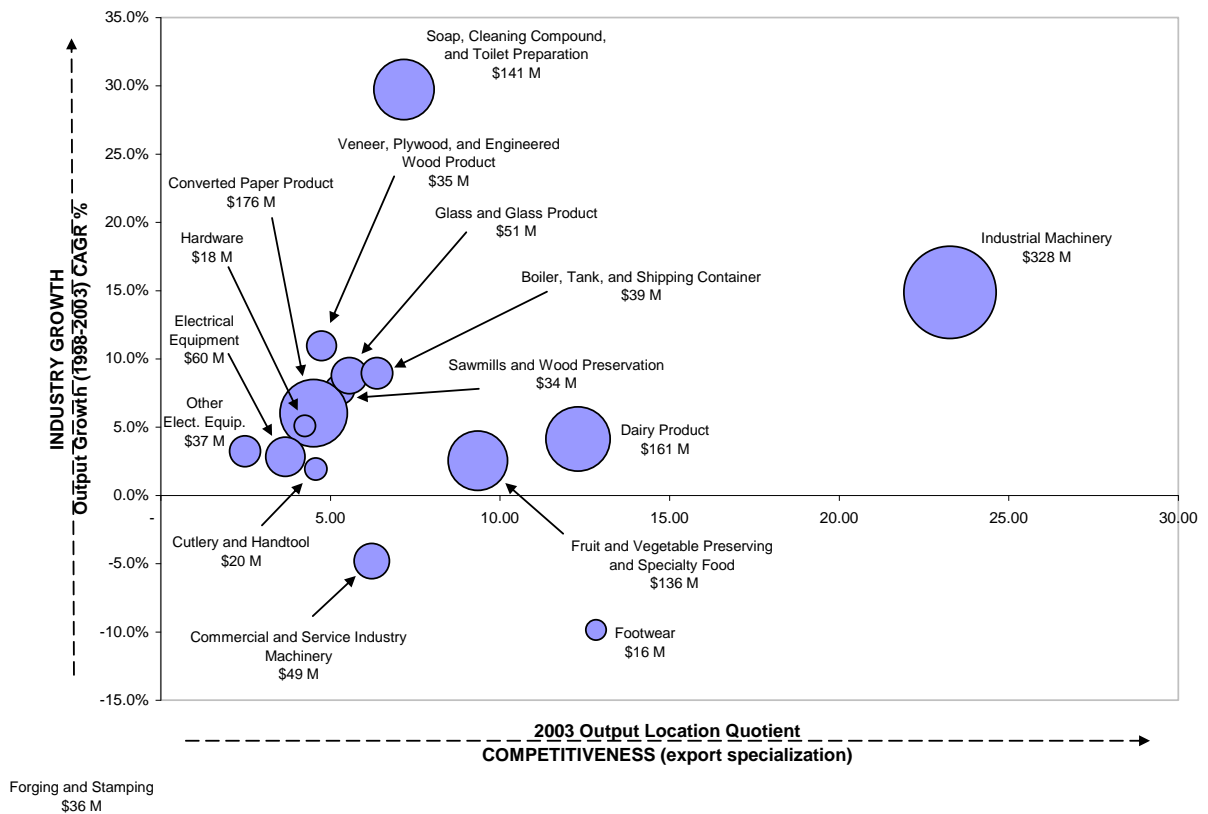
12.2.1 How Are the West Central I Driver Industries Doing?

This chart shows the relative economic health of driver industries measured by two factors – their “competitiveness” in terms of export orientation or specialization on the X axis (horizontal), and their “growth” on the Y axis (vertical). Competitiveness is measured in terms of the output location quotients which is a ratio of the industry’s concentration in the region compared to the industry’s concentration nationally. In general, a location quotient above 1 indicates that the industry is more concentrated in the region than it is nationally. This concentration suggests that the industry exports its product from the region and that the region offers competitive advantages

to the industry over other areas throughout the country. An industry is increasingly more competitive as it moves to the right on the X axis. And the more competitive it is, the more it sells goods outside of its own region, thereby generating money for the region in which it operates.

Industry growth is measured in terms of compound annual growth rates over the last five years and is shown on the Y axis. An industry is growing faster as it moves upward from zero; it is declining if it is below zero. The area (size) of each circle represents the gross product of each industry and indicates the industry's relative size as compared to the other industries. Through this picturing of all of the region's drivers in one perspective, a sense of the overall strategies and services that will be needed in that region begins to emerge.

Figure 12-1 Overview of the West Central Region I's Drivers



Interpretation: Industrial Machinery in West Central I, unlike its counterparts in other regions shows stellar performance, with a very competitive advantage and steady growth. Soap, Cleaning Compound, and Toilet Preparation exhibits unusually rapid growth. Most other industries are exporting product and growing slowly, but their position in this region should be compared to those of their like industries in other regions to learn if there are benefits from working more closely across regions.

12.2.2 Driver and Industry Cluster Relationships in the West Central I Region

For the Study, an industry cluster analysis was conducted for each of the driver industries. Tables 12-1 and 12-2 provide a summary of the results from these analyses and identify regional and national supplier industries that are common to multiple regional driver industries.

The supplier industries identified in Table 12-1 are found in the regional economy and provide goods or services to multiple driver industries. Many, in fact, are driver industries themselves. The importance of these industries to the overall competitiveness of the driver industries can not be overstated. By providing quality goods and services to the driver industries, these supplier industries help the regional driver industries produce and deliver the products their consumers demand. Attempts to impact the competitiveness of the industries that supply inputs to multiple regional driver industries can indirectly impact the competitiveness of those driver industries.

Table 12-1 Regional & National Supplier Industries Common to Regional Driver Industries

NAICS	Title	Regional Driver**	Count of Drivers	
			Regional Suppliers	National Suppliers
42*	Wholesale Trade		16	16
484*	Truck Transportation		16	16
3261	Plastics Product Manufacturing		12	13
4931	Warehousing and Storage		5	6
3251	Basic Chemical Manufacturing		5	6
3314	Nonferrous Metal (except Aluminum) Production and Processing		5	5
3353	Electrical Equipment Manufacturing	X	4	4
3255	Paint, Coating, and Adhesive Manufacturing		4	9
3219	Other Wood Product Manufacturing		4	6
3344	Semiconductor and Other Electronic Component Manufacturing		4	4
3341	Computer and Peripheral Equipment Manufacturing		3	2
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing		2	7
3324	Boiler, Tank, and Shipping Container Manufacturing	X	2	5
3259	Other Chemical Product and Preparation Manufacturing		2	8
1133	Logging		2	2
3211	Sawmills and Wood Preservation	X	2	2
3335	Metalworking Machinery Manufacturing		2	3
5111	Newspaper, Periodical, Book, and Directory Publishers		2	1
3115	Dairy Product Manufacturing	X	2	2
5413	Architectural, Engineering, and Related Services		2	2
2380	Specialty Trade Contractors		2	1

NAICS	Title	Regional Driver**	Count of Drivers	
			Regional Suppliers	National Suppliers
5417	Scientific Research and Development Services		2	3
FR	Farms		2	2
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	X	2	2

*An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.
**Not all of a Region's drivers are also suppliers. Those marked with an X are suppliers.

Table 12-2 is similar to Table 12-1 in that it shows industries that supply inputs to multiple driver industries. The difference is that the industries identified in Table 12-2 either do not exist in the region or they are smaller industries that are not likely to be able to provide inputs at a sufficient scale to meet the needs of the driver industries. Attempts to attract or grow these industries within the region may help reduce the import of goods and services by the region's driver industries.

Table 12-2 National Supplier Industries Common to Regional Driver Industries
Count of Drivers

NAICS	Title	National Suppliers
3222	Converted Paper Product Manufacturing	14
3321	Forging and Stamping	11
5419	Other Professional, Scientific, and Technical Services	11
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	9
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Mfg.	8
3311	Iron and Steel Mills and Ferroalloy Mfg.	8
3313	Alumina and Aluminum Production and Processing	8
3241	Petroleum and Coal Products Manufacturing	7
3315	Foundries	7
3329	Other Fabricated Metal Product Mfg.	7
3312	Steel Product Manufacturing from Purchased Steel	6
3323	Architectural and Structural Metals Mfg.	6
517*	Telecommunications	6
5418	Advertising and Related Services	6
3221	Pulp, Paper, and Paperboard Mills	5
3262	Rubber Product Manufacturing	5
3272	Glass and Glass Product Manufacturing	5

		<u>Count of Drivers</u>
NAICS	Title	National Suppliers
4821	Rail Transportation	5
5411	Legal Services	5
3359	Other Electrical Equipment and Component Manufacturing	4
3231	Printing and Related Support Activities	3
3279	Other Nonmetallic Mineral Product Mfg.	3
3322	Cutlery and Handtool Manufacturing	3
3326	Spring and Wire Product Manufacturing	3
3339	Other General Purpose Machinery Mfg.	3
5151	Radio and Television Broadcasting	3
3112	Grain and Oilseed Milling	2
3116	Animal Slaughtering and Processing	2
3119	Other Food Manufacturing	2
3132	Fabric Mills	2
3271	Clay Product and Refractory Manufacturing	2
3328	Coating, Engraving, Heat Treating, and Allied Activities	2
3332	Industrial Machinery Manufacturing	2
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Mfg.	2
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing	2
483*	Water Transportation	2
5415	Computer Systems Design and Related Services	2
FH	Fishing, Hunting, Etc.	2

*An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

12.2.3 Filtering & Refinement of Quantitative Results

The analysis used to identify driver industries is a quantitative analysis based on secondary data and captures industries that exhibit some form of competitive advantage. While the model is extremely good at identifying regional driver industries, certain results often require qualitative insight to filter and refine the results. One way in which to identify industries either to remove or add as driver industries is to receive local perspectives on the lists of driver industries identified by the model. The following are responses to some of the comments related to the driver industries identified by the quantitative analysis for the West Central I Region.

First, “Industry 3116: Animal Slaughtering and Processing,” which includes poultry processing, was identified as an important industry in the region. After some decline between 1993 and

1998, the industry has maintained a fairly constant level of employment, and the gross product for the industry has slowly but consistently increased over time. The industry was not identified as a driver industry because some of its characteristics relative to the nation as a whole did not suggest that the region offered the industry competitive advantages as compared to other locations. One of the problems with data for this industry is the fact that they are not specific to poultry processing but, rather, they include other types of meat processing as well. This lack of detailed information results in the industry's relative concentration in the region being understated.

The second industry identified was "Industry 3261: Plastics Products Manufacturing." As with industry 3116, this is an important industry for the region because of its size. However, it was not identified as a regional driver industry due to the industry's characteristics in the region relative to those in the nation as a whole. It is likely that this industry is primarily a supplier to other driver industries in the region.

Finally, industries that produce circuit boards and electronics were identified. In particular, two firms: Hutchinson Technology, Inc., and Cray, Inc. Although both of these companies operate in "Industry 3341: Computer and Peripheral Equipment Manufacturing," the primary industry for Hutchinson Technology, Inc. is "Industry 3332: Industrial Machinery Manufacturing," which was identified as a regional driver industry. "Industry 3341: Computer and Peripheral Equipment Manufacturing" was not identified as a driver industry because it is a small regional industry.

12.3 Detailed Descriptions of the Regional Driver Industries

12.3.1 Driver Industry Definitions

3114 Fruit and Vegetable Preserving and Specialty Food Manufacturing

This industry group includes (1) establishments that freeze food and (2) those that use preservation processes, such as pickling, canning, and dehydrating. Both types begin their production process with inputs of vegetable or animal origin.

31141 Frozen Food Manufacturing

31142 Fruit and Vegetable Canning, Pickling, and Drying

3115 Dairy Product Manufacturing

This industry group comprises establishments that manufacture dairy products from raw milk, processed milk, and dairy substitutes.

31151 Dairy Product (except Frozen) Manufacturing

31152 Ice Cream and Frozen Dessert Manufacturing

3162 Footwear Manufacturing

This industry comprises establishments primarily engaged in manufacturing footwear (except orthopedic extension footwear).

321 Wood Product Manufacturing (Partial)

Industries in the Wood Product Manufacturing subsector manufacture wood products, such as lumber, plywood, veneers, wood containers, wood flooring, wood trusses, manufactured homes

(i.e., mobile home), and prefabricated wood buildings. The production processes of the Wood Product Manufacturing subsector include sawing, planing, shaping, laminating, and assembling of wood products starting from logs that are cut into bolts, or lumber that then may be further cut, or shaped by lathes or other shaping tools. The lumber or other transformed wood shapes may also be subsequently planed or smoothed, and assembled into finished products, such as wood containers. The Wood Product Manufacturing subsector includes establishments that make wood products from logs and bolts that are sawed and shaped, and establishments that purchase sawed lumber and make wood products. With the exception of sawmills and wood preservation establishments, the establishments are grouped into industries mainly based on the specific products manufactured.

3211 Sawmills and Wood Preservation

This industry group comprises establishments whose primary production process begins with logs or bolts that are transformed into boards, dimension lumber, beams, timbers, poles, ties, shingles, shakes, siding, and wood chips. Establishments that cut and treat round wood and/or treat wood products made in other establishments to prevent rotting by impregnation with creosote or other chemical compounds are also included in this industry group.

3212 Veneer, Plywood, and Engineered Wood Product Manufacturing

This industry comprises establishments primarily engaged in one or more of the following: (1) manufacturing veneer and/or plywood; (2) manufacturing engineered wood members; and (3) manufacturing reconstituted wood products. This industry includes manufacturing plywood from veneer made in the same establishment or from veneer made in other establishments, and manufacturing plywood faced with nonwood materials, such as plastics or metal.

3222 Converted Paper Product Manufacturing

This industry group comprises establishments primarily engaged in converting paper or paperboard without manufacturing paper or paperboard.

3256 Soap, Cleaning Compound, and Toilet Preparation Manufacturing

This industry comprises establishments primarily engaged in manufacturing and packaging soap and other cleaning compounds, surface active agents, and textile and leather finishing agents used to reduce tension or speed the drying process and establishments primarily engaged in preparing, blending, compounding, and packaging toilet preparations, such as perfumes, shaving preparations, hair preparations, face creams, lotions (including sunscreens), and other cosmetic preparations.

3272 Glass and Glass Product Manufacturing

This industry comprises establishments primarily engaged in manufacturing glass and/or glass products. Establishments in this industry may manufacture glass and/or glass products by melting silica sand or cullet, or purchasing glass

332 Fabricated Metal Product Manufacturing (Partial)

Industries in the Fabricated Metal Product Manufacturing subsector transform metal into intermediate or end products, other than machinery, computers and electronics, and metal

furniture or treating metals and metal formed products fabricated elsewhere. Important fabricated metal processes are forging, stamping, bending, forming, and machining, used to shape individual pieces of metal; and other processes, such as welding and assembling, used to join separate parts together. Establishments in this subsector may use one of these processes or a combination of these processes.

3321 Forging and Stamping

3322 Cutlery and Handtool Manufacturing

3324 Boiler, Tank, and Shipping Container Manufacturing

3325 Hardware Manufacturing

333 Machinery Manufacturing

Industries in the Machinery Manufacturing subsector create end products that apply mechanical force, for example, the application of gears and levers, to perform work. Some important processes for the manufacture of machinery are forging, stamping, bending, forming, and machining that are used to shape individual pieces of metal. Processes, such as welding and assembling are used to join separate parts together. Although these processes are similar to those used in metal fabricating establishments, machinery manufacturing is different because it typically employs multiple metal forming processes in manufacturing the various parts of the machine. Moreover, complex assembly operations are an inherent part of the production process.

3332 Industrial Machinery Manufacturing

3333 Commercial and Service Industry Machinery Manufacturing

335 Electrical Equipment, Appliance, and Component Manufacturing (Partial)

Industries in the Electrical Equipment, Appliance, and Component Manufacturing subsector manufacture products that generate, distribute, and use electrical power. Electric Lighting Equipment Manufacturing establishments produce electric lamp bulbs, lighting fixtures, and parts. Household Appliance Manufacturing establishments make both small and major electrical appliances and parts. Electrical Equipment Manufacturing establishments make goods, such as electric motors, generators, transformers, and switchgear apparatus. Other Electrical Equipment and Component Manufacturing establishments make devices for storing electrical power (e.g., batteries), for transmitting electricity (e.g., insulated wire), and wiring devices (e.g., electrical outlets, fuse boxes, and light switches).

3353 Electrical Equipment Manufacturing

3359 Other Electrical Equipment and Component Manufacturing

12.3.2 Industry Clusters

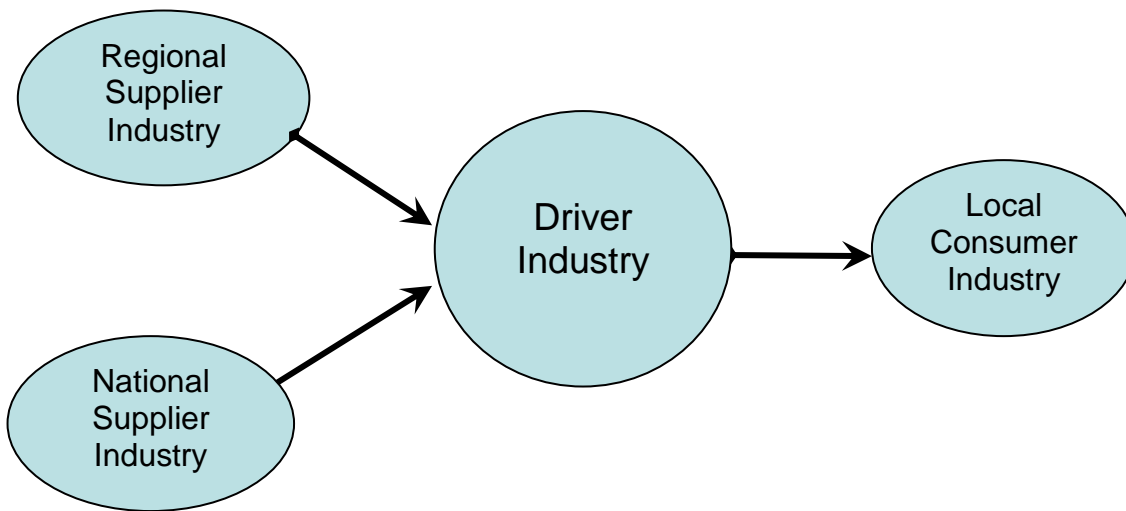
Industries contained within an industry cluster are related to driver industries in three ways, two supplier relationships and one consumer relationship.

Supplier relationships are defined by the backward linkages that a driver industry has with either (1) other regional industries (Regional Suppliers) or (2) industries not located within the region (National Supplier). Both types of supplier relationships are based on linkages identified using information from input-output tables from the IMPLAN model. For supplier relationships with other regional industries, the IMPLAN model is “regionalized” to reflect the industries that exist within the region. For supplier relationships with industries not located within the region, the national IMPLAN model is used.

For both types of supplier relationships, only the most significant supplier industries are listed. The significance of the supplier industry is based on the relative amount of the driver industry’s total outlay that is used to purchase goods or services from the supplier industry. In the case where supplier industries appear in the lists for both types of supplier industries, the specific industry is removed from the list of national supplier industries.

The consumer industries are identified by reversing the relationship used to identify supplier industries. The consumer industries are those industries to which a driver industry sells a significant portion of its total output.

Figure 12-2 Industry Clusters



Industry Clusters

NB: An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

3114 Fruit and Vegetable Preserving and Specialty Food Manufacturing

Supplier Industries - Typical Regional Industry Supplier Industries – Typical National Industry

Supplier Industries - Typical Regional Industry

FR	Farms
42*	Wholesale Trade
484*	Truck Transportation
3115	Dairy Product Manufacturing
3116	Animal Slaughtering and Processing
3261	Plastics Product Manufacturing
3324	Boiler, Tank, and Shipping Container Manufacturing
4931	Warehousing and Storage

Supplier Industries – Typical National Industry

3222	Converted Paper Product Manufacturing
3272	Glass and Glass Product Manufacturing
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
3119	Other Food Manufacturing
3231	Printing and Related Support Activities
3112	Grain and Oilseed Milling
3221	Pulp, Paper, and Paperboard Mills
5419	Other Professional, Scientific, and Technical Services

Consumer Industries - Typical Regional Industry

722*	Food services and drinking places
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
622*	Hospitals
623*	Nursing and residential care facilities
3111	Animal Food Manufacturing
3119	Other Food Manufacturing
3115	Dairy Product Manufacturing
3118	Bakeries and Tortilla Manufacturing
3323	Architectural and Structural Metals Manufacturing

3115 Dairy Product Manufacturing**Supplier Industries - Typical Regional Industry**

FR	Farms
3115	Dairy Product Manufacturing
42*	Wholesale Trade
3261	Plastics Product Manufacturing
484*	Truck Transportation
4931	Warehousing and Storage

Supplier Industries – Typical National Industry

3332	Industrial Machinery Manufacturing
3222	Converted Paper Product Manufacturing
3119	Other Food Manufacturing
3324	Boiler, Tank, and Shipping Container Manufacturing
3112	Grain and Oilseed Milling
5411	Legal Services
3113	Sugar and Confectionery Product Manufacturing
481*	Air Transportation
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
5419	Other Professional, Scientific, and Technical Services

Consumer Industries - Typical Regional Industry

3115	Dairy Product Manufacturing
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Consumer Industries - Typical Regional Industry

722*	Food services and drinking places
622*	Hospitals
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing

3162 Footwear Manufacturing

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
3261	Plastics Product Manufacturing
484*	Truck Transportation
5111	Newspaper, Periodical, Book, and Directory Publishers
3219	Other Wood Product Manufacturing
5151	Radio and Television Broadcasting

Supplier Industries – Typical National Industry

3161	Leather and Hide Tanning and Finishing
3262	Rubber Product Manufacturing
3222	Converted Paper Product Manufacturing
5418	Advertising and Related Services
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3132	Fabric Mills

Consumer Industries - Typical Regional Industry

3162	Footwear Manufacturing
624*	Social assistance, except child day care services

3211 Sawmills and Wood Preservation

Supplier Industries - Typical Regional Industry

1133	Logging
3211	Sawmills and Wood Preservation
42*	Wholesale Trade
484*	Truck Transportation
3219	Other Wood Product Manufacturing
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing
3251	Basic Chemical Manufacturing

Supplier Industries – Typical National Industry

FH	Fishing, Hunting, Etc.
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3259	Other Chemical Product and Preparation Manufacturing
4821	Rail Transportation

Consumer Industries - Typical Regional Industry

3211	Sawmills and Wood Preservation
2360	Construction of Buildings
3219	Other Wood Product Manufacturing
4821	Rail Transportation

Consumer Industries - Typical Regional Industry

2380	Specialty Trade Contractors
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing
2211	Electric Power Generation, Transmission and Distribution
2370	Heavy and Civil Engineering Construction
3372	Office Furniture (including Fixtures) Manufacturing

3212 Veneer, Plywood, and Engineered Wood Product Manufacturing

Supplier Industries - Typical Regional Industry

1133	Logging
3211	Sawmills and Wood Preservation
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing
3219	Other Wood Product Manufacturing
42*	Wholesale Trade
484*	Truck Transportation
3255	Paint, Coating, and Adhesive Manufacturing

Supplier Industries – Typical National Industry

3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3323	Architectural and Structural Metals Manufacturing
FH	Fishing, Hunting, Etc.
3241	Petroleum and Coal Products Manufacturing
3321	Forging and Stamping
3261	Plastics Product Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

Consumer Industries - Typical Regional Industry

2360	Construction of Buildings
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing
2380	Specialty Trade Contractors
3372	Office Furniture (including Fixtures) Manufacturing
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing
3211	Sawmills and Wood Preservation
3219	Other Wood Product Manufacturing
3366	Ship and Boat Building

3222 Converted Paper Product Manufacturing

Supplier Industries - Typical Regional Industry

484*	Truck Transportation
42*	Wholesale Trade

Supplier Industries – Typical National Industry

3132	Fabric Mills
3313	Alumina and Aluminum Production and Processing

Supplier Industries - Typical Regional Industry

3261	Plastics Product Manufacturing
3255	Paint, Coating, and Adhesive Manufacturing
3279	Other Nonmetallic Mineral Product Manufacturing
3221	Pulp, Paper, and Paperboard Mills

Supplier Industries – Typical National Industry

3251	Basic Chemical Manufacturing
3222	Converted Paper Product Manufacturing
3259	Other Chemical Product and Preparation Manufacturing
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3329	Other Fabricated Metal Product Manufacturing
4821	Rail Transportation
5418	Advertising and Related Services
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

Consumer Industries - Typical Regional Industry

622*	Hospitals
3115	Dairy Product Manufacturing
8121	Personal Care Services
722*	Food services and drinking places
3261	Plastics Product Manufacturing
3253	Pesticide, Fertilizer, and Other Agricultural Chemical Manufacturing
42*	Wholesale Trade
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
3272	Glass and Glass Product Manufacturing
621a*	Offices of physicians, dentists, and other health practitioners

3256 Soap, Cleaning Compound, and Toilet Preparation Manufacturing**Supplier Industries - Typical Regional Industry**

3251	Basic Chemical Manufacturing
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing
42*	Wholesale Trade
3261	Plastics Product Manufacturing
484*	Truck Transportation
4931	Warehousing and Storage
3255	Paint, Coating, and Adhesive Manufacturing
5417	Scientific Research and Development Services

Supplier Industries – Typical National Industry

3222	Converted Paper Product Manufacturing
3241	Petroleum and Coal Products Manufacturing
3324	Boiler, Tank, and Shipping Container Manufacturing
5418	Advertising and Related Services
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3272	Glass and Glass Product Manufacturing
5151	Radio and Television Broadcasting
3231	Printing and Related Support Activities

Supplier Industries - Typical Regional Industry

8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3259	Other Chemical Product and Preparation Manufacturing

Supplier Industries – Typical National Industry

5411	Legal Services
5111	Newspaper, Periodical, Book, and Directory Publishers

Consumer Industries - Typical Regional Industry

FR	Farms
622*	Hospitals
3119	Other Food Manufacturing
3261	Plastics Product Manufacturing
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing
623*	Nursing and residential care facilities
5617	Services to Buildings and Dwellings
3251	Basic Chemical Manufacturing
3115	Dairy Product Manufacturing
8123	Drycleaning and Laundry Services

3272 Glass and Glass product Manufacturing**Supplier Industries - Typical Regional Industry**

3272	Glass and Glass Product Manufacturing
42*	Wholesale Trade
484*	Truck Transportation
3261	Plastics Product Manufacturing
3251	Basic Chemical Manufacturing
3255	Paint, Coating, and Adhesive Manufacturing

Supplier Industries – Typical National Industry

3222	Converted Paper Product Manufacturing
3271	Clay Product and Refractory Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
2123	Nonmetallic Mineral Mining and Quarrying
3335	Metalworking Machinery Manufacturing
3219	Other Wood Product Manufacturing
3279	Other Nonmetallic Mineral Product Manufacturing
2380	Specialty Trade Contractors
8112	Electronic and Precision Equipment Repair and Maintenance
4821	Rail Transportation

Consumer Industries - Typical Regional Industry

3272	Glass and Glass Product Manufacturing
3323	Architectural and Structural Metals Manufacturing
3261	Plastics Product Manufacturing
722*	Food services and drinking places

Consumer Industries - Typical Regional Industry

622*	Hospitals
8111	Automotive Repair and Maintenance
3366	Ship and Boat Building
5417	Scientific Research and Development Services
3219	Other Wood Product Manufacturing
2360	Construction of Buildings

3321 Forging and Stamping

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
484*	Truck Transportation
3363	Motor Vehicle Parts Manufacturing
3314	Nonferrous Metal (except Aluminum) Production and Processing
3335	Metalworking Machinery Manufacturing

Supplier Industries – Typical National Industry

3311	Iron and Steel Mills and Ferroalloy Manufacturing
3323	Architectural and Structural Metals Manufacturing
3312	Steel Product Manufacturing from Purchased Steel
3321	Forging and Stamping
3313	Alumina and Aluminum Production and Processing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3329	Other Fabricated Metal Product Manufacturing
3222	Converted Paper Product Manufacturing
5419	Other Professional, Scientific, and Technical Services
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

Consumer Industries - Typical Regional Industry

8111	Automotive Repair and Maintenance
3325	Hardware Manufacturing
3353	Electrical Equipment Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3363	Motor Vehicle Parts Manufacturing
484*	Truck Transportation
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3341	Computer and Peripheral Equipment Manufacturing
3261	Plastics Product Manufacturing

Consumer Industries - Typical Regional Industry

3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing

3322 Cutlery and Handtool Manufacturing

Supplier Industries - Typical Regional Industry

42* Wholesale Trade
 484* Truck Transportation
 3261 Plastics Product Manufacturing
 3219 Other Wood Product Manufacturing
 5111 Newspaper, Periodical, Book, and Directory Publishers
 2380 Specialty Trade Contractors

Supplier Industries – Typical National Industry

3311 Iron and Steel Mills and Ferroalloy Manufacturing
 3313 Alumina and Aluminum Production and Processing
 3329 Other Fabricated Metal Product Manufacturing
 3321 Forging and Stamping
 3222 Converted Paper Product Manufacturing
 483* Water Transportation
 3315 Foundries
 3322 Cutlery and Handtool Manufacturing
 3241 Petroleum and Coal Products Manufacturing
 3312 Steel Product Manufacturing from Purchased Steel

Consumer Industries - Typical Regional Industry

3325 Hardware Manufacturing
 FR Farms
 8111 Automotive Repair and Maintenance
 3339 Other General Purpose Machinery Manufacturing
 2360 Construction of Buildings
 3261 Plastics Product Manufacturing
 3222 Converted Paper Product Manufacturing
 484* Truck Transportation
 8113 Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
 3329 Other Fabricated Metal Product Manufacturing

3324 Boiler, Tank, and Shipping Container Manufacturing

Supplier Industries - Typical Regional Industry

42* Wholesale Trade
 484* Truck Transportation

Supplier Industries – Typical National Industry

3311 Iron and Steel Mills and Ferroalloy Manufacturing
 3313 Alumina and Aluminum Production and Processing

Supplier Industries - Typical Regional Industry

3324	Boiler, Tank, and Shipping Container Manufacturing
3314	Nonferrous Metal (except Aluminum) Production and Processing

Supplier Industries – Typical National Industry

3329	Other Fabricated Metal Product Manufacturing
3321	Forging and Stamping
3255	Paint, Coating, and Adhesive Manufacturing
3323	Architectural and Structural Metals Manufacturing
3312	Steel Product Manufacturing from Purchased Steel
3315	Foundries
3339	Other General Purpose Machinery Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

Consumer Industries - Typical Regional Industry

3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3115	Dairy Product Manufacturing
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
3121	Beverage Manufacturing
3111	Animal Food Manufacturing
2360	Construction of Buildings
3324	Boiler, Tank, and Shipping Container Manufacturing
3323	Architectural and Structural Metals Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing

3325 Hardware Manufacturing**Supplier Industries - Typical Regional Industry**

42*	Wholesale Trade
3353	Electrical Equipment Manufacturing
3261	Plastics Product Manufacturing
484*	Truck Transportation
3325	Hardware Manufacturing
3314	Nonferrous Metal (except Aluminum) Production and Processing

Supplier Industries – Typical National Industry

3311	Iron and Steel Mills and Ferroalloy Manufacturing
3321	Forging and Stamping
3222	Converted Paper Product Manufacturing
3315	Foundries
3322	Cutlery and Handtool Manufacturing
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
3326	Spring and Wire Product Manufacturing

Supplier Industries - Typical Regional Industry**Supplier Industries – Typical National Industry**

3312	Steel Product Manufacturing from Purchased Steel
3313	Alumina and Aluminum Production and Processing
5419	Other Professional, Scientific, and Technical Services

Consumer Industries - Typical Regional Industry

3325	Hardware Manufacturing
3362	Motor Vehicle Body and Trailer Manufacturing
3323	Architectural and Structural Metals Manufacturing
2360	Construction of Buildings
8111	Automotive Repair and Maintenance
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing
3366	Ship and Boat Building
3219	Other Wood Product Manufacturing
3261	Plastics Product Manufacturing
3372	Office Furniture (including Fixtures) Manufacturing

3332 Industrial Machinery Manufacturing**Supplier Industries - Typical Regional Industry****Supplier Industries – Typical National Industry**

42*	Wholesale Trade	3311	Iron and Steel Mills and Ferroalloy Manufacturing
3332	Industrial Machinery Manufacturing	3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
3261	Plastics Product Manufacturing	3322	Cutlery and Handtool Manufacturing
3344	Semiconductor and Other Electronic Component Manufacturing	3321	Forging and Stamping
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	3279	Other Nonmetallic Mineral Product Manufacturing
3251	Basic Chemical Manufacturing	3315	Foundries
3328	Coating, Engraving, Heat Treating, and Allied Activities	3255	Paint, Coating, and Adhesive Manufacturing
5415	Computer Systems Design and Related Services	3359	Other Electrical Equipment and Component Manufacturing
3341	Computer and Peripheral Equipment Manufacturing	3329	Other Fabricated Metal Product Manufacturing
3353	Electrical Equipment Manufacturing	3326	Spring and Wire Product Manufacturing
484*	Truck Transportation		
3335	Metalworking Machinery Manufacturing		
3339	Other General Purpose Machinery		

Supplier Industries - Typical Regional Industry

Manufacturing

Supplier Industries – Typical National Industry

Consumer Industries - Typical Regional Industry

3231 Printing and Related Support Activities
3332 Industrial Machinery Manufacturing

3344 Semiconductor and Other Electronic Component Manufacturing

8113 Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

722* Food services and drinking places

2360 Construction of Buildings
5414 Specialized Design Services

3335 Metalworking Machinery Manufacturing

3261 Plastics Product Manufacturing

3221 Pulp, Paper, and Paperboard Mills

3333 Commercial and Service Industry Machinery Manufacturing

Supplier Industries - Typical Regional Industry

42* Wholesale Trade

3344 Semiconductor and Other Electronic Component Manufacturing

3353 Electrical Equipment Manufacturing

484* Truck Transportation

3261 Plastics Product Manufacturing

3333 Commercial and Service Industry Machinery Manufacturing

3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing

Supplier Industries – Typical National Industry

5415 Computer Systems Design and Related Services

3311 Iron and Steel Mills and Ferroalloy Manufacturing

3272 Glass and Glass Product Manufacturing

3328 Coating, Engraving, Heat Treating, and Allied Activities

3359 Other Electrical Equipment and Component Manufacturing

3255 Paint, Coating, and Adhesive Manufacturing

3334 Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing

3222 Converted Paper Product Manufacturing

3329 Other Fabricated Metal Product Manufacturing

5411 Legal Services

Consumer Industries - Typical Regional Industry

2370 Heavy and Civil Engineering Construction

Consumer Industries - Typical Regional Industry

2360	Construction of Buildings
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3333	Commercial and Service Industry Machinery Manufacturing
8111	Automotive Repair and Maintenance

3353 Electrical Equipment Manufacturing

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
3344	Semiconductor and Other Electronic Component Manufacturing
3261	Plastics Product Manufacturing
484*	Truck Transportation
3353	Electrical Equipment Manufacturing
3314	Nonferrous Metal (except Aluminum) Production and Processing
3359	Other Electrical Equipment and Component Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
4931	Warehousing and Storage
5413	Architectural, Engineering, and Related Services
2380	Specialty Trade Contractors
3341	Computer and Peripheral Equipment Manufacturing
5417	Scientific Research and Development Services

Supplier Industries – Typical National Industry

3255	Paint, Coating, and Adhesive Manufacturing
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3321	Forging and Stamping
3315	Foundries
3241	Petroleum and Coal Products Manufacturing
3271	Clay Product and Refractory Manufacturing
3329	Other Fabricated Metal Product Manufacturing
3323	Architectural and Structural Metals Manufacturing
3312	Steel Product Manufacturing from Purchased Steel
3221	Pulp, Paper, and Paperboard Mills

Consumer Industries - Typical Regional Industry

3339	Other General Purpose Machinery Manufacturing
3351	Electric Lighting Equipment Manufacturing
3325	Hardware Manufacturing
3261	Plastics Product Manufacturing
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
2360	Construction of Buildings
8111	Automotive Repair and Maintenance

Consumer Industries - Typical Regional Industry

3353 Electrical Equipment Manufacturing

3331 Agriculture, Construction, and Mining Machinery Manufacturing

484* Truck Transportation

3359 Other Electrical Equipment and Component Manufacturing

<u>Supplier Industries - Typical Regional Industry</u>	<u>Supplier Industries – Typical National Industry</u>
3344 Semiconductor and Other Electronic Component Manufacturing	3272 Glass and Glass Product Manufacturing
42* Wholesale Trade	3252 Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3251 Basic Chemical Manufacturing	3241 Petroleum and Coal Products Manufacturing
3341 Computer and Peripheral Equipment Manufacturing	3359 Other Electrical Equipment and Component Manufacturing
3314 Nonferrous Metal (except Aluminum) Production and Processing	3221 Pulp, Paper, and Paperboard Mills
484* Truck Transportation	3279 Other Nonmetallic Mineral Product Manufacturing
3259 Other Chemical Product and Preparation Manufacturing	3311 Iron and Steel Mills and Ferroalloy Manufacturing
4931 Warehousing and Storage	3321 Forging and Stamping
3261 Plastics Product Manufacturing	484* Truck Transportation
5413 Architectural, Engineering, and Related Services	3222 Converted Paper Product Manufacturing

Consumer Industries - Typical Regional Industry

3353 Electrical Equipment Manufacturing

3341 Computer and Peripheral Equipment Manufacturing

3314 Nonferrous Metal (except Aluminum) Production and Processing

3344 Semiconductor and Other Electronic Component Manufacturing

8111 Automotive Repair and Maintenance

3261 Plastics Product Manufacturing

3325 Hardware Manufacturing

2360 Construction of Buildings

3331 Agriculture, Construction, and Mining Machinery Manufacturing

**Consumer Industries - Typical Regional
Industry**

3334 Ventilation, Heating, Air-Conditioning, and
Commercial Refrigeration Equipment
Manufacturing

12.3.3 Firms by Driver Industry in the West Central I Region

3114 Fruit and Vegetable Preserving and Specialty Food Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
McCain Snack Foods	400	4,124	Branch	Private	50MM-99.9MM	1956
Seneca Foods Corp	400	6,695	Branch	Public	50MM-99.9MM	1983
Silver Spring Gardens Inc	210	420	Branch	Private	50MM-99.9MM	1925
Choice Products USA LLC	130	155	Parent	Private		1991
Bush Brothers & Co	120	645	Branch	Private	25MM-49.9MM	1908
Bookbinder Foods	70	420	Branch	Private	10MM-24.9MM	1929
Huntsinger Farms Inc	70	420	Parent	Private		1929
Silver Spring Gardens	70	420	HQs	Private		1929

3115 Dairy Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site Sites	All				
Swiss Miss	365	51,284	Branch	Public	100MM-499.9MM	1941
AFP Advanced Food Products LLC	200	-	Single	Private	100MM-499.9MM	1937
AMPI	150	1,796	Branch	Private	50MM-99.9MM	
Saputo Cheese USA Inc	130	1,745	Branch	Private	50MM-99.9MM	1928
Humko Specialty Powders	65	1,320	Branch	Private	10MM-24.9MM	1982
Foremost Farms USA Cooperative	60	1,467	Branch	Private	25MM-49.9MM	1963
Ellsworth Cooperative Creamery	58	-	Single	Private	25MM-49.9MM	1910
Comstock Dairy Enterprises Inc	50	-	Single	Private	25MM-49.9MM	1956
F & A Dairy Products Inc	50	150	Parent	Private		1971
Foremost Farms USA	43	1,467	Branch	Private	10MM-24.9MM	1920
Eau Galle Cheese Factory Inc	30	-	Single	Private	10MM-24.9MM	1945

3162 Footwear Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Mason Shoe Manufacturing Co	350	570	Branch	Private	25MM-49.9MM	1904
Mason Shoe Manufacturing Co	200	570	Parent	Private		1904

3211 Sawmills and Wood Preservation

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
St Croix Valley Hardwoods Inc	100	135	Parent	Private		1985
Banks Hardwoods Inc	40	140	Branch	Private	5MM-9.9MM	1985
Woods Run Forest Products Inc	30	-	Single	Private	5MM-9.9MM	1978
Bee Forest Products Inc	25	-	Single	Private	5MM-9.9MM	1985
Northern Crossarm Co Inc	25	-	Single	Private	5MM-9.9MM	1922
Northwest Hardwoods	23	43,346	Branch	Public	1MM-4.9MM	1983
Schlosser Lumber Inc	23	-	Single	Private	1MM-4.9MM	1941

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Brunkow Hardwood Corp	20	-	Single	Private	1MM-4.9MM	1975

3212 Veneer, Plywood, and Engineered Wood Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Automated Building Components	170	677	Branch	Private	10MM-24.9MM	1976
Wisconsin Truss Inc	125	-	Single	Private	10MM-24.9MM	1972
Woodmaster Foundations Inc	35	-	Single	Private	1MM-4.9MM	1985

3222 Converted Paper Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
3M Multi Divisional Products	500	71,847	Branch	Public	100MM-499.9MM	1974
Cascade Tissue Group	250	-	Single	Private	100MM-499.9MM	1882
Kell Container Corp	200	-	Single	Private	25MM-49.9MM	1964
AmTec Inc	120	-	Single	Private	25MM-49.9MM	1984
Presto Absorbent Products Inc	80	84	Parent	Public		1982

3256 Soap, Cleaning Compound, and Toilet Preparation Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Jennico2 Inc	75	-	Single	Private	25MM-49.9MM	2001

3272 Glass and Glass Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Cardinal FG	250	4,124	Branch	Private	50MM-99.9MM	1992
Cardinal DGP/LG	150	4,124	Branch	Private	10MM-24.9MM	1991
Lunde Inc	20	-	Single	Private	1MM-4.9MM	1972

3321 Forging and Stamping

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Polaris Industries Inc	800	3,725	Branch	Public	100MM-499.9MM	1976
Tenere Inc	130	360	Parent	Private		1994
SOS Prescott Inc	30	-	Single	Private	1MM-4.9MM	1965
Phillips Metal Injection	25	-	Single	Private	1MM-4.9MM	1964

3322 Cutlery and Handtool Manufacturing

*No firms were identified in database. (This study used the Harris Infosource database. Harris is a fully owned subsidiary of Dun & Bradstreet. Companies providing data to D&B for the Harris database do so voluntarily. Therefore, the information is incomplete for this item because eligible firms chose not to participate.)

3324 Boiler, Tank, and Shipping Container Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Silgan Containers Mfg Corp	125	6,190	Branch	Public	10MM-24.9MM	1993

3325 Hardware Manufacturing

*No firms were identified in database. (This study used the Harris Infosource database. Harris is a fully owned subsidiary of Dun & Bradstreet. Companies providing data to D&B for the Harris database do so voluntarily. Therefore, the information is incomplete for this item because eligible firms chose not to participate.)

3332 Industrial Machinery Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Hutchinson Technology Inc	1,000	5,290	Branch	Public	100MM-499.9MM	1996
McDonough Manufacturing Co	55	-	Single	Private	5MM-9.9MM	1888
Brandtjen & Kluge Inc	50	-	Single	Private	5MM-9.9MM	1919

3333 Commercial and Service Industry Machinery Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Nedland Industries Inc	50	-	Single	Private	5MM-9.9MM	1981
Foley United	40	135	Branch	Private	5MM-9.9MM	1993

3353 Electrical Equipment Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Rockwell Automation Co	100	16,905	Branch	Public	10MM-24.9MM	1902
Automation Displays Inc	22	-	Single	Private	1MM-4.9MM	1971

3359 Other Electrical Equipment and Component Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Ardisam Inc	200	-	Single	Private	25MM-49.9MM	1960
Northwire Inc	115	-	Single	Private	10MM-24.9MM	1972
Graphic Display Systems Inc	50	-	Single	Private	5MM-9.9MM	1992
Dynatronix Inc	40	-	Single	Private	5MM-9.9MM	1971

12.3.4 Detailed Employment, Gross Product, & Gross Product per Employee, West Central I Region

Table 12-3 Employment in the West Central I Region's Driver Industries, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	1,169	1,914	1,990	1,826	1,761	1,602	1,578	1,592
3115	Dairy Product Manufacturing	990	1,166	1,313	1,290	1,247	1,140	1,117	1,039
3162	Footwear Manufacturing	1,289	997	796	675	544	452	402	427
3211	Sawmills and Wood Preservation	480	498	577	556	534	501	519	563
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	300	449	557	605	703	737	794	660
3222	Converted Paper Product Mfg.	1,269	1,176	975	953	861	934	853	971
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	190	399	388	397	426	1,061	1,784	2,515
3272	Glass and Glass Product Mfg.	250	668	706	814	901	943	1,019	1,272
3321	Forging and Stamping	50	279	159	139	139	79	69	58
3322	Cutlery and Handtool Mfg.	290	419	259	228	238	236	255	233
3324	Boiler, Tank, and Shipping Container Manufacturing	160	349	438	467	485	482	539	602
3325	Hardware Manufacturing	320	508	408	367	406	442	490	515
3332	Industrial Machinery Manufacturing	390	1,784	4,019	4,983	5,255	6,643	7,428	7,447
3333	Commercial and Service Industry Machinery Manufacturing	140	219	219	218	178	138	137	126
3353	Electrical Equipment Manufacturing	350	927	796	715	614	442	392	408
3359	Other Electrical Equipment and Component Manufacturing	360	468	487	486	356	255	216	184

Table 12-4 CAGR* for Employment in the West Central I Region's Driver Industries, 1993-2008

NAICS	Title	1993-1998	1998-2003	2003-2008
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	8.6%	-2.9%	-0.1%
3115	Dairy Product Manufacturing	2.8%	-0.4%	-1.5%
3162	Footwear Manufacturing	-4.2%	-12.3%	-0.9%
3211	Sawmills and Wood Preservation	0.6%	0.1%	2.0%
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	6.9%	8.6%	-1.8%
3222	Converted Paper Product Mfg.	-1.3%	-3.8%	0.7%
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	13.2%	17.7%	15.5%
3272	Glass and Glass Product Mfg.	17.8%	5.9%	5.1%
3321	Forging and Stamping	33.2%	-19.0%	-4.9%
3322	Cutlery and Handtool Mfg.	6.3%	-9.1%	-0.2%
3324	Boiler, Tank, and Shipping Container Mfg.	13.9%	5.5%	3.8%
3325	Hardware Manufacturing	8.0%	-2.3%	2.6%
3332	Industrial Machinery Manufacturing	28.9%	24.5%	1.9%
3333	Commercial and Service Industry Machinery Manufacturing	7.8%	-7.5%	-1.4%
3353	Electrical Equipment Manufacturing	17.6%	-11.6%	-1.3%
3359	Other Electrical Equipment and Component Mfg.	4.5%	-9.6%	-5.3%

*Compound Annual Growth Rate—CAGR. An average annual growth rate over a specified period of time. It is calculated as: $CAGR = (\text{present value} / \text{base value})^{(1 / \text{number of years})} - 1$

Table 12-5 Labor Location Quotients*—West Central I Region's Driver Industries, 1993-2003

NAICS	Title	1993	1998	2001	2002	2003
3114	Fruit and Vegetable Preserving and Specialty Food Mfg.	4.44	7.15	6.72	6.72	6.07
3115	Dairy Product Manufacturing	5.71	6.74	6.72	6.39	5.82
3162	Footwear Manufacturing	15.48	19.19	19.04	17.47	16.10
3211	Sawmills and Wood Preservation	2.94	2.80	3.12	3.09	3.00
3212	Veneer, Plywood, and Engineered Wood Product Mfg.	2.63	3.02	3.70	4.25	4.51
3222	Converted Paper Product Manufacturing	2.54	2.14	1.70	1.58	1.76
3256	Soap, Cleaning Compound, and Toilet Preparation Mfg.	1.21	2.32	2.23	2.47	6.24
3272	Glass and Glass Product Manufacturing	1.42	3.56	4.24	5.08	5.66

NAICS	Title	1993	1998	2001	2002	2003
3321	Forging and Stamping	0.33	1.45	0.79	0.86	0.50
3322	Cutlery and Handtool Manufacturing	3.20	3.99	2.26	2.58	2.66
3324	Boiler, Tank, and Shipping Container Manufacturing	1.24	2.44	3.21	3.54	3.68
3325	Hardware Manufacturing	4.89	7.20	5.66	6.74	7.74
3332	Industrial Machinery Manufacturing	2.25	7.97	23.71	28.11	37.31
3333	Commercial and Service Industry Machinery Manufacturing	0.84	1.11	1.09	0.96	0.80
3353	Electrical Equipment Manufacturing	1.34	3.27	2.58	2.46	1.92
3359	Other Electrical Equipment and Component Manufacturing	1.67	1.93	1.92	1.65	1.28

* The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region.

Table 12-6 Gross Product in the West Central I Region's Driver Industries, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3114	Fruit and Vegetable Preserving and Specialty Food Mfg.	\$ 58,946,132	\$ 117,355,697	\$ 133,574,987	\$ 142,488,232	\$ 139,417,376	\$ 136,350,415	\$ 141,512,307	\$ 160,613,049
3115	Dairy Product Manufacturing	\$ 90,237,422	\$ 126,175,542	\$ 146,593,393	\$ 162,572,877	\$ 163,126,116	\$ 160,817,494	\$ 164,978,591	\$ 179,764,346
3162	Footwear Manufacturing	\$ 31,281,381	\$ 30,590,725	\$ 23,954,659	\$ 18,458,317	\$ 17,709,181	\$ 16,414,362	\$ 15,773,799	\$ 19,057,724
3211	Sawmills and Wood Preservation	\$ 17,141,840	\$ 21,830,608	\$ 26,889,502	\$ 29,732,857	\$ 31,285,555	\$ 34,146,815	\$ 36,907,116	\$ 45,362,166
3212	Veneer, Plywood, and Engineered Wood Product Mfg.	\$ 13,128,866	\$ 18,714,794	\$ 21,079,307	\$ 26,150,946	\$ 31,425,311	\$ 34,908,837	\$ 39,124,485	\$ 38,344,182
3222	Converted Paper Product Mfg.	\$ 165,691,245	\$ 123,895,920	\$ 134,050,908	\$ 139,285,465	\$ 143,350,531	\$ 175,996,145	\$ 179,890,663	\$ 248,311,850
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	\$ 11,929,928	\$ 29,615,167	\$ 47,235,098	\$ 79,500,472	\$ 105,945,626	\$ 141,087,308	\$ 206,457,061	\$ 309,976,531
3272	Glass and Glass Product Mfg.	\$ 15,833,908	\$ 31,008,821	\$ 38,995,726	\$ 39,690,371	\$ 44,692,223	\$ 51,323,198	\$ 57,777,711	\$ 84,558,903
3321	Forging and Stamping	\$ 11,285,871	\$ 30,481,224	\$ 25,630,296	\$ 40,698,095	\$ 44,163,144	\$ 36,020,977	\$ 38,178,688	\$ 34,466,097
3322	Cutlery and Handtool Mfg.	\$ 7,431,434	\$ 17,480,414	\$ 18,055,230	\$ 18,069,196	\$ 18,188,347	\$ 19,606,615	\$ 21,721,813	\$ 24,069,084
3324	Boiler, Tank, and Shipping Container Manufacturing	\$ 7,698,965	\$ 23,184,445	\$ 28,912,163	\$ 31,458,959	\$ 34,410,117	\$ 38,739,541	\$ 44,715,199	\$ 57,703,419
3325	Hardware Manufacturing	\$ 5,251,546	\$ 13,369,132	\$ 14,465,997	\$ 14,008,366	\$ 15,003,889	\$ 18,000,191	\$ 21,364,512	\$ 27,416,922
3332	Industrial Machinery Mfg.	\$ 28,051,185	\$ 142,700,307	\$ 175,475,811	\$ 218,017,671	\$ 249,405,966	\$ 327,834,138	\$ 387,240,976	\$ 457,884,431
3333	Commercial and Service Industry Machinery Manufacturing	\$ 43,647,287	\$ 66,387,746	\$ 57,735,091	\$ 62,848,076	\$ 53,736,484	\$ 49,346,061	\$ 50,442,527	\$ 51,953,872
3353	Electrical Equipment Mfg.	\$ 21,749,329	\$ 50,957,996	\$ 41,484,393	\$ 78,023,806	\$ 70,307,646	\$ 60,220,318	\$ 59,248,952	\$ 72,539,956
3359	Other Electrical Equipment and Component Manufacturing	\$ 19,103,739	\$ 30,969,003	\$ 28,783,268	\$ 55,913,735	\$ 49,743,433	\$ 37,462,640	\$ 35,299,260	\$ 37,959,493

Table 12-7 CAGR* for Gross Product in the West Central I Region's Driver Industries, 1993-2008

NAICS	Title	1993-1998	1998-2003	2003-2008
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	12.2%	2.5%	2.8%
3115	Dairy Product Manufacturing	5.7%	4.1%	1.9%
3162	Footwear Manufacturing	-0.4%	-9.9%	2.5%
3211	Sawmills and Wood Preservation	4.1%	7.7%	4.8%
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	6.1%	10.9%	1.6%
3222	Converted Paper Product Manufacturing	-4.7%	6.0%	5.9%
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	16.4%	29.7%	14.0%
3272	Glass and Glass Product Manufacturing	11.9%	8.8%	8.7%
3321	Forging and Stamping	18.0%	2.8%	-0.7%
3322	Cutlery and Handtool Manufacturing	15.3%	1.9%	3.5%
3324	Boiler, Tank, and Shipping Container Mfg.	20.2%	8.9%	6.9%
3325	Hardware Manufacturing	16.9%	5.1%	7.3%
3332	Industrial Machinery Mfg.	31.1%	14.9%	5.7%
3333	Commercial and Service Industry Machinery Mfg.	7.2%	-4.8%	0.9%
3353	Electrical Equipment Manufacturing	15.2%	2.8%	3.2%
3359	Other Electrical Equipment and Component Mfg.	8.4%	3.2%	0.2%

***Compound Annual Growth Rate—CAGR.** An average annual growth rate over a specified period of time. It is calculated as: $CAGR = (\text{present value} / \text{base value})^{(1 / \text{number of years})} - 1$

Table 12-8 Output Location Quotients*—West Central I Region’s Driver Industries, 1993-2003

NAICS	Title	1993	1998	2001	2002	2003
3114	Fruit and Vegetable Preserving and Specialty Food Mfg.	4.76	8.29	10.21	9.95	9.35
3115	Dairy Product Manufacturing	8.17	10.44	13.03	12.47	12.30
3162	Footwear Manufacturing	12.77	16.79	13.64	13.31	12.83
3211	Sawmills and Wood Preservation	2.38	2.86	4.49	4.68	5.28
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	2.20	2.60	3.77	4.35	4.74
3222	Converted Paper Product Manufacturing	6.82	3.96	3.78	3.78	4.51
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	0.93	1.63	4.50	5.95	7.17
3272	Glass and Glass Product Manufacturing	1.99	2.78	4.05	4.70	5.57
3321	Forging and Stamping	1.46	2.61	3.98	4.51	3.61
3322	Cutlery and Handtool Manufacturing	1.92	3.44	3.92	4.27	4.58
3324	Boiler, Tank, and Shipping Container Manufacturing	1.28	3.17	4.96	5.62	6.38
3325	Hardware Manufacturing	1.49	2.91	3.21	3.58	4.25
3332	Industrial Machinery Manufacturing	2.82	8.88	14.50	18.32	23.27
3333	Commercial and Service Industry Machinery Manufacturing	5.93	7.90	7.19	6.57	6.22
3353	Electrical Equipment Manufacturing	1.72	2.87	4.60	4.26	3.68
3359	Other Electrical Equipment and Component Manufacturing	1.42	1.81	3.32	3.18	2.49

* The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region.

Table 12-9 Manufacturing Productivity (Gross Product per Employee) of Driver Industries, West Central I Region, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3114	Fruit and Vegetable Preserving and Specialty Food Manufacturing	\$ 50,406	\$ 61,319	\$ 67,136	\$ 78,016	\$ 79,148	\$ 85,125	\$ 89,689	\$ 100,866
3115	Dairy Product Manufacturing	\$ 91,194	\$ 108,189	\$ 111,634	\$ 125,987	\$ 130,827	\$ 141,079	\$ 147,670	\$ 173,032
3162	Footwear Manufacturing	\$ 24,261	\$ 30,689	\$ 30,099	\$ 27,347	\$ 32,537	\$ 36,312	\$ 39,257	\$ 44,609
3211	Sawmills and Wood Preservation	\$ 35,730	\$ 43,801	\$ 46,603	\$ 53,490	\$ 58,546	\$ 68,135	\$ 71,057	\$ 80,551
3212	Veneer, Plywood, and Engineered Wood Product Manufacturing	\$ 43,785	\$ 41,722	\$ 37,838	\$ 43,190	\$ 44,727	\$ 47,366	\$ 49,287	\$ 58,076

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3222	Converted Paper Product Manufacturing	\$ 130,530	\$ 105,334	\$ 137,499	\$ 146,169	\$ 166,504	\$ 188,525	\$ 210,989	\$ 255,743
3256	Soap, Cleaning Compound, and Toilet Preparation Manufacturing	\$ 62,820	\$ 74,276	\$ 121,747	\$ 200,231	\$ 248,977	\$ 132,939	\$ 115,752	\$ 123,264
3272	Glass and Glass Product Mfg.	\$ 63,367	\$ 46,431	\$ 55,210	\$ 48,763	\$ 49,629	\$ 54,404	\$ 56,689	\$ 66,480
3321	Forging and Stamping	\$ 225,829	\$ 109,211	\$ 161,024	\$ 292,864	\$ 318,770	\$ 458,199	\$ 556,536	\$ 591,626
3322	Cutlery and Handtool Mfg.	\$ 25,638	\$ 41,754	\$ 69,805	\$ 79,146	\$ 76,582	\$ 83,134	\$ 85,250	\$ 103,289
3324	Boiler, Tank, and Shipping Container Manufacturing	\$ 48,142	\$ 66,454	\$ 66,052	\$ 67,432	\$ 70,964	\$ 80,454	\$ 82,959	\$ 95,855
3325	Hardware Manufacturing	\$ 16,419	\$ 26,298	\$ 35,467	\$ 38,142	\$ 36,980	\$ 40,705	\$ 43,601	\$ 53,278
3332	Industrial Machinery Mfg.	\$ 71,962	\$ 79,977	\$ 43,661	\$ 43,753	\$ 47,463	\$ 49,351	\$ 52,129	\$ 61,485
3333	Commercial and Service Industry Machinery Mfg.	\$ 311,920	\$ 302,732	\$ 263,800	\$ 287,799	\$ 301,677	\$ 358,685	\$ 367,654	\$ 411,605
3353	Electrical Equipment Mfg.	\$ 62,172	\$ 54,970	\$ 52,126	\$ 109,173	\$ 114,592	\$ 136,182	\$ 151,144	\$ 177,883
3359	Other Electrical Equipment and Component Mfg.	\$ 53,092	\$ 66,103	\$ 59,047	\$ 114,959	\$ 139,630	\$ 146,627	\$ 163,724	\$ 205,766

12.4 Wisconsin Executive Perspectives in the West Central I Region

West Central I Region Responses to the WMEP Study Questionnaire's "Open Ended" Questions

(NB: Incomplete answers are due to the space limits of the online questionnaire. In some cases, a partial word or intended meaning has been inferred and, therefore, completed. In such cases, the extrapolation appears in brackets. Where an inference could not be made, ellipses indicate the omission. Where provided by the respondent, job title and industry sector are included.)

As you consider your industry and business for the next 5 to 10 years, what are the most prominent workforce-related concerns?

Availability of a workforce interested in manufacturing positions with strong work ethic.
--President, Electric Motors

Availability of educated and motivated workers.
--President, Laser Marking Job Shop

Employee Insurance and Benefits.
--Owner, GM, Commercial Printing

Health insurance costs. Productivity. Environmental laws. Foreign competition for resources.
--Owner, Grey and Ductile Iron Castings

Hiring qualified personnel.
--Operation Manager, Electronic Wire and Cable Assemblies

Labor and Benefit costs very high compared to our operations in Mexico and China.
--Plant Manager, Air Filtration Equipment

Maintaining competitive compensation to minimize attrition of key resources.
--Injected Molded Plastic Parts

With an average age for workers currently employed at our company of 54, concerns with hiring enough qualified workers to fill the gaps.
--Logistics/Distribution, Consumer Paper Products

As you consider your industry and business for the next 5 to 10 years, what are the most prominent advantages that the Wisconsin workforce can offer?

Dedicated loyal hard working.....
--Operation Manager, Electronic Wire and Cable Assemblies

Fairly good work ethic.

-- Owner, Grey and Ductile Iron Castings

Generally, a good pool of workers to draw from who have good work ethics, and tend to stay on the job.

--President, Laser Marking Job Shop

In general, a higher quality individual with a strong work ethic.

--President, Electric Motors

Sincere, hard-working employees who understand that a customer's satisfaction equates to job security.

--Owner, GM, Commercial Printing

Strong work ethic, good education and related skills.

--Injection Molded Plastic Parts

We can respond quickly to orders.

--Parts Manager, Air Filtration Equipment

Work ethics in the Midwest/Wisconsin tend to be exceptional compared to other regions of the country.

--Logistics/Distribution, Consumer Paper Products

What changes, if any, would you like to see in the Wisconsin higher education system to better meet the long-term needs of your industry and firm in the state?

I would like to see more interactive collaborations between schools and commercial business. More internships, more class tours of business. The Junior Achievement program is an excellent start . . .

--Owner, GM, Commercial Printing

Keep up to date on manufacturing technologies.

--Plant Manager, Air Filtration Equipment

None.

--President, Laser Marking Job Shop

None. The employees that I typically hire are not very skilled but normally have a high school education.

--Owner, Grey and Ductile Iron Castings

Strong emphasis on preparing students for work in manufacturing processes. Many of the individuals applying for work today do not have mechanical aptitude or high levels of work ethic.

--President, Electric Motors

Students need more exposure to Lean Manufacturing and by that I mean more than an introduction to it. They really need to understand the concepts and be equipped with the tools and desire to make . . . [a difference].

--Injection Molded Plastic Parts

We are a manufacturing facility looking into a lean future.

--Logistics/Distribution, Consumer Paper Products

Describe any innovative workforce attraction or development programs that you would like to see expanded in Wisconsin.

Cannot think of any.

--Owner, Grey and Ductile Iron Castings

I think Wisconsin is a great place to live. I'm not sure it's a great place to work.

--Injection Molded Plastic Parts

Lower property taxes. Readily available and reasonably priced healthcare.

--President, Laser Marking Job Shop

More of a focus on students in high school who do not intend go on to college.

--President, Electric Motors

Tax credits for any business investing in technology...not only for what is arbitrarily determined to be "high tech" businesses. Our printing firm has installed state of the art Computer to Plate . . .

--Owner, GM, Commercial Printing

What are the business challenges that your organization faces – what most keeps you up at night?

Cash flow, productivity.

--President, Laser Marking Job Shop

Customers asking for lower prices while manufacturing costs continue to increase.

--Injection Molded Plastic Parts

Improving Profitability.

--Owner, GM, Commercial Printing

Low cost operations in Mexico, India and China.

--Plant Manager, Air Filtration Equipment

Making a profit. Pressures of remaining competitive. Medical costs for employees.

--Owner, Grey and Ductile Iron Castings

Nothing keeps me up at night.....business is a risky game we all love to play.....challenges are staying ahead of the industry curve on product development.

--Operation Manager, Electronic Wire and Cable Assemblies

The uneven playing field concerning exporting to China (duties and VAT) versus the much lower cost for China to export to the US. For instance, if we ship motors into China, it costs us 9% tariff . . .

--President, Electric Motors

What are the business strengths and/or advantages your organization has by being located in Wisconsin?

Close to the markets we serve.

--Plant Manager, Air Filtration Equipment

Good infrastructure and fairly low business taxes.

--President, Electric Motors

Having people who care.

--Owner, GM, Commercial Printing

I cannot think of any.

--Owner, Grey and Ductile Iron Castings

Stable workforce. Nice place to live.

--President, Laser Marking Job Shop

The strengths are our people. Not sure this is related to Wisconsin. This would be true if located in another state.

--Injection Molded Plastic Parts

Workforce, leadership and history.

--Operation Manager, Electronic Wire and Cable Assemblies

13 West Central II Region

13.1 Introduction

Driver industry and industry cluster analyses were conducted for each of the seven economic regions in the State of Wisconsin. This section provides a summary of the findings from the analysis for the West Central II Region, as well as, detailed information related to each of the regional driver industries identified. For the purposes of this analysis, the West Central II Region is defined to include the counties of Jackson, La Crosse, Monroe, Trempealeau, and Vernon.

The next sub-section provides an overview and summary of the findings from the analyses conducted. This is followed by detailed descriptions of each of the regional driver industries and their associated industry cluster. Next, perspectives on the state of manufacturing in the region appear in tabular form. And, finally, Wisconsin's manufacturing identify key issues affecting them in the region.

13.2 Summary of Regional Driver Industries & Industry Clusters

The driver analysis for the West Central II Region identified seven regional driver industries. These industries include:

- 3115 Dairy Product Manufacturing
- 3116 Animal Slaughtering and Processing
- 3272 Glass and Glass Product Manufacturing
- 3323 Architectural and Structural Metals Manufacturing
- 3331 Agriculture, Construction, and Mining Machinery Manufacturing
- 3333 Commercial and Service Industry Machinery Manufacturing
- 3334 Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing

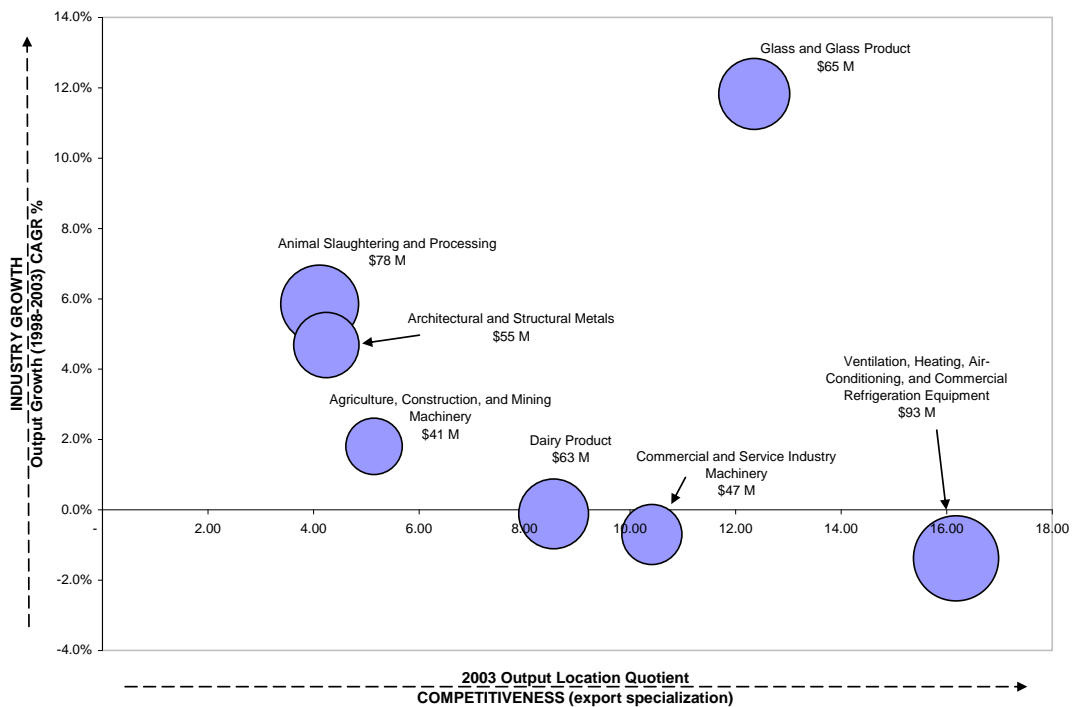
13.2.1 How Are the West Central II's Driver Industries Doing?

This chart shows the relative economic health of driver industries measured by two factors – their “competitiveness” in terms of export orientation or specialization on the X axis (horizontal), and their “growth” on the Y axis (vertical). Competitiveness is measured in terms of the output location quotients which is a ratio of the industry's concentration in the region compared to the industry's concentration nationally. In general, a location quotient above 1 indicates that the industry is more concentrated in the region than it is nationally. This concentration suggests that the industry exports its product from the region and that the region offers competitive advantages to the industry over other areas throughout the country. An industry is increasingly more competitive as it moves to the right on the X axis. And the more competitive it is, the more it sells goods outside of its own region, thereby generating money for the region in which it operates.

Industry growth is measured in terms of compound annual growth rates over the last five years and is shown on the Y axis. An industry is growing faster as it moves upward from

zero; it is declining if it is below zero. The area (size) of each circle represents the gross product of each industry and indicates the industry's relative size as compared to the other industries. Through this picturing of all of the region's drivers in one perspective, a sense of the overall strategies and services that will be needed in that region begins to emerge.

Figure 13-1 Overview of the West Central II's Drivers



Interpretations: All 7 driver industries are clearly ahead of their kindred industries in other parts of the country. There appear to be opportunities to increase the output of three industries at or below 0.0% growth with their favorable export or specialization advantages, so that all industries return monies to the region.

13.2.2 Driver and Industry Cluster Relationships in the West Central II Region

For this Study, an industry cluster analysis was conducted for each of the driver industries. Tables 13-1 and 13-2 provide a summary of the results from these analyses and identify regional and national supplier industries that are common to multiple regional driver industries.

The supplier industries identified in Table 13-1 are found in the regional economy and provide goods or services to multiple driver industries. Many, in fact, are driver industries themselves. The importance of these industries to the overall competitiveness of the driver industries can not be overstated. By providing quality goods and services to the driver industries, these supplier industries help the regional driver industries produce and

deliver the products their consumers demand. Attempts to impact the competitiveness of the industries that supply inputs to multiple regional driver industries can indirectly impact the competitiveness of those driver industries.

Table 13-1 Regional & National Supplier Industries Common to Regional Driver Industries

NAICS	Title	Count of Drivers		
		Regional Driver**	Regional Suppliers	National Suppliers
484*	Truck Transportation		7	7
42*	Wholesale Trade		7	7
3261	Plastics Product Manufacturing		6	6
4931	Warehousing and Storage		2	3
3353	Electrical Equipment Manufacturing		2	3
FR	Farms		2	2
3272	Glass and Glass Product Manufacturing	X	2	3
3119	Other Food Manufacturing		2	2
3219	Other Wood Product Manufacturing		2	2

*An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.
 **Not all of a Region's drivers are also suppliers. Those marked with an X are suppliers.

Table 13-2 is similar to Table 13-1 in that it shows industries that supply inputs to multiple driver industries. The difference is that the industries identified in Table 13-2 either do not exist in the region or they are smaller industries that are not likely to be able to provide inputs at a sufficient scale to meet the needs of the driver industries. Attempts to attract or grow these industries within the region may help reduce the import of goods and services by the region's driver industries.

Table 13-2 National Supplier Industries Common to Regional Driver Industries

NAICS	Title	Count of Drivers
		National Suppliers
3222	Converted Paper Product Manufacturing	6
5419	Other Professional, Scientific, and Technical Services	6
3255	Paint, Coating, and Adhesive Manufacturing	5
517*	Telecommunications	5
3311	Iron and Steel Mills and Ferroalloy Manufacturing	4
3312	Steel Product Manufacturing from Purchased Steel	4
3321	Forging and Stamping	4
3323	Architectural and Structural Metals Manufacturing	4
3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	4
3329	Other Fabricated Metal Product Manufacturing	4
3259	Other Chemical Product and Preparation Manufacturing	3
3315	Foundries	3
3339	Other General Purpose Machinery Manufacturing	3

		<u>Count of Drivers</u>
NAICS	Title	National Suppliers
3344	Semiconductor and Other Electronic Component Mfg.	3
5411	Legal Services	3
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance	3
2380	Specialty Trade Contractors	2
3112	Grain and Oilseed Milling	2
3241	Petroleum and Coal Products Manufacturing	2
3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing	2
3262	Rubber Product Manufacturing	2
3313	Alumina and Aluminum Production and Processing	2
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	2
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing	2
3359	Other Electrical Equipment and Component Mfg.	2

*An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

13.2.3 Filtering & Refinement of Quantitative Results

The analysis used to identify driver industries is a quantitative analysis based on secondary data and captures industries that exhibit some form of competitive advantage. While the model is extremely good at identifying regional driver industries, certain results often require qualitative insight to filter and refine the results. One way in which to identify industries either to remove or add as driver industries is to receive local perspectives on the lists of driver industries identified by the model. The following are responses to some of the comments related to the driver industries identified by the quantitative analysis for the West Central II Region.

First, “Industry 3116: Animal Slaughtering and Processing,” which includes poultry processing, was identified as an important industry in the region. After significant growth throughout the 1990s, the industry appears to be maintaining a fairly constant level of employment and gross product. The industry was not identified as a driver industry because some of its characteristics relative to the nation as whole did not suggest that the region offered the industry competitive advantages as compared to other locations. One of the problems with data for this industry is the fact that they are not specific to poultry processing but, rather, they include other types of meat processing as well. This lack of detailed information results in the industry’s relative concentration in the region being understated.

The second industry identified was “Industry 3121: Beverage Manufacturing,” which includes City Brewing Company, Inc. According to the data available on this industry, it has maintained fairly constant levels of employment and gross product since 1993; however, overall the industry is very small and was not included as a regional driver industry.

Finally, warehousing and distribution was identified as being important in the region. Warehousing and distribution includes several NAICS industries including “Industry 4841: General Freight Trucking”; “Industry 4842: Specialized Freight Trucking”; and “Industry 4931: Warehousing and Storage.” As a whole, these industries exhibited significant growth throughout the 1990s in terms of both employment and gross product. Individually, General Freight Trucking and Specialized Freight Trucking exhibited characteristics of driver industries. However, due to the nature of the industries, they are best viewed as supplier industries that help other regional driver industries be more competitive.

13.3 Detailed Descriptions of the Regional Driver Industries

13.3.1 Driver Industry Definitions

Definitions of Driver Industries

3115 Dairy Product Manufacturing

This industry group comprises establishments that manufacture dairy products from raw milk, processed milk, and dairy substitutes.

31151 Dairy Product (except Frozen) Manufacturing

31152 Ice Cream and Frozen Dessert Manufacturing

3116 Animal Slaughtering and Processing

This industry comprises establishments primarily engaged in one or more of the following: (1) slaughtering animals; (2) preparing processed meats and meat byproducts; and (3) rendering and/or refining animal fat, bones, and meat scraps. This industry includes establishments primarily engaged in assembly [sic] cutting and packing of meats (i.e., boxed meats) from purchased carcasses.

3272 Glass and Glass Product Manufacturing

This industry comprises establishments primarily engaged in manufacturing glass and/or glass products. Establishments in this industry may manufacture glass and/or glass products by melting silica sand or cullet, or purchasing glass.

3323 Architectural and Structural Metals Manufacturing

33231 Plate Work and Fabricated Structural Product Manufacturing

This industry comprises establishments primarily engaged in manufacturing one or more of the following: (1) prefabricated metal buildings, panels and sections; (2) structural metal products; and (3) metal plate work products.

33232 Ornamental and Architectural Metal Products Manufacturing

This industry comprises establishments primarily engaged in manufacturing one or more of the following: (1) metal framed windows (i.e., typically using purchased glass) and metal doors; (2) sheet metal work; and (3) ornamental and architectural metal products.

333 Machinery Manufacturing

Industries in the Machinery Manufacturing subsector create end products that apply mechanical force, for example, the application of gears and levers, to perform work. Some important processes for the manufacture of machinery are forging, stamping, bending, forming, and machining that are used to shape individual pieces of metal. Processes, such as welding and assembling are used to join separate parts together. Although these processes are similar to those used in metal fabricating establishments, machinery manufacturing is different because it typically employs multiple metal forming processes in manufacturing the various parts of the machine. Moreover, complex assembly operations are an inherent part of the production process.

3331 Agriculture, Construction, and Mining Machinery Manufacturing

3333 Commercial and Service Industry Machinery Manufacturing

3334 Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing

13.3.2 Cluster Industries

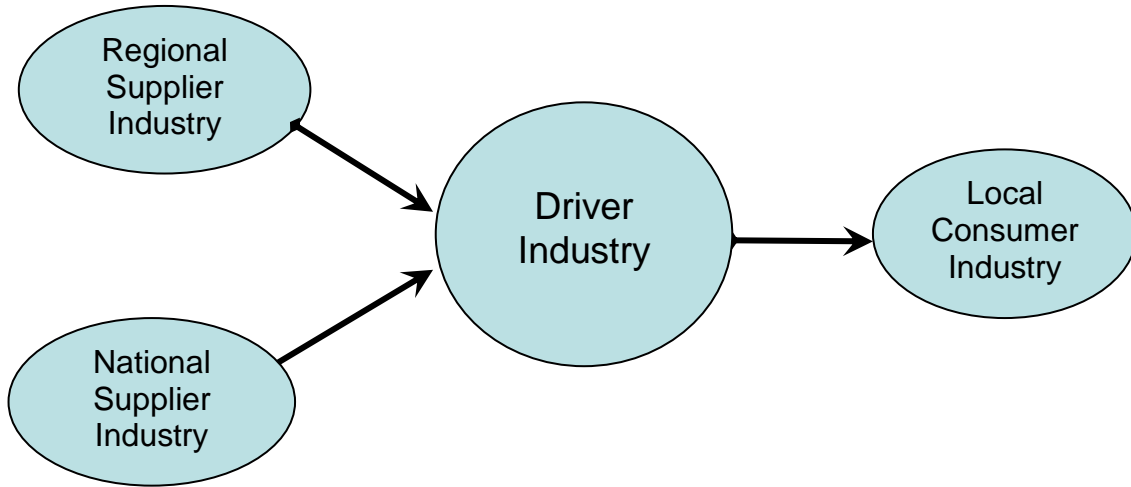
Industries contained within an industry cluster are related to driver industries in three ways, two supplier relationships and one consumer relationship.

Supplier relationships are defined by the backward linkages that a driver industry has with either (1) other regional industries (Regional Suppliers) or (2) industries not located within the region (National Supplier). Both types of supplier relationships are based on linkages identified using information from input-output tables from the IMPLAN model. For supplier relationships with other regional industries, the IMPLAN model is “regionalized” to reflect the industries that exist within the region. For supplier relationships with industries not located within the region, the national IMPLAN model is used.

For both types of supplier relationships, only the most significant supplier industries are listed. The significance of the supplier industry is based on the relative amount of the driver industry’s total outlay that is used to purchase goods or services from the supplier industry. In the case where supplier industries appear in the lists for both types of supplier industries, the specific industry is removed from the list of national supplier industries.

The consumer industries are identified by reversing the relationship used to identify supplier industries. The consumer industries are those industries to which a driver industry sells a significant portion of its total output.

Figure 13-2 Industry Clusters



Cluster Industries

NB: An explanation of the NAICS codes with asterisks is included in the Methodology section of the Appendices.

3115 Dairy Product Manufacturing

<u>Supplier Industries - Typical Regional Industry</u>		<u>Supplier Industries - Typical National Industry</u>	
FR	Farms	3332	Industrial Machinery Manufacturing
42*	Wholesale Trade	3222	Converted Paper Product Manufacturing
3115	Dairy Product Manufacturing	3112	Grain and Oilseed Milling
3261	Plastics Product Manufacturing	5411	Legal Services
484*	Truck Transportation	3113	Sugar and Confectionery Product Manufacturing
3119	Other Food Manufacturing	481*	Air Transportation
4931	Warehousing and Storage	3252	Resin, Synthetic Rubber, and Artificial Synthetic Fibers and Filaments Manufacturing
3324	Boiler, Tank, and Shipping Container Manufacturing	5419	Other Professional, Scientific, and Technical Services
3219	Other Wood Product Manufacturing	5324	Commercial and Industrial Machinery and Equipment Rental and Leasing
		8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance

Consumer Industries - Typical Regional Industry

722*	Food services and drinking places
3115	Dairy Product Manufacturing
622*	Hospitals
6244	Child Day Care Services

3116 Animal Slaughtering and Processing

Supplier Industries - Typical Regional Industry

FR	Farms
3116	Animal Slaughtering and Processing
42*	Wholesale Trade
484*	Truck Transportation
3261	Plastics Product Manufacturing
3119	Other Food Manufacturing
4931	Warehousing and Storage

Supplier Industries - Typical National Industry

FH	Fishing, Hunting, Etc.
3222	Converted Paper Product Manufacturing
517*	Telecommunications
3259	Other Chemical Product and Preparation Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
5419	Other Professional, Scientific, and Technical Services
3112	Grain and Oilseed Milling
562*	Waste management and remediation services

Consumer Industries - Typical Regional Industry

722*	Food services and drinking places
3116	Animal Slaughtering and Processing
622*	Hospitals
623*	Nursing and residential care facilities
624*	Social assistance, except child day care services
3115	Dairy Product Manufacturing

3272 Glass and Glass Product Manufacturing

Supplier Industries - Typical Regional Industry

3272	Glass and Glass Product Manufacturing
42*	Wholesale Trade
484*	Truck Transportation
3261	Plastics Product Manufacturing
3219	Other Wood Product Manufacturing
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing

Supplier Industries - Typical National Industry

3222	Converted Paper Product Manufacturing
3271	Clay Product and Refractory Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
2123	Nonmetallic Mineral Mining and Quarrying
3251	Basic Chemical Manufacturing
3335	Metalworking Machinery Manufacturing

Supplier Industries - Typical Regional Industry**Supplier Industries - Typical National Industry**

3219	Other Wood Product Manufacturing
3255	Paint, Coating, and Adhesive Manufacturing
3279	Other Nonmetallic Mineral Product Manufacturing
2380	Specialty Trade Contractors

Consumer Industries - Typical Regional Industry

3272	Glass and Glass Product Manufacturing
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing
622*	Hospitals
722*	Food services and drinking places
3261	Plastics Product Manufacturing
8111	Automotive Repair and Maintenance
621b*	Other ambulatory health care services
3366	Ship and Boat Building
2360	Construction of Buildings
621a*	Offices of physicians, dentists, and other health practitioners

3323 Architectural and Structural Metals Manufacturing**Supplier Industries - Typical Regional Industry****Supplier Industries - Typical National Industry**

42*	Wholesale Trade	3311	Iron and Steel Mills and Ferroalloy Manufacturing
484*	Truck Transportation	3323	Architectural and Structural Metals Manufacturing
		3325	Hardware Manufacturing
		3313	Alumina and Aluminum Production and Processing
		3329	Other Fabricated Metal Product Manufacturing
		3321	Forging and Stamping
		3312	Steel Product Manufacturing from Purchased Steel
		3327	Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing
		3272	Glass and Glass Product Manufacturing
		3255	Paint, Coating, and Adhesive Manufacturing

Consumer Industries - Typical Regional Industry

3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
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Consumer Industries - Typical Regional Industry

2360	Construction of Buildings
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3339	Other General Purpose Machinery Manufacturing
2370	Heavy and Civil Engineering Construction
3363	Motor Vehicle Parts Manufacturing
5511	Management of Companies and Enterprises
3315	Foundries
2380	Specialty Trade Contractors
3121	Beverage Manufacturing

3331 Agriculture, Construction and Mining Machinery Manufacturing

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
484*	Truck Transportation
3261	Plastics Product Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing
3363	Motor Vehicle Parts Manufacturing

Supplier Industries - Typical National Industry

517*	Telecommunications
3363	Motor Vehicle Parts Manufacturing
3311	Iron and Steel Mills and Ferroalloy Manufacturing
3262	Rubber Product Manufacturing
3336	Engine, Turbine, and Power Transmission Equipment Manufacturing
3315	Foundries
3323	Architectural and Structural Metals Manufacturing
51Info*	Information services
3241	Petroleum and Coal Products Manufacturing
3331	Agriculture, Construction, and Mining Machinery Manufacturing

Consumer Industries - Typical Regional Industry

FR	Farms
3331	Agriculture, Construction, and Mining Machinery Manufacturing
4821	Rail Transportation
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
8111	Automotive Repair and Maintenance

Consumer Industries - Typical Regional Industry

8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
2360	Construction of Buildings
8114	Personal and Household Goods Repair and Maintenance
3366	Ship and Boat Building

3333 Commercial and Service Industry Machinery Manufacturing

<u>Supplier Industries - Typical Regional Industry</u>	<u>Supplier Industries - Typical National Industry</u>
42* Wholesale Trade	3311 Iron and Steel Mills and Ferroalloy Manufacturing
5415 Computer Systems Design and Related Services	3344 Semiconductor and Other Electronic Component Manufacturing
3328 Coating, Engraving, Heat Treating, and Allied Activities	3359 Other Electrical Equipment and Component Manufacturing
3272 Glass and Glass Product Manufacturing	3255 Paint, Coating, and Adhesive Manufacturing
3261 Plastics Product Manufacturing	3334 Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
3333 Commercial and Service Industry Machinery Manufacturing	3222 Converted Paper Product Manufacturing
3353 Electrical Equipment Manufacturing	3329 Other Fabricated Metal Product Manufacturing
484* Truck Transportation	5411 Legal Services
3327 Machine Shops, Turned Product, and Screw, Nut, & Bolt Manufacturing	3321 Forging and Stamping
	3323 Architectural and Structural Metals Manufacturing

Consumer Industries - Typical Regional Industry

8112	Electronic and Precision Equipment Repair and Maintenance
2370	Heavy and Civil Engineering Construction
2360	Construction of Buildings
5614	Business Support Services
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
42*	Wholesale Trade
521*	Monetary authorities and depository credit intermediation

Consumer Industries - Typical Regional Industry

3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
3231	Printing and Related Support Activities
8129	Other Personal Services

3334 Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing

Supplier Industries - Typical Regional Industry

42*	Wholesale Trade
3353	Electrical Equipment Manufacturing
484*	Truck Transportation
3261	Plastics Product Manufacturing

Supplier Industries - Typical National Industry

3311	Iron and Steel Mills and Ferroalloy Manufacturing
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing
3345	Navigational, Measuring, Electromedical, and Control Instruments Manufacturing
3132	Fabric Mills
3255	Paint, Coating, and Adhesive Manufacturing
3222	Converted Paper Product Manufacturing
3323	Architectural and Structural Metals Manufacturing
3315	Foundries
3314	Nonferrous Metal (except Aluminum) Production and Processing
3329	Other Fabricated Metal Product Manufacturing

Consumer Industries - Typical Regional Industry

8114	Personal and Household Goods Repair and Maintenance
3371	Household and Institutional Furniture and Kitchen Cabinet Manufacturing
8112	Electronic and Precision Equipment Repair and Maintenance
2370	Heavy and Civil Engineering Construction
2360	Construction of Buildings
3331	Agriculture, Construction, and Mining Machinery Manufacturing
8113	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance
3399	Other Miscellaneous Manufacturing
3323	Architectural and Structural Metals Manufacturing

**Consumer Industries - Typical Regional
Industry**

3372 Office Furniture (including Fixtures)
Manufacturing

13.3.3 Top Firms by Driver Industry in the West Central II Region

3115 Dairy Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Great Lakes Cheese	350	1,305	Branch	Private	100MM-499.9MM	1995
Century Foods International	350	13,754	Branch	Public	100MM-499.9MM	2003
Organic Valley	300	-	Single	Private	100MM-499.9MM	1988
Whitehall Specialties Inc	180	246	Parent	Private		1994
AMPI	100	1,796	Branch	Private	50MM-99.9MM	1975
Main Street Ingredients LLC	100	-	Single	Private	50MM-99.9MM	1989
Whitehall Specialties Inc	66	246	Branch	Private	25MM-49.9MM	
Foremost Farms USA Cooperative	60	1,467	Branch	Private	25MM-49.9MM	1965
Foremost Farms USA Cooperative	40	1,467	Branch	Private	10MM-24.9MM	1963
Westby Co-Operative Creamery	35	-	Single	Private	10MM-24.9MM	1903
Swiss Valley Farms Co	28	668	Branch	Private	10MM-24.9MM	1958
K & K Cheese LLC	20	-	Single	Private	10MM-24.9MM	2001

3116 Animal Slaughtering and Processing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Gold 'n Plump Poultry	500	-	Single	Private	50MM-99.9MM	1983
Valley Pride Pack Inc	100	-	Single	Private	25MM-49.9MM	1979
Bakalars Sausage Co Inc	50	-	Single	Private	10MM-24.9MM	1935

3272 Glass and Glass Product Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Cardinal IG	350	4,124	Branch	Private	50MM-99.9MM	1988
Cardinal TG	140	4,124	Branch	Private	10MM-24.9MM	1990

3323 Architectural and Structural Metals Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Global Finishing Solutions	200	-	Single	Private	10MM-24.9MM	1975
Mid-City Steel Fabricating Inc	50	-	Single	Private	5MM-9.9MM	1972
River Steel Inc	30	-	Single	Private	5MM-9.9MM	1954
Ted Mannstedt & Son Inc	25	-	Single	Private	1MM-4.9MM	1947
Trempla Mfg Inc	22	38	Branch	Private	1MM-4.9MM	1960

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
HBBK TSS Fabricating Inc	20	-	Single	Private	1MM-4.9MM	1992

3331 Agriculture, Construction, and Mining Machinery Manufacturing

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Toro Co	600	4,556	Branch	Public	100MM-499.9MM	1975
Westfalia Surge Inc	160	2,495	Branch	Private	25MM-49.9MM	1948
Universal Truck Equipment Inc	22	-	Single	Private	5MM-9.9MM	1968

3333 Commercial and Service Industry Machinery Manufacturing

*No firms were identified in database. (This study used the Harris Infosource database. Harris is a fully owned subsidiary of Dun & Bradstreet. Companies providing data to D&B for the Harris database do so voluntarily. Therefore, the information is incomplete for this item because eligible firms chose not to participate.)

3334 Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equip. Mfg

Company	Employment		Location Type	Ownership	Sales Range	Year Estab.
	Site	All Sites				
Trane Co	2,300	18,780	Division HQ	Private		1913
MULTISTACK Inc	50	165	Branch	Private	5MM-9.9MM	1989
Titan Air Inc	48	-	Single	Private	5MM-9.9MM	1982

13.3.4 Detailed Employment, Gross Product, & Gross Product per Employee, West Central II Region

Table 13-3 Employment in the West Central II Region's Driver Industries, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2005
3115	Dairy Product Manufacturing	1,349	927	836	774	762	717	725	670
3116	Animal Slaughtering and Processing	320	857	1,045	1,052	930	934	902	952
3272	Glass and Glass Product Mfg.	420	688	955	1,052	1,158	1,219	1,313	1,641
3323	Architectural and Structural Metals Manufacturing	190	329	318	298	297	324	353	379
3331	Agriculture, Construction, and Mining Machinery Manufacturing	540	897	885	864	851	737	735	816
3333	Commercial and Service Industry Machinery Manufacturing	700	887	885	824	703	688	735	767
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	1,639	1,914	1,890	1,777	1,524	1,464	1,519	1,534

Table 13-4 CAGR* for Employment in the West Central II Region's Driver Industries, 1993-2008

NAICS	Title	1993-1998	1998-2003	2003-2008
3115	Dairy Product Manufacturing	-6.1%	-4.2%	-1.1%
3116	Animal Slaughtering and Processing	17.9%	1.4%	0.3%
3272	Glass and Glass Product Mfg.	8.6%	10.0%	5.1%
3323	Architectural and Structural Metals Manufacturing	9.6%	-0.2%	2.6%
3331	Agriculture, Construction, and Mining Machinery Mfg.	8.8%	-3.2%	1.7%
3333	Commercial and Service Industry Machinery Mfg.	4.0%	-4.2%	1.8%
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	2.6%	-4.4%	0.8%

***Compound Annual Growth Rate—CAGR.** An average annual growth rate over a specified period of time. It is calculated as: $CAGR = (\text{present value} / \text{base value})^{(1/n \text{ number of years})} - 1$

Table 13-5 Labor Location Quotients*—West Central II Region's Driver Industries, 1993-2003

NAICS	Title	1993	1998	2001	2002	2003
3115	Dairy Product Manufacturing	10.96	8.10	6.74	6.64	6.25
3116	Animal Slaughtering and Processing	0.83	1.97	2.42	2.14	2.15
3272	Glass and Glass Product Manufacturing	3.35	5.53	9.17	11.12	12.47
3323	Architectural and Structural Metals Manufacturing	0.67	0.95	0.84	0.89	1.02
3331	Agriculture, Construction, and Mining Machinery Mfg.	3.01	4.26	4.74	5.08	4.63
3333	Commercial and Service Industry Machinery Manufacturing	5.88	6.78	6.86	6.45	6.86
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	11.63	11.81	11.49	10.85	11.00

* The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region.

Table 13-6 Gross Product in the West Central II Region's Driver Industries, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
3115	Dairy Product Manufacturing	\$ 97,966,113	\$ 63,451,117	\$ 65,974,463	\$ 68,994,197	\$ 66,314,595	\$ 63,000,668	\$ 64,829,156	\$ 68,464,327
3116	Animal Slaughtering and Processing	\$ 14,763,782	\$ 55,736,241	\$ 63,386,646	\$ 80,887,340	\$ 74,260,766	\$ 78,395,568	\$ 80,067,003	\$ 94,976,709
3272	Glass and Glass Product Mfg.	\$ 27,139,596	\$ 33,387,989	\$ 51,597,702	\$ 50,695,519	\$ 57,430,056	\$ 65,276,436	\$ 73,320,315	\$111,352,004
3323	Architectural and Structural Metals Manufacturing	\$ 18,420,047	\$ 42,028,650	\$ 46,749,263	\$ 46,674,599	\$ 47,108,019	\$ 55,308,367	\$ 60,772,736	\$ 75,939,779
3331	Agriculture, Construction, and Mining Machinery Manufacturing	\$ 16,676,137	\$ 37,210,586	\$ 41,137,368	\$ 45,407,461	\$ 44,482,588	\$ 41,416,915	\$ 41,646,612	\$ 53,950,098
3333	Commercial and Service Industry Machinery Manufacturing	\$ 35,769,967	\$ 48,708,239	\$ 48,732,264	\$ 54,496,935	\$ 44,841,963	\$ 46,689,282	\$ 49,643,854	\$ 59,626,867
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	\$ 74,492,691	\$ 101,567,578	\$ 97,672,744	\$ 109,532,653	\$ 93,407,446	\$ 93,409,457	\$ 98,499,543	\$115,146,914

Table 13-7 CAGR* for Gross Product in the West Central II Region's Driver Industries, 1993-2009

NAICS	Title	1993-1998	1998-2003	2003-2008
3115	Dairy Product Manufacturing	-7.0%	-0.1%	1.4%
3116	Animal Slaughtering and Processing	24.8%	5.9%	3.2%
3272	Glass and Glass Product Mfg.	3.5%	11.8%	9.3%
3323	Architectural and Structural Metals Mfg.	14.7%	4.7%	5.4%
3331	Agriculture, Construction, and Mining Machinery Manufacturing	14.3%	1.8%	4.5%
3333	Commercial and Service Industry Machinery Mfg.	5.3%	-0.7%	4.2%
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Mfg.	5.3%	-1.4%	3.5%

***Compound Annual Growth Rate—CAGR.** An average annual growth rate over a specified period of time. It is calculated as: $CAGR = (\text{present value} / \text{base value})^{(1 / \text{number of years})} - 1$

Table 13-8 Output Location Quotients*—West Central II Region's Driver Industries, 1993-2003

NAICS	Title	1993	1998	2001	2002	2003
3115	Dairy Product Manufacturing	12.72	7.99	9.11	8.87	8.55
3116	Animal Slaughtering and Processing	0.90	2.83	4.26	3.84	4.12
3272	Glass and Glass Product Manufacturing	4.90	4.58	8.56	10.55	12.36
3323	Architectural and Structural Metals Manufacturing	1.49	2.69	3.15	3.44	4.24
3331	Agriculture, Construction, and Mining Machinery Mfg.	2.14	3.63	4.88	5.28	5.15
3333	Commercial and Service Industry Machinery Manufacturing	6.73	8.93	10.22	9.50	10.42
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Manufacturing	14.35	14.65	16.70	15.56	16.18

* The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region.

Table 13-9 Manufacturing Productivity (Gross Product per Employee) of Driver Industries, West Central II Region, 1993-2008

NAICS	Title	1993	1998	2000	2001	2002	2003	2004	2008
2123	Nonmetallic Mineral Mining and Quarrying	\$ 93,405	\$ 87,006	\$139,147	\$137,715	\$161,467	\$164,192	\$166,832	\$208,753
3115	Dairy Product Manufacturing	\$ 72,603	\$ 68,446	\$ 78,950	\$ 89,112	\$ 87,029	\$ 87,823	\$ 89,394	\$102,193
3116	Animal Slaughtering and Processing	\$ 46,160	\$ 65,018	\$ 60,683	\$ 76,877	\$ 79,832	\$ 83,976	\$ 88,805	\$ 99,815
3272	Glass and Glass Product Mfg.	\$ 64,650	\$ 48,544	\$ 54,028	\$ 48,182	\$ 49,602	\$ 53,570	\$ 55,833	\$ 67,861
3323	Architectural and Structural Metals Manufacturing	\$ 96,996	\$127,769	\$146,853	\$156,740	\$158,679	\$170,555	\$172,257	\$200,545
3331	Agriculture, Construction, and Mining Machinery Manufacturing	\$ 30,897	\$ 41,478	\$ 46,463	\$ 52,581	\$ 52,268	\$ 56,196	\$ 56,662	\$ 66,148
3333	Commercial and Service Industry Machinery Manufacturing	\$ 51,125	\$ 54,904	\$ 55,041	\$ 66,148	\$ 63,822	\$ 67,875	\$ 67,542	\$ 77,736
3334	Ventilation, Heating, Air-Conditioning, and Commercial Refrigeration Equipment Mfg.	\$ 45,445	\$ 53,070	\$ 51,675	\$ 61,647	\$ 61,292	\$ 63,796	\$ 64,844	\$ 75,059

13.4 Wisconsin Executive Perspectives in the West Central II Region West Central II Region Responses to the WMEP Study Questionnaire’s “Open Ended” Questions

(NB: Incomplete answers are due to the space limits of the online questionnaire. In some cases, a partial word or intended meaning has been inferred and, therefore, completed. In such cases, the extrapolation appears in brackets. Where an inference could not be made, ellipses indicate the omission. Where provided by the respondent, job title and industry sector are included.)

As you consider your industry and business for the next 5 to 10 years, what are the most prominent workforce-related concerns?

Attracting and retaining qualified employees.

--President, Fabricated Metal Products

For the industry it would be Detroit and the continued loss of market share of the big 3 auto mfg. to the foreign companies, which in turn increases the pressure down to their suppliers, which squeeze.

--Job Shop, Die Sets

Having a qualified workforce. Welding capabilities.

--Dairy Farm Equipment

Health care costs – State of Wisconsin regulations (W.C., Unemployment tax, etc), competitive market (\$’s per hour wages).

--Director of Operations, Turf Maintenance Equipment

Qualified people with good work ethics.

--Fabricated Metals

The ability to attract and retain qualified production employees.

--President, Beverages

As you consider your industry and business for the next 5 to 10 years, what are the most prominent advantages that the Wisconsin workforce can offer?

A higher level of education and a stronger work ethic.

--President, Beverages

Good work ethics.

--Dairy Farm Equipment

I don’t believe there are any prominent advantages

--Fabricated Metals

I'm familiar with the Chippewa Valley and the Tech. schools education in mfg. There still may be some work ethic left here, but that to[o] is deteriorating.

--Job Shop, Die Sets

Work ethic and dependability.

--President, Fabricated Metal Products

Work ethic, education, understanding of what Western Wisconsin has to offer...family life, etc.

--Director of Operations, Turf Maintenance Equipment

What changes, if any, would you like to see in the Wisconsin higher education system to better meet the long-term needs of your industry and firm in the state?

Geometric dimension and tolerancing skills - blue print reading skills.

--Dairy Farm Equipment

More emphasis on training in multi-task production skills at the time of graduation and follow-up continuing education to enhance skills with technology changes.

--President, Beverages

Teach a class in "listening" and then comprehension.

--Fabricated Metals

That manufacturing is the back-bone of our economy...welding, fabricating, painting, assembly are good paying jobs.

--Director of Operations, Turf Maintenance Equipment

We believe it is more important to strengthen technical education programs at the high school level than within the higher education system. . . .

--President, Fabricated Metal Products

Describe any innovative workforce attraction or development programs that you would like to see expanded in Wisconsin.

A continuing education program that allows workers to learn and to teach skills needed in a production setting.

--President, Beverages

Improve the working relationship between employers and the tech ed programs in their area high schools.

--President, Fabricated Metal Products

What are the business challenges that your organization faces – what most keeps you up at night?

Financing for growth.

--Fabricated Metals

Foreign sourcing by major oem's.

--President, Fabricated Metal Products

Not much.

--Job Shop, Die Sets

Sales retention and growth along with the condition of our production facility.

--President, Beverages

Staying competitive with cost...work place safety.

--Director of Operations, Turf Maintenance Equipment

What are the business strengths and/or advantages your organization has by being located in Wisconsin?

Access to excellent workers. Great clean environment. Lack of big city influence.

--Director of Operations, Turf Maintenance Equipment

Can't think of any.

--Job Shop, Die Sets

Central location provides certain geographic shipping advantages.

--President, Beverages

Close to our end users – cost of living.

--Dairy Farm Equipment

None other than less expensive Workmen's Comp rates.

--Fabricated Metals

The work ethic of the people of Wisconsin.

--President, Fabricated Metal Products

14 Appendices

14.1 Reference Tables and Background Material

Table 14-1 Projected Job Openings in Wisconsin by Education and Training Level, 2003-2005

Job Category	Total Job Openings Due to New Jobs and Replacements	Percent Job Openings
Short-term on-the-job training	92,150	45%
Moderate-term on-the-job training	36,550	18%
Bachelor's degree	24,840	12%
Long-term on-the-job training	14,990	7%
Beyond a bachelor's degree	13,150	6%
Work experience in a related occupation	10,780	5%
Postsecondary vocational training	7,920	4%
Associate degree	5,210	3%

Source: E. Camfield, Wisconsin Projections: 2003-2005 Highlights, Wisconsin Department of Workforce Development, Office of Economic Advisors, Department of Workforce Development, September 9, 2004, p. 2. See http://dwd.wisconsin.gov/oea/short_term_projections/ST_Brief0305.pdf

Data Source: Office of Economic Advisors analysis of 2003 CES (3/03) Benchmark, 2003 QCEW, and 2003-2005 Wisconsin Projection Data. Wisconsin Department of Workforce Development.

Table 14-2 2004 Workers Compensation Insurance Rates Comparisons (Rates represent actual cost per \$100 of payroll)

Code / Description	WI	MI	MN	IL
2111 Canneries	\$3.30	\$5.34	\$6.53	\$6.96
2710 Sawmills	15.03	*	27.53	21.68
2802 Carpentry Shop	6.15	13.29	6.46	11.10
2883 Furniture Mfg. -Wood	5.28	*	7.49	9.00
3066 Sheet Metal Work Shop	6.47	11.22	9.26	9.49
3076 Fireproof Equipment Mfg.	3.84	5.88	6.41	7.90
3081 Foundry-Iron	6.13	8.10	10.32	14.62
3082 Foundry-Steel Castings	7.33	9.92	17.18	14.80
3085 Foundry-Non-Ferrous Metals	6.24	8.61	10.42	10.29
3179 Electrical Apparatus Mfg.	4.62	4.27	3.70	5.95
3400 Metal Goods Mfg.	7.83	8.11	7.15	9.53
3507 Agricultural Machinery Mfg.	5.33	6.23	6.79	12.30
3612 Pump & Engine Mfg.	3.94	5.49	4.75	8.80
3632 Machine Shops	3.66	6.21	6.14	8.01
3643 Electric Power-Trans. Equip.	3.53	5.05	3.70	8.66
3685 Instrument Mfg.	1.72	2.34	2.38	3.99
3808 Auto Mfg. or Assembly	7.17	6.94	6.67	8.05
4239 Paper Mfg.	2.89	6.27	5.09	10.24
4244 Corrugated Container Mfg.	3.37	7.54	7.22	7.11
4299 Printing	2.94	3.92	5.52	6.38
4484 Plastics Mfg.- Molded Products	3.75	6.11	6.67	6.57
4693 Surgical & Pharmaceutical Mfg.	1.21	3.35	3.50	3.37
AVERAGE	\$5.08	\$6.71	\$7.77	\$9.31

Notes: The rates listed for Michigan, Minnesota and Illinois are assigned risk rates only. Individual insurance companies and specific corporations assign their own rate. In Wisconsin the rates are uniform. Wisconsin rates are effective October 1, 2004. Michigan rates are effective January 1, 2004. Illinois rates are effective January 1, 2004. Minnesota rates are effective April 1, 2004.

This chart is produced by the Wisconsin Department of Workforce Development, Worker's Compensation Division-Bureau of Insurance Programs in cooperation with the Wisconsin Compensation Rating Bureau.

Source: Wisconsin Department of Workforce Development, 2004 Insurance Rate Comparisons, pp. 1-2. See www.dwd.state.wi.us/wc/insurance/2004_comp_rates.htm

Jobs and Exports: A U.S. Department of Commerce, Office of Trade and Economic Analysis, reported the following data and observations about the relationship between manufacturing exports and job growth in the U.S. The summary is quoted in its entirety (emphases are the report's authors):

U. S. Jobs Supported by Exports of Manufacturers

National Overview

- **There were an estimated 7.68 million U.S. jobs dependent on exports of manufactured goods in 1997, the latest year for which these numbers are available.** These jobs represented 7.2 percent of total U.S. private-sector employment, or about one out of every 14 jobs. Additional details on the industry and geographic distribution of these jobs are provided below.

- **An estimated 3.34 million jobs in U.S. manufacturing were supported by exports of manufactures.** This represented 19.8 percent of total manufacturing employment—or about one in every five workers.

< Jobs *directly* supported in manufacturing totaled 2.03 million – equal to 26 percent of all jobs supported by manufactured exports.

< Jobs *indirectly* sustained in manufacturing totaled another 1.3 million jobs (17 percent of total jobs generated by manufactured exports). These jobs were in manufacturing establishments supplying components or machinery that supported exports of manufactures.

< Many manufacturing jobs indirectly supported by manufactured exports were far removed from the production of final export goods. A good hypothetical example is workers that made components used in machinery that produced the steel contained in tractors exported from the United States.

- **Manufactured exports also indirectly sustained 4.33 million jobs in a wide range of nonmanufacturing industries that provided support for export-related activities.** These jobs comprised 56.4 percent – more than half – of all jobs supported by exports of manufactures.

- **Examples of non-manufacturing industries which benefitted from manufactured exports include Wholesale-Retail Trade (1.38 million jobs tied to manufactured exports), Transportation Services (653,000 jobs), and Business Services (571,000 jobs).** Other sectors – such as Agriculture, Utilities, and Mining – had a combined total of 1.72 million jobs dependent on exports of manufactures.

- **The preceding figures document the fact that manufacturing jobs directly sustained by manufactured exports are only a relatively small part of the export-related jobs picture.** Like an iceberg whose bulk is mostly below water, most jobs sustained by manufactured exports are shrouded from view.

- **Taking jobs indirectly supported in manufacturing *and* non-manufacturing, nearly 74 percent – almost three-fourths – of all jobs sustained by manufactured exports in 1997 were generated indirectly, often due to subtle ripple effects throughout the economy.**

Manufacturing Sector Details

- **In nine out of 21 major U.S. manufacturing sectors, more than 100,000 jobs were directly or indirectly tied to exports of manufactured goods in 1997.**

< Over one million export-supported jobs were found in just two sectors – the Computers & Electronics industry (603,000 jobs linked to manufactured exports) and Transportation Equipment (470,000 jobs).

< Other manufacturing sectors with large numbers of export-dependent workers included the Machinery industry (397,000 jobs tied to manufactured exports), Fabricated Metal Products (392,000 jobs), Chemical Products (221,000 jobs), and the Primary Metals industry (214,000 export-related jobs).

- **Fourteen manufacturing sectors – or two-thirds of all manufacturing industries – each depended on manufactured exports for at least ten percent of all jobs.**

< Two industries – Computers & Electronic Products, and Primary Metals – each relied on manufactured exports for some 35 percent of total employment, or more than one out of every three jobs.

< In four other major industries – Machinery, Transportation Equipment, Chemicals, and Electrical Equipment, Appliances & Parts – at least one-fourth of all jobs were sustained by exports of manufactures.

State Overview

- **Jobs sustained by the export of manufactured goods are distributed broadly throughout the country.**

- **In each of 27 states, more than 100,000 jobs were dependent on exports of manufactures in 1997.** Of these states, ten relied on manufactured exports for more than 200,000 jobs.

< California led all states, with 1.15 million jobs (15 percent of the U.S. total) directly or indirectly tied to manufactured exports. Texas ranked second with 612,000 export-related jobs.

< Other states with large numbers of jobs linked to manufactured exports included Ohio (452,000 jobs), Michigan (373,000 jobs), Illinois (360,000 jobs), New York (310,000 jobs), Pennsylvania (270,000 jobs), North Carolina (286,000 jobs), Washington (255,000 jobs), and Indiana (241,000 jobs).

• **In 38 states, manufactured exports were responsible for over five percent of total private sector employment.**

< Of these states, 16 relied on exports of manufactures for over eight percent of all private sector jobs.

< New Mexico was the most export-dependent state (17.3 percent of private-sector jobs), followed by Idaho (16.5 percent), Washington (11.7 percent), and New Hampshire (10.5 percent).

• **Within state manufacturing sectors, 11 states each depended on exports of manufactured goods for over 100,000 manufacturing jobs.**

< California again led all states with 499,000 – almost one-half million – manufacturing jobs tied to manufactured exports. Ohio was second with 224,000 export-related jobs in manufacturing.

< Other leading states were Texas (196,000 export-supported manufacturing jobs), Michigan (191,000), Illinois (165,000), New York (155,000), Pennsylvania (137,000), North Carolina (133,000), Washington (129,000), Indiana (124,000), and Massachusetts (104,000).

• **In each of 47 states, at least ten percent of total manufacturing employment – one out of every ten jobs – was directly or indirectly dependent on the production of manufactures for export.** In 15 of these states, over 20 percent – more than one in five – of all manufacturing jobs were sustained by manufactured exports.

< Roughly 40 percent of Washington state's manufacturing work force – two of every five jobs – was tied to the export of manufactured products. New Mexico ranked second, with 30.0 percent of all manufacturing jobs dependent on exports.

< Other states with substantially export-dependent manufacturing sectors included California (27.6 percent of all manufacturing jobs tied to exports), Idaho (26.4 percent), New Hampshire (25.7 percent), Connecticut (25.0 percent), Massachusetts (24.8 percent), Michigan (22.9 percent), Ohio (22.7 percent), Oregon (21.6 percent), Arizona (21.1 percent), Colorado (20.9 percent), Texas

(20.4 percent), Missouri (20.4 percent), and Kentucky (20.2 percent).

• **In 39 states and the District of Columbia, exports of manufactured goods in 1997 supported more jobs in non-manufacturing industries than in the manufacturing sector itself.** This is consistent with the previously cited fact that, nationally, 56.4 percent of all jobs supported by manufactured exports were in non-manufacturing industries, such as Transportation Services and Business Services.

< Manufacturing industries in New Mexico, Hawaii, and Wyoming accounted for 20 percent or less of all jobs supported in those states by the export of manufactured goods. In the District of Columbia, not one of the 1,100 jobs tied to manufactured exports was actually located in the manufacturing sector.

< In another 20 states – including the large industrial exporting states of New Jersey, Georgia, Florida and Texas – manufacturing industries accounted for less than 40 percent of jobs generated by U.S. exports of manufactures.

• **A total of 11 states each depended on manufactured exports for over 100,000 nonmanufacturing jobs in 1997.**

• **Manufactured exports generated over one million non-manufacturing jobs in California (649 thousand) and Texas (415 thousand).** Other states with large numbers of nonmanufacturing jobs dependent on manufactured exports included Ohio (228,000 jobs in nonmanufacturing sectors), Illinois (196,000), Michigan (182,000), New York (154,000), and North Carolina (153,000).¹⁴⁰

¹⁴⁰ U.S. Department of Commerce, U.S Jobs from Exports: A 1997 Benchmark Study of Employment Generated by Exports of Manufactured Goods, Office of Trade & Economic Analysis, International Trade Administration, February 2001, pp. 1-4. See www.ita.doc.gov/td/industry/otea/job_report/Jobs_Report_Hardcopy.pdf

14.2 Methodology

14.2.1 Detailed Methodology

The methodology used to identify driver industries and their related industry clusters includes several components and brings together several different methodological approaches in order to develop an understanding of past and present performance of all regional industries.

The approach used to identify driver industries (drivers) and their competitive industry clusters (clusters) combines proven methods of traditional regional economics with cutting edge methods for understanding modern regional economies. The method of analysis includes both quantitative and qualitative components and has been used in numerous studies throughout the country.¹⁴¹

14.2.2 Defining Drivers and Clusters

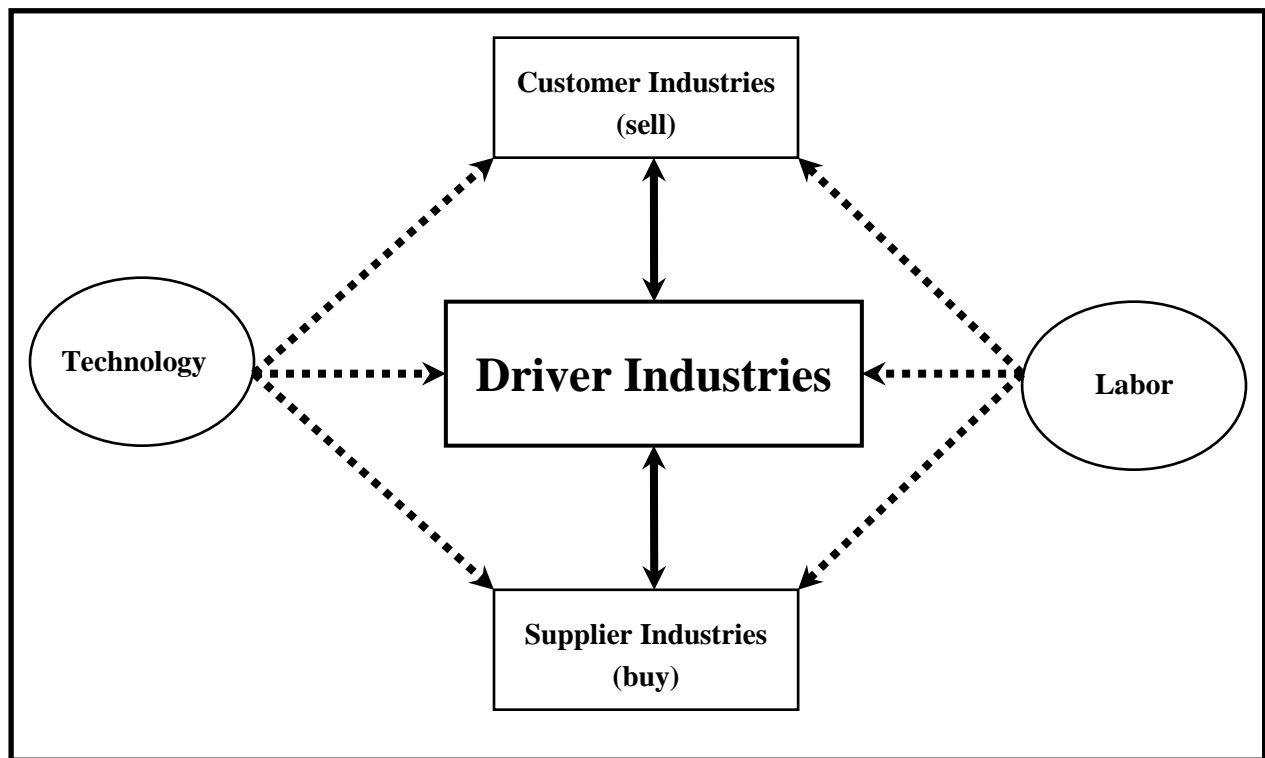
The methodology used includes two distinct phases. The first phase identifies a region's driver industries and the second phase identifies the competitive industry clusters related to each driver industry. For the purposes of this analysis, the following definitions and/or concepts are used:

1. Drivers: Drivers or Driver Industries are those “industries in which the region has its greatest competitive advantage,” (Hill & Brennan, 2000). These industries form the heart of the Industrial Cluster.
2. Clusters: Clusters or Competitive Industry Clusters are a “geographic concentration of competitive firms or establishments in the same industry that have close buy-sell relationships with other industries in the region, use common technologies, or share a specialized labor pool that provides firms with a competitive advantage over the same industry in other places.” (Hill & Brennan, 2000).

These concepts are depicted graphically in Figure 14-1.

¹⁴¹ For a detailed discussion of the methodology see “Hill, E., & Brennan, J. (2000). A Methodology for Identifying the Drivers of Industrial Clusters: The Foundation of Regional Competitive Advantage. *Economic Development Quarterly*, 14, 65-96.”

Figure 14-1 Structure of a Cluster (from Hill & Brennan, 2000)



14.2.3 Variable Definitions

The analysis used for identifying driver industries is based on the characteristics of each of the region's 4-digit NAICS industries with at least 100 employees in 2002. For each 4-digit industry, a diverse set of 12 variables is used to characterize the individual industry. Each of the variables is an indicator of the past or present economic performance of the industry.

The 12 variables are divided into 2 groups and include:

A. Measures of Competitiveness

- Productivity
 1. Total Worker Productivity (Output per Worker, 2002)
 2. Change in Worker Productivity (Output per Worker, 1993-2002)
- Share of National Industry Output
 3. Current Regional Share of National Industry Output (2002)
 4. Change in the Industry's Share of National Output (1993-2002)
- Relative Average Earnings
 5. Industry's Current Relative Earnings (2002)
(i.e., regional industry relative to national industry)
 6. Change in Industry's Relative Earnings (1993-2002)
 7. Industry's Current Regional Relative Earnings (2002)

(i.e., regional industry relative to all regional industries)

B. Measures of Export Orientation and Regional Centrality

- Output Specialization
 8. Current Output Location Quotient (2002)¹⁴²
 9. Change in Output Location Quotient (1993-2002)
- Employment Specialization
 10. Current Employment Location Quotient (2002)
- Centrality
 11. Industry's Current Share of Total Regional Output (2002)
 12. Change in Industry's Share of Total Regional Output (1993-2002)

14.2.4 Identifying Driver Industries

Regional driver industries are identified using two separate quantitative analyses, a mathematical clusters analysis and a discriminant analysis. The mathematical clusters analysis groups various industries together; however, it does not provide insight into why the industries are grouped together. This insight is provided by discriminant analysis which provides statistical measures that can be interpreted for the grouping of industries based on economic factors identified by the analysis.

14.2.5 Mathematical Cluster Analysis

A mathematical or hierarchical cluster analysis groups similar industries together based on the twelve variables previously described. This analysis is used to identify “candidate solutions” of the total number of industry groups in the regional economy. The number of industry groups in the candidate solution is then used in the discriminant analysis.

Since this analysis is mathematical and not statistical, the grouping of industries is made based on the relative value of each variable for each industry and/or group of industries and not on the distribution or variances of the variables across industries.

Initially, the total number of groups is equal to the number of 4-digit NAICS industries with more than 100 employees in 2002. At each stage of the analysis, two groups are combined to form a new group. The algorithm used to combine each group selects the two groups to be combined based on the relative homogeneity of the two groups. During the first stage of the analysis, the two industries with the most similar characteristics, as defined by the twelve variables, are grouped together. The analysis continues to combine industries or groups of industries until all industries are contained in a single group.

¹⁴² The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. The formula for Current Output Location Quotient is:

$$\begin{aligned} LQ_{ir}^t &= \frac{\text{regional output in industry } i \text{ for year } t / \text{total regional output for year } t}{\text{national output in industry } i \text{ for year } t / \text{total national output for year } t} \\ &= \frac{Y_{ir}^t / Y_r^t}{Y_{iN}^t / Y_N^t} \end{aligned}$$

A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region. The concentration of an industry in a region suggests that the industry is an exporter while the lack of concentration of an industry suggests that the existing industry produces primarily for local consumption and/or that the region must import products produced by the industry.

At each stage of the analysis, a “distance coefficient” is calculated. The distance coefficient measures the differences between the two industry groups that are combined at each stage.¹⁴³ The distance coefficients for all stages of the analysis are contained in an agglomeration schedule which also identifies which industries or groups of industries are combined at each stage. Since the distance coefficient is a measure of differences or dissimilarity between industries or groups of industries, it is used to identify the stages at which two heterogeneous groups of industries are combined.

Ultimately, the objective of the mathematical clusters analysis is to identify candidate solutions that can then be used in the discriminant analysis. A candidate solution is characterized as being a case in which all industries are combined into 20 or fewer groups that are relatively homogeneous.

The candidate solutions are determined by identifying significant changes in the distance coefficient. To make this determination, two additional variables are calculated for each stage of the analysis, the slope and acceleration of the distance coefficient. These two variables are evaluated to determine the stages at which heterogeneous groups of industries are combined. Using percentiles to determine threshold values for both the slope and acceleration variables, significant changes in the distance coefficient are identified. The candidate solution is the stage prior to the stage at which heterogeneous groups are combined.

From this analysis, three candidate solutions are selected and used in the discriminant analysis. Each of these candidate solutions has fewer than 20 groups of industries and at least two have more than five groups of industries.

14.2.6 Discriminant Analysis

Unlike the mathematical clusters analysis, the discriminant analysis provides statistical measures that can be interpreted further. The results generated from the analysis allow each of the industry groups to be described statistically and the groups of industries to be interpreted in economic terms.

The discriminant analysis is used to predict which industry group each of the 4-digit NAICS industries belongs to based on the characteristics of the twelve variables used in the analysis. The total number of groups used in the analysis is determined by the three candidate solutions described previously. The basis for assigning industries to any particular group is through the use of discriminant functions that are calculated from statistical relationships in the entire dataset (all industries and all variables). The functions are generated in order to ensure the greatest discrimination between each group of industries or, in other words, to ensure heterogeneity across groups and homogeneity within groups.

The first step in interpreting the results of the discriminant analysis is to compare the groupings of industries obtained from the mathematical cluster analysis with that obtained from the

¹⁴³ The distance coefficient measures the difference in the values of the twelve variables for each of the two industries or groups of industries combined at each stage. The distance measure used is the squared Euclidean distance or sum of the squared difference between the values for each group.

discriminant analysis. The two analyses should result in the vast majority of industries being included in the same group as the other analysis determined.

The second step in interpreting the results from the discriminant analysis is to describe, in economic terms, the characteristics of each discriminant function. For each discriminant analysis, numerous discriminant functions are generated. Each of these functions “explains” why industries are grouped together by identifying the function’s correlation with each of the twelve variables used in the analysis.

The following are examples of possible discriminant function characteristics:

- Function 1 is correlated with:
 1. Large share of national industry output
 2. Increasing share of national industry output
 3. Large output location quotient
 4. Increasing output location quotient
 5. Large labor location quotient

- Function 2 is correlated with:
 1. Increasing Productivity
 2. High Productivity

- Function 3 is correlated with:
 1. Decreasing real Earnings
 2. High Real Earnings

In this case, the set of correlations identified in Function 1 suggest that the function identifies (or groups together) industries that are important to the region’s economic base (e.g., driver industries). The set of correlations identified by Function 2 may also be important for identifying economic base (driver) industries but, by themselves, measures of high and increasing productivity do not necessarily mean that the industries grouped together by this function are actually driver industries (e.g., small industries can be very productive but may not be large enough to impact (or drive) the region’s economy. The correlations listed under Function 3 provide mixed interpretations and could not be used, by themselves, for interpreting groups of industries.

The final step in interpreting the results from the discriminant analysis is to identify the relationships between each discriminant function and each group of industries. Since Function 1 was interpreted as grouping together driver industries, each group of industries that has a positive and significant relationship (based on a z-score) with Function 1 potentially contains driver industries. If an industry group has a negative and significant relationship with Function 1, then the industries in that group would not be driver industries.

For each of the industry groups, the relationships with each of the discriminant functions must be evaluated in order to fully understand why the industries were grouped together. For example, if an industry group has a positive and significant relationship to Function 1, but also has a positive and significant relationship with a function that is interpreted as grouping together industries that

are retiring or declining, then the industries in that group are most likely driver industries that are declining or retiring.

14.2.7 Filtering and Refining Driver Industries

The driver industries identified by the discriminant analysis are filtered and refined through a continual process. First, preliminary driver industries were filtered based on input from the Wisconsin Manufacturing Extension Partnership. Second, preliminary drivers were further scrutinized based on a detailed review of economic data for each of the driver industries.

14.2.8 Identifying Industry Clusters

The second phase of the driver industry and industry cluster analysis identifies the cluster of industries that are closely related to each of the driver industries. As defined previously and depicted graphically in Figure 12-2, the competitive industry clusters are made up of industries that: have close buy or sell relationships with driver industries; use common technologies; or share a specialized labor force.

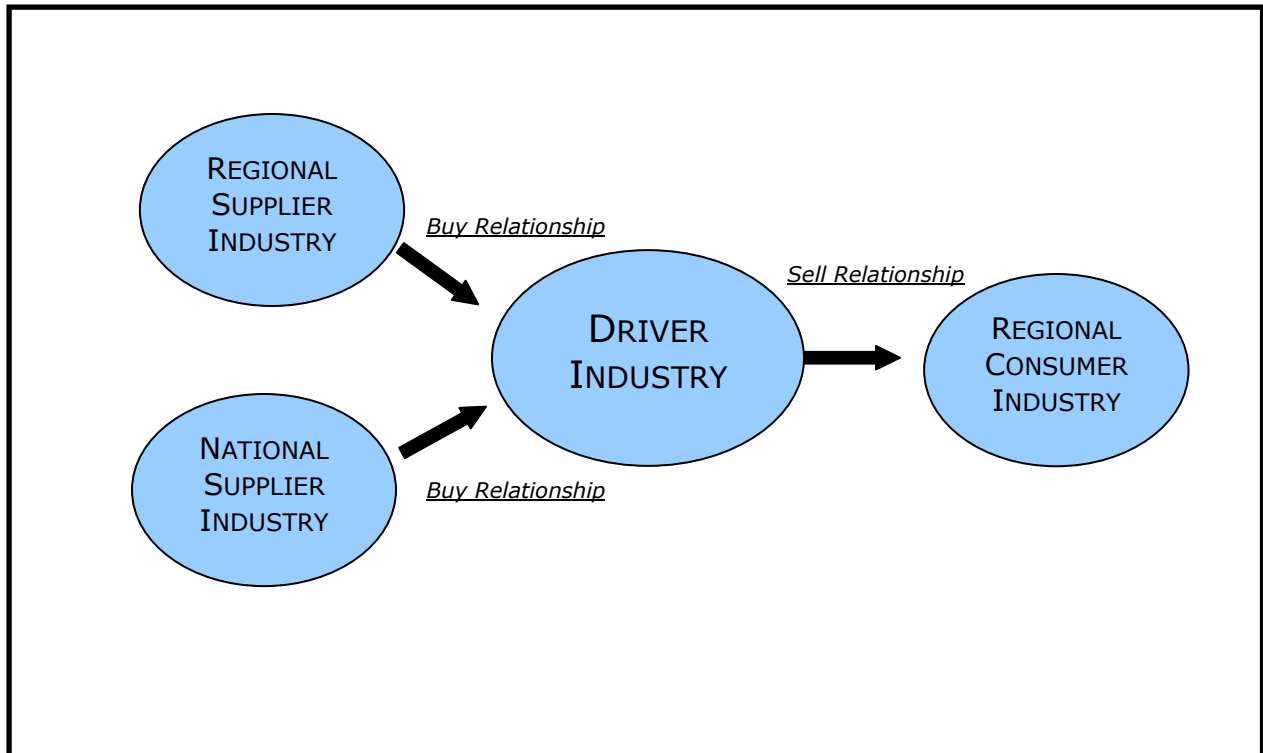
Industries having close buy/sell relationships are identified using the backward (supply-chain) and forward (customer-chain) linkages contained within regionalized input/output tables.¹⁴⁴ Industries that exhibit strong relationships to driver industries are then categorized as being part of the industry cluster.

The backward or supply-chain linkages identify the buy relationship of the driver industry with other industries. These linkages are referred to as “supplier” industries because they provide inputs (goods or services) that allow the driver industry to get its product to its consumers. The backward linkages are measured as a percent of the driver industry’s total outlays. If a driver industry spends a large percent of its total outlay to an industry, then that industry is considered to be a significant supplier industry.

For the current analysis, two types of supplier industries are identified. One is based on a regional industry model and the other is based on a national industry model. The difference between the two types of models is in the types of industries that are included in the model. While the national model includes all industries that could be potential supplier industries, the regional model only includes those industries that actually operate within the region. If an industry does not exist in the local economy, then it must be that the driver industry imports inputs from outside of the region.

¹⁴⁴ The input/output tables used are from the current IMPLAN model from the Minnesota IMPLAN Group, Inc and are based on data from 2002 (the most currently available data).

Figure 14-2 Three Components of an Industry Cluster



The forward or customer-chain linkages identify industries that the driver industry sells its product to. The forward linkages are based on the percent of total output that a driver industry sells to other regional industries. If a driver industry sells a large percent of its total output to an industry, than that industry is considered to be a significant consumer industry. The forward linkages are identified using a regional model only.

14.2.9 Special Classifications for Industry Clusters

Due to inconsistencies in the industry classifications used by the various data sources, several steps had to be taken to ensure industry information was not duplicated or misrepresented in the presentation of the results from the Industry Clusters Analysis. Because of the inconsistencies of the industry classifications, bridge tables were created to force the lists of industries from the clusters analysis to be consistent with other data used throughout the study.

The data used for the driver analyses were based on standard 4-digit NAICS industries. However, the national input-output tables produced by the Bureau of Economic Analysis and used to create the regional input-output tables in the IMPLAN model do not use standard 4-digit NAICS industries. Therefore, the data used for the cluster analysis were based on a mix of 2-digit, 3-digit, 4-digit, and 6-digit NAICS industries. These inconsistencies created two types of issues that needed to be addressed.

First, some of the information used in the cluster analysis was at a greater level of industry detail than the 4-digit NAICS level. In this case, weighted averages of the input-output coefficients

were used to calculate coefficients that were consistent with the 4-digit NAICS industries. Each industry's value of output was used as the weight in these calculations.

Second, some of the information used in the cluster analysis was at a lower level of industry detail. In this case, the 4-digit NAICS codes could not be used. Rather, industries were listed at the greatest level of detail that was available. To ensure that these cases could be identified, the NAICS codes were modified using an "*" For example, at the 4-digit level, there are 19 separate industries engaged in wholesale trade (NAICS 42##). The IMPLAN data, however, only includes the 2-digit industry for wholesale trade (NAICS 42). In this case, the cluster industry is simply presented as "NAICS 42*: Wholesale Trade." Another example is the case of truck transportation in which only the 3-digit industry is available. In this case the cluster industry is presented as "NAICS 484*: Truck Transportation."

14.2.10 Prioritizing Industries in the Industry Clusters

Since most industries purchase inputs from a large number of other industries, the cluster analysis prioritizes supplier industries based on the percent of the driver industries total outlays that go to each supplier industry. A cut-off value (coefficient=0.05) was used to identify only those supplier industries that provided a significant amount of inputs to the driver industry.

In presenting the results for regional supplier industries, each of the regional supplier industries are identified except those noted below. For the lists of national supplier industries, all industries listed as regional suppliers were removed and only the top 10 national suppliers were listed.

Because of their unique characteristics, certain industries were removed from both the list of regional suppliers and the list of national suppliers. The industries excluded are generally finance related industries, government, power or utility industries, and real estate.

The specific industries excluded were:

- 2211 Electric Power Generation, Transmission and Distribution
- 2212 Natural Gas Distribution
- 492* Couriers and messengers
- 521* Monetary authorities and depository credit intermediation
- 522* Nondepository credit intermediation and related activities
- 523* Securities, commodity contracts, investments
- 531* Real estate
- 5331 Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)
- 5412 Accounting, Tax Preparation, Bookkeeping, and Payroll Services
- 5511 Management of Companies and Enterprises
- GVSL* State and Local Government

14.2.11 Identifying Firms

Firms are identified for all driver industries using Harris InfoSources' Selectory Business Database for the State of Wisconsin, which includes all firms in the state with 20 or more employees. The initial database used for this study included more than 24,000 firms across all industry sectors.

In order to categorize firms by their 4-digit NAICS industry, each firm's primary (6-digit NAICS) industry was converted to a 4-digit NAICS code. Based on these codes, individual firms were matched to the lists of driver industries.

While the Selectory Business Database is arguably the most complete source of firm level information that is publicly available, it does have certain limitations. First, although the database includes most firms currently in operation, it may not include every firm. Since privately held firms are not required to disclose the same information that publicly traded firms are, it is more likely that privately held firms are missing from the database than are publicly traded firms.

Second, the name used to identify certain local firms may be different from that used locally. For example, some branch plants may have company names that are unique to the local plant, but in the Selectory Business Database the name of the parent firm may be used to identify the plant.

14.2.12 Data Sources

Employment, Gross Product, and Wage & Salary

Source: Economy.Com. 2005. "DataBuffet."

These data include information from: Bureau of Labor Statistics, Bureau of Economic Analysis, U.S. Census Bureau, and Economy.com Industry Services.

Input/Output Tables

Source: Minnesota IMPLAN Group, Inc. 2005. "IMPLAN System (data and software)."

Firm level data

Source: Harris InfoSource. 2005. "Selectory Business Database."

Industry Definitions

Source: U.S. Census Bureau, "North American Industry Classification System (NAICS)."

14.3 WMEP Manufacturing Study Survey — Findings

The WMEP Manufacturing Study was designed and fielded to assess the business and manufacturing climate in the state today and in the next five to 10 years, and findings are intended as an executive-perspective complement to analysis of economic and business data across the state and by state region.

Findings generally appear in the same sequence as questions were presented to survey respondents. Questions are listed in numeric order and proceed through five categories: *Profile*, *Human Resources*, *Infrastructure*, *Business Development*, and *Doing Business in Wisconsin*. Questions and answer categories generally are presented in the same wording and format as they appeared on the survey questionnaire.

Survey questions consisted of four types: Directive single-answer questions for which respondents were asked to “check one” answer category; directive multiple-answer questions for which respondents were asked to check more than one; open-ended numeric questions for which respondents were asked to report a numeric answer; and open-ended text-answer questions.

The tables in this report for directive questions are presented either in the format presented on the survey or, where more meaningful, in descending order based on the frequency of response for the answer category (i.e., the category with the highest number of responses is listed first). Data for directive questions lists the frequency and percentage for each answer category.

The tables for open-ended numeric answers are presented with frequency, mean, median, 25th percentile, and 75th percentile statistics. MPI believes it is best to focus on the *median* figure, which represents the “normal” characteristics of the sample. Unlike arithmetical averages or means, the median is not distorted by a few unusually high or low values that may exist in the sample due to special circumstances.

For this appendix, open-ended text-answer questions have been converted to directive single-answer questions so that findings can be better assessed. Tables for open-ended text-answer questions present findings grouped by similarity of response, and unique responses have been grouped together in an “Other” category (e.g., “The work ethic in Wisconsin ...,” “Strong work ethic ...,” and “Better workforce ...” appear within a grouped category labeled “Quality of workforce/work ethic”).

14.3.1 WMEP Manufacturing Study Survey — Glossary

Frequency: For directive questions, frequency is the number or count of responses for an answer category. For open-ended numeric questions, frequency refers to the total respondents for the question.

Mean: The average value for answers to open-ended questions. The average/mean value for answers to open-ended survey questions is the sum of all measures divided by the total number of responses to the question.

Median: The midpoint value for open-ended questions — the value above which and below which half the answers fall; equivalent to the 50th percentile. The median is frequently the most reliable statistic upon which to base comparisons.

Percent: The percentage of responses for an answer category, based on all responses for that particular question. (*Note: This is not based on the total number of respondents for the survey*). This percent is obtained by dividing the number of responses for the answer category by the total number of responses for the question.

Percentiles: The 25th percentile is the value below which 25% of answers fall. The 75th percentile is the value below which 75% of answers fall.

Total: Total refers to the number of respondents (the frequency) that answered the question. For questions in which respondents were instructed to “check one,” total is also the sum of all frequencies for that question and the percent column equals 100% (or approximately 100% due to rounding). For questions where respondents could check more than one answer, only the frequency is provided because the percent column typically exceeds 100%.

14.3.2 WMEP Manufacturing Study Survey — Methodology

The WMEP Manufacturing Study Survey (Section 14.4) was conducted using primarily an online questionnaire (a hard-copy option was available). Corporate executives within Wisconsin’s driver manufacturing industries were the primary target of the Study Survey and contacted by phone and encouraged to participate; other manufacturers in the state were alerted by the WMEP that the survey was open for participation, could access the online questionnaire, and may have participated. Responses were received by the Manufacturing Performance Institute (MPI), and then entered into a database, edited, and cleansed to ensure answers were plausible, where necessary. There were 75 valid surveys received from mid-April 2005 through mid-May 2005 (all responses were received via the online questionnaire).

Seventy-one percent of respondents provided personal information (name, company, and title); the specific answers of individual respondents have been kept confidential for this report.

14.3.3 Survey Results

Profile

1-4. Primary product sold by the company*:

	Frequency	Percent
Machinery Manufacturing	14	18.7%
Fabricated Metal Product Manufacturing	13	17.3%
Computer and Electronic Product Manufacturing	6	8.0%
Transportation Equipment Manufacturing	5	6.7%
Wood Product Manufacturing	5	6.7%
No product identified	5	6.7%
Plastics and Rubber Products Manufacturing	5	6.7%
Paper Manufacturing	4	5.3%
Electrical Equipment, Appliance, Component Mfg.	3	4.0%
Chemical Manufacturing	3	4.0%
Food Manufacturing	3	4.0%
Nonmetallic Mineral Product Manufacturing	2	2.7%
Primary Metal Manufacturing	2	2.7%
Beverage and Tobacco Product Manufacturing	1	1.3%
Miscellaneous Manufacturing	1	1.3%
Printing and Related Support Activities	3	4.0%
Total	75	100.0%

* Names, companies, and titles of respondents were "optional" and, for those that provided the information, it has been kept confidential for this Study appendix. "Primary product" has been presented here based on 3-digit North American Industry Classification System (NAICS) code.

5. Where is facility located?*

	Frequency	Percent
Southeast	28	37.8%
East Central	11	14.9%
West Central 1	8	10.8%
South	8	10.8%
Central	7	9.5%
West Central 2	6	8.1%
North	3	4.1%
Invalid	3	4.1%
Total	74	100.0%

* Respondents listed county in which facility was located, and located was translated to Wisconsin region.

6. Is this a multilocation business or one location?

	Frequency	Percent
Multilocation	37	49.3%
One location	38	50.7%
Total	75	100.0%

7. Which of the following business functions are performed by your company at this location:

	Currently		In five years	
	Frequency	Percent	Frequency	Percent
Corporate headquarters	62	82.7%	36	48.0%
Division/unit headquarter	40	53.3%	21	28.0%
Research, development and product deployment	59	78.7%	35	46.7%
Manufacturing, production, procurement and assembly	74	98.7%	41	54.7%
Logistics/distribution/fulfillment	62	82.7%	33	44.0%
Data center/IT	58	77.3%	29	38.7%
Call center/customer care	55	73.3%	30	40.0%
Service	52	69.3%	27	36.0%
Sales and marketing	66	88.0%	37	49.3%
Administration/shared services (back office)	68	90.7%	37	49.3%
Total	75		75	

8. What are the primary raw materials and components that your company sources? (list up to three)

	Frequency	Percent
Steel sheets, products, etc.	29	38.7%
Plastics	12	16.0%
Aluminum various	11	14.7%
Paper products (e.g., containers, particleboard, recycled)	11	14.7%
Wood products (e.g., veneer) and lumber	10	13.3%
Stainless steel	7	9.3%
Castings and cast metals	5	6.7%
Engines/motors	4	5.3%
Fabricated/stamped components	4	5.3%
Hydraulic components	4	5.3%
Wire	4	5.3%
Chemicals	3	4.0%
Copper and copper product	3	4.0%
Electrical Components	3	4.0%
Terminals	3	4.0%
Tooling	3	4.0%
Adhesives	2	2.7%
Forgings	2	2.7%
Ink	2	2.7%

Milk	2	2.7%
Paint	2	2.7%
Other	50	66.7%

* Open-ended answers grouped by similarity of response where two or more like responses exist.

9. What is the primary radius from which you source these materials?

	Frequency	Percent
Locally in WI	5	6.7%
State	2	2.7%
Region (Great Lakes)	16	21.3%
U.S.	32	42.7%
Globally	20	26.7%
Total	75	100.0%

10. If your firm sources material from overseas, which country is the largest provider?

	Frequency	Percent
China (including Taiwan)	13	17.3%
Canada	3	4.0%
Germany	3	4.0%
Japan	3	4.0%
Austria	1	1.3%
Canada, Mexico, England, Taiwan	1	1.3%
Guatemala	1	1.3%
Mexico	1	1.3%
Sweden	1	1.3%
USA	1	1.3%
Not applicable	47	62.7%
Total	75	100.0%

11. If your company outsources services and business activities, what is the primary radius to which you direct these activities?

	Frequency	Percent
Locally in WI	22	33.3%
State	9	13.6%
Region (Great Lakes)	15	22.7%
U.S.	9	13.6%
Globally	11	16.7%
Total	66	100.0%

12a. By what percentage are you projecting your company's sales volumes to change in the next five years?

Frequency	72
Mean	49.5%
Median	30.0%

25th Percentile	15.0%
75th Percentile	73.8%

12b. If sales growth is anticipated, what percentage of growth will come from:

	Internal growth	Growth via M&A
Frequency	66	66
Mean	92.2%	7.8%
Median	100.0%	0.0%
25th Percentile	90.0%	0.0%
75th Percentile	100.0%	10.0%

13. Which of the following strategies are you planning to emphasize over the next five years to encourage profitable growth?

	Frequency	Percent
Improved operations (e.g, speed, cost, quality, delivery)	61	81.3%
New products	42	56.0%
New product markets or distribution channels	42	56.0%
New features/services on existing products	38	50.7%
Enhanced service and support	36	48.0%
Increased customization of products and services by staff	32	42.7%
Enter new geographic markets	30	40.0%
Total	75	

Human Resources

14. As you consider your industry and business for the next 5 to 10 years, what are the most prominent workforce-related concerns?*

	Frequency	Percent
Availability of skilled, qualified workers	45	61.6%
Healthcare coverage and costs	14	19.2%
Training	4	5.5%
Compensation to workers and compensation levels	4	5.5%
General benefits and insurances	2	2.7%
Other	4	5.5%
Total	73	100.0%

* Open-ended answers grouped by similarity of response where two or more like responses exist.

15. As you consider your industry and business for the next 5 to 10 years, what are the most prominent advantages that the Wisconsin workforce can offer?*

	Frequency	Percent
Work ethic	41	58.6%
Skills/quality of workers	11	15.7%
Manufacturing knowledge/support/education	5	7.1%
Speed to market	2	2.9%
Proximity	2	2.9%
Other	4	5.7%
None	5	7.1%
Total	70	100.0%

* Open-ended answers grouped by similarity of response where two or more like responses exist.

16. Will your company be able to retain and attract the talent in Wisconsin necessary for your business to succeed over the next 5 to 10 years?

	Frequency	Percent
Absolutely	5	6.7%
Highly likely	18	24.0%
Likely	24	32.0%
Somewhat unlikely	24	32.0%
Highly unlikely	4	5.3%
Total	75	100.0%

17. What changes, if any, would you like to see in the Wisconsin higher education system to better meet the long-term needs of your industry and firm in the state?*

	Frequency	Percent
Technical education and/or process education	13	21.0%
Basic skills: math, language, writing, etc.	5	8.1%
Encourage manufacturing careers	5	8.1%
Better understanding of industry/business needs	4	6.5%
Lean skills	4	6.5%
Internships/work experiences	4	6.5%
Work ethic	3	4.8%
High-school technical emphasis	3	4.8%
Manufacturing technologies/IT	3	4.8%
Soft skills (including listening)	2	3.2%
Business skills	2	3.2%
Other	10	16.1%
None	4	6.5%
Total	62	100.0%

* Open-ended answers grouped by similarity of response where two or more like responses exist.

18. Describe any innovative workforce attraction or development programs that you would like to see expanded in Wisconsin?*

	Frequency	Percent
Apprenticeships/internships	8	18.2%
Manufacturing introductory/encouraging programs	5	11.4%
Basic skills training	5	11.4%
Lower healthcare costs/healthcare buying coops	4	9.1%
More affordable training options	4	9.1%
Tax credits, money for training	3	6.8%
Lean training	3	6.8%
WMEP programs/partnering	2	4.5%
Business best practices	2	4.5%
Other	8	18.2%
Total	44	100.0%

* Open-ended answers grouped by similarity of response where two or more like responses exist.

19. As you consider your business plans for the next 5 to 10 years, please rate the following workforce factors on a scale of 1 to 5:

Entry-level labor: Cost

	Frequency	Percent
1 - No Problem	6	8.0%
2	12	16.0%
3 - Neutral	36	48.0%
4	15	20.0%
5 - Major Problem	6	8.0%
Total	75	100.0%

Entry-level labor: Availability

	Frequency	Percent
1 - No Problem	2	2.7%
2	10	13.3%
3 - Neutral	16	21.3%
4	33	44.0%
5 - Major Problem	14	18.7%
Total	75	100.0%

Entry-level labor: Skill-level

	Frequency	Percent
1 - No Problem	4	5.3%
2	8	10.7%
3 - Neutral	19	25.3%
4	30	40.0%
5 - Major Problem	13	17.3%
Not applicable	1	1.3%
Total	75	100.0%

Semiskilled production labor: Cost

	Frequency	Percent
1 - No Problem	5	6.7%
2	7	9.3%
3 - Neutral	32	42.7%
4	20	26.7%
5 - Major Problem	9	12.0%
Not applicable	2	2.7%
Total	75	100.0%

Semiskilled production labor: Availability

	Frequency	Percent
1 - No Problem	2	2.7%
2	7	9.3%
3 - Neutral	14	18.7%
4	33	44.0%
5 - Major Problem	17	22.7%
Not applicable	2	2.7%
Total	75	100.0%

Semiskilled production labor: Skill-level

	Frequency	Percent
1 - No Problem	1	1.3%
2	6	8.0%
3 - Neutral	22	29.3%
4	28	37.3%
5 - Major Problem	15	20.0%
Not applicable	3	4.0%
Total	75	100.0%

Entry-level managerial labor: Cost

	Frequency	Percent
1 - No Problem	4	5.4%
2	15	20.3%
3 - Neutral	32	43.2%
4	16	21.6%
5 - Major Problem	5	6.8%
Not applicable	2	2.7%
Total	74	100.0%

Entry-level managerial labor: Availability

	Frequency	Percent
1 - No Problem	5	6.8%
2	10	13.5%
3 - Neutral	27	36.5%
4	22	29.7%
5 - Major Problem	8	10.8%
Not applicable	2	2.7%
Total	74	100.0%

Entry-level managerial labor: Skill-level

	Frequency	Percent
1 - No Problem	2	2.7%
2	9	12.2%
3 - Neutral	28	37.8%
4	24	32.4%
5 - Major Problem	9	12.2%
Not applicable	2	2.7%
Total	74	100.0%

Skilled or technical labor: Cost

	Frequency	Percent
1 - No Problem	3	4.0%
2	5	6.7%
3 - Neutral	21	28.0%
4	32	42.7%
5 - Major Problem	13	17.3%
Not applicable	1	1.3%
Total	75	100.0%

Skilled or technical labor: Availability

	Frequency	Percent
1 - No Problem	3	4.0%
2	2	2.7%
3 - Neutral	12	16.0%
4	31	41.3%
5 - Major Problem	26	34.7%
Not applicable	1	1.3%
Total	75	100.0%

Skilled or technical labor: Skill-level

	Frequency	Percent
1 - No Problem	1	1.4%
2	4	5.4%
3 - Neutral	22	29.7%
4	27	36.5%
5 - Major Problem	19	25.7%
Not applicable	1	1.4%
Total	74	100.0%

Professional managerial labor: Cost

	Frequency	Percent
1 - No Problem	3	4.0%
2	9	12.0%
3 - Neutral	27	36.0%
4	23	30.7%
5 - Major Problem	11	14.7%
Not applicable	2	2.7%
Total	75	100.0%

Professional managerial labor: Availability

	Frequency	Percent
1 - No Problem	6	8.1%
2	7	9.5%
3 - Neutral	21	28.4%
4	23	31.1%
5 - Major Problem	15	20.3%
Not applicable	2	2.7%
Total	74	100.0%

Professional managerial labor: Skill-level

	Frequency	Percent
1 - No Problem	4	5.4%
2	7	9.5%
3 - Neutral	26	35.1%
4	24	32.4%
5 - Major Problem	11	14.9%
Not applicable	2	2.7%
Total	74	100.0%

20. Please record your opinion regarding the following higher education issues:

Graduates leave academia understanding opportunities available in manufacturing

	Frequency	Percent
1 - Agree	2	2.7%
2	8	10.7%
3 - Neutral	16	21.3%
4	26	34.7%
5 - Disagree	22	29.3%
Not applicable	1	1.3%
Total	75	100.0%

Graduates leave academia with a sound understanding of all facets of manufacturing

	Frequency	Percent
1 - Agree	2	2.7%
2	7	9.3%
3 - Neutral	12	16.0%
4	23	30.7%
5 - Disagree	30	40.0%
Not applicable	1	1.3%
Total	75	100.0%

Manufacturers have access to academic R&D facilities

	Frequency	Percent
1 - Agree	4	5.3%
2	13	17.3%
3 - Neutral	27	36.0%
4	18	24.0%
5 - Disagree	10	13.3%
Not applicable	3	4.0%
Total	75	100.0%

Coordination between manufacturing and higher education is good

	Frequency	Percent
1 - Agree	6	8.0%
2	9	12.0%
3 - Neutral	18	24.0%
4	27	36.0%
5 - Disagree	15	20.0%
Total	75	100.0%

Infrastructure

21. As you consider your business plans over the next 5 to 10 years, please rate the following infrastructure factors on a scale of 1 to 5:

Transportation infrastructure (highways, roads, ports)

	Frequency	Percent
1 - No Problem	19	25.7%
2	23	31.1%
3 - Neutral	18	24.3%
4	14	18.9%
5 - Major problem	0	0.0%
Total	74	100.0%

Energy infrastructure

	Frequency	Percent
1 - No Problem	10	13.3%
2	11	14.7%
3 - Neutral	13	17.3%
4	30	40.0%
5 - Major problem	11	14.7%
Total	75	100.0%

Communications infrastructure (especially high-speed and wireless data)

	Frequency	Percent
1 - No Problem	11	14.7%
2	23	30.7%
3 - Neutral	23	30.7%
4	13	17.3%
5 - Major problem	5	6.7%
Total	75	100.0%

Industry expertise (access to research centers, expertise, etc., specific to your industry)

	Frequency	Percent
1 - No Problem	5	6.7%
2	13	17.3%
3 - Neutral	22	29.3%
4	29	38.7%
5 - Major problem	4	5.3%
Not applicable	2	2.7%
Total	75	100.0%

Business support (availability and quality of business-assistance resources such as manufacturing extension centers)

	Frequency	Percent
1 - No Problem	8	10.7%
2	19	25.3%
3 - Neutral	29	38.7%
4	15	20.0%
5 - Major problem	2	2.7%
Not applicable	2	2.7%
Total	75	100.0%

Capital for expansion (ease with which you can access capital to expand your operations, invest in R&D, etc.)

	Frequency	Percent
1 - No Problem	10	13.3%
2	17	22.7%
3 - Neutral	24	32.0%
4	16	21.3%
5 - Major problem	8	10.7%
Total	75	100.0%

Capital for start-up/spin-off (ease with which you can access capital to start up or spin off new business units)

	Frequency	Percent
1 - No Problem	9	12.2%
2	13	17.6%
3 - Neutral	23	31.1%
4	17	23.0%
5 - Major problem	6	8.1%
Not applicable	6	8.1%
Total	74	100.0%

Other

	Frequency	Percent
1 - No Problem	1	7.7%
2	3	23.1%
3 - Neutral	1	7.7%
4	4	30.8%
5 - Major problem	4	30.8%
Total	13	100.0%

Business Development

22. How would you rate the health of manufacturing in Wisconsin *currently*?

	Frequency	Percent
Excellent	1	1.3%
Good	23	30.7%
Fair	42	56.0%
Poor	9	12.0%
Total	75	100.0%

22. How would you rate the health of manufacturing in Wisconsin *five years from now*?

	Frequency	Percent
Excellent	1	1.3%
Good	20	26.7%
Fair	31	41.3%
Poor	20	26.7%
Abysmal	3	4.0%
Total	75	100.0%

23. What percentage of revenue does your company or division currently devote to the following?

Outsourced services

	Current as % of sales	Anticipated % change in 5 years
Frequency	56	48
Mean	6.6%	6.3%
Median	5.0%	3.0%
25th Percentile	2.0%	0.0%
75th Percentile	10.0%	10.0%

Sourced raw material (not processed)

	Current as % of sales	Anticipated % change in 5 years
Frequency	59	47
Mean	30.7%	15.6%
Median	30.0%	10.0%
25th Percentile	15.0%	0.0%
75th Percentile	41.0%	27.0%

Sourced components (processed)

	Current as % of sales	Anticipated % change in 5 years
Frequency	51	46
Mean	15.6%	6.6%
Median	10.0%	4.5%
25th Percentile	5.0%	0.0%
75th Percentile	20.0%	15.0%

Sales and marketing

	Current as % of sales	Anticipated % change in 5 years
Frequency	55	47
Mean	7.2%	4.2%
Median	5.0%	2.0%
25th Percentile	3.0%	0.0%
75th Percentile	10.0%	10.0%

Research and development

	Current as % of sales	Anticipated % change in 5 years
Frequency	51	45
Mean	3.2%	6.8%
Median	2.0%	2.0%
25th Percentile	1.0%	0.0%
75th Percentile	5.0%	9.5%

Training

	Current as % of sales	Anticipated % change in 5 years
Frequency	54	49
Mean	2.0%	11.4%
Median	1.5%	2.0%
25th Percentile	1.0%	0.0%
75th Percentile	2.0%	5.0%

24. What is the likelihood, on a scale of 1-to-5, of your company making the following moves in the next 5 years:

Major purchase of equipment

	Frequency	Percent
1 - Not likely	3	4.0%
2	1	1.3%
3 - Neutral	4	5.3%
4	17	22.7%
5 - Very likely	50	66.7%
Total	75	100.0%

Major purchase of IT systems or applications (e.g. ERP)

	Frequency	Percent
1 - Not likely	6	8.0%
2	4	5.3%
3 - Neutral	17	22.7%
4	21	28.0%
5 - Very likely	27	36.0%
Total	75	100.0%

Major site expansion or addition

	Frequency	Percent
1 - Not likely	14	18.9%
2	15	20.3%
3 - Neutral	13	17.6%
4	16	21.6%
5 - Very likely	16	21.6%
Total	74	100.0%

Install new management/leadership

	Frequency	Percent
1 - Not likely	11	14.9%
2	9	12.2%
3 - Neutral	21	28.4%
4	18	24.3%
5 - Very likely	15	20.3%
Total	74	100.0%

Execute an acquisition or merger

	Frequency	Percent
1 - Not likely	20	27.0%
2	14	18.9%
3 - Neutral	17	23.0%
4	14	18.9%
5 - Very likely	9	12.2%
Total	74	100.0%

Change primary suppliers

	Frequency	Percent
1 - Not likely	11	14.7%
2	7	9.3%
3 - Neutral	29	38.7%
4	18	24.0%
5 - Very likely	10	13.3%
Total	75	100.0%

Bring more functions in-house (reduce outsourcing)

	Frequency	Percent
1 - Not likely	16	21.3%
2	18	24.0%
3 - Neutral	19	25.3%
4	17	22.7%
5 - Very likely	3	4.0%
Not applicable	2	2.7%
Total	75	100.0%

Perform fewer functions in-house

	Frequency	Percent
1 - Not likely	13	17.6%
2	19	25.7%
3 - Neutral	20	27.0%
4	17	23.0%
5 - Very likely	5	6.8%
Total	74	100.0%

25. What are the technologies that will most affect your industry in the next five years (list up to three)? *

	Frequency	Percent
Information systems or technologies	10	17.2%
Injection molding/molding	7	12.1%
Materials	6	10.3%
Automation	6	10.3%
Process technologies	5	8.6%
Wireless	5	8.6%
Robotics	4	6.9%
CAD/CAM/computer design tools	4	6.9%
Digital imaging/printing	3	5.2%
Lean manufacturing	3	5.2%
Price	3	5.2%
Transportation	3	5.2%
CNC equipment	2	3.4%
Energy technology	2	3.4%
Fiber optics	2	3.4%
Laser(s)	2	3.4%
Nanotechnology	2	3.4%
Machining	2	3.4%
RFID	2	3.4%
Welding	2	3.4%
Internet/web	2	3.4%
Other	43	74.1%
Total	58	

* Open-ended answers grouped by similarity of response where two or more like responses exist.

26. What operations improvement methodology do you plan to emphasize in the next 5 years?

	Frequency	Percent
Lean Manufacturing	36	49.3%
Lean and Six Sigma	16	21.9%
Total Quality Management	6	8.2%
Six Sigma	4	5.5%
Agile Manufacturing	3	4.1%
Toyota Production System	2	2.7%
Other	2	2.7%
Theory of Constraints	1	1.4%
No methodology	3	4.1%
Total	73	100.0%

Doing Business in Wisconsin

27. What are the business challenges that your organization faces — what most keeps you up at night?*

	Frequency	Percent
Workforce/employee issues	11	15.1%
Healthcare costs and risks	9	12.3%
Overseas competition	8	11.0%
Profitability	7	9.6%
Taxes	5	6.8%
Operations performance	4	5.5%
Demand for product	4	5.5%
Material/component costs/sourcing	3	4.1%
China	3	4.1%
Cost competitiveness	2	2.7%
Financing/funding growth	2	2.7%
Terrorism and its risk to economy	2	2.7%
Increasing competition	2	2.7%
Other	11	15.1%
Total	73	100.0%

* Open-ended answers grouped by similarity of response where two or more like responses exist.

28. What are the business strengths and/or advantages your organization has by being located in Wisconsin?

	Frequency	Percent
Quality of workforce/work ethic	31	43.1%
Location/proximity to customers/markets	17	23.6%
WI manufacturers/supply chain/customers	4	5.6%
Quality of life/culture/traditions	3	4.2%
Quality products/services	2	2.8%
Infrastructure	2	2.8%
None	9	12.5%
Other	4	5.6%
Total	72	100.0%

* Open-ended answers grouped by similarity of response where two or more like responses exist.

29. As you consider the next 5 to 10 years, to what degree will the following issues pose an obstacle to your business success? Rate on a scale of 1 to 5:

Health of national economy

	Frequency	Percent
1 - No obstacle	2	2.7%
2	5	6.7%
3 - Some obstacle	22	29.3%
4	27	36.0%
5 - Major obstacle	19	25.3%
Total	75	100.0%

Health of state economy

	Frequency	Percent
1 - No obstacle	1	1.3%
2	13	17.3%
3 - Some obstacle	26	34.7%
4	24	32.0%
5 - Major obstacle	11	14.7%
Total	75	100.0%

Overseas competition

	Frequency	Percent
1 - No obstacle	3	4.1%
2	8	10.8%
3 - Some obstacle	19	25.7%
4	20	27.0%
5 - Major obstacle	24	32.4%
Total	74	100.0%

Human resources availability

	Frequency	Percent
1 - No obstacle	3	4.1%
2	10	13.5%
3 - Some obstacle	22	29.7%
4	25	33.8%
5 - Major obstacle	14	18.9%
Total	74	100.0%

Health insurance costs

	Frequency	Percent
1 - No obstacle	0	0.0%
2	0	0.0%
3 - Some obstacle	3	4.1%
4	16	21.6%
5 - Major obstacle	55	74.3%
Total	74	100.0%

Government regulations

	Frequency	Percent
1 - No obstacle	3	4.0%
2	10	13.3%
3 - Some obstacle	23	30.7%
4	24	32.0%
5 - Major obstacle	15	20.0%
Total	75	100.0%

Cost of goods and materials

	Frequency	Percent
1 - No obstacle	2	2.7%
2	7	9.3%
3 - Some obstacle	21	28.0%
4	30	40.0%
5 - Major obstacle	15	20.0%
Total	75	100.0%

Rising customer expectations

	Frequency	Percent
1 - No obstacle	6	8.0%
2	19	25.3%
3 - Some obstacle	26	34.7%
4	18	24.0%
5 - Major obstacle	6	8.0%
Total	75	100.0%

Torts and associated insurance and legal costs

	Frequency	Percent
1 - No obstacle	3	4.0%
2	15	20.0%
3 - Some obstacle	24	32.0%
4	22	29.3%
5 - Major obstacle	11	14.7%
Total	75	100.0%

Access to capital

	Frequency	Percent
1 - No obstacle	9	12.0%
2	26	34.7%
3 - Some obstacle	30	40.0%
4	6	8.0%
5 - Major obstacle	4	5.3%
Total	75	100.0%

30. Please identify the level of impact that each of the following has on your decision to stay or expand in Wisconsin:

Availability of a skilled manufacturing workforce

	Frequency	Percent
1 - Low impact	9	12.0%
2	8	10.7%
3 - Moderate impact	17	22.7%
4	24	32.0%
5 - High impact	17	22.7%
Total	75	100.0%

Availability of industry professionals

	Frequency	Percent
1 - Low impact	13	17.3%
2	10	13.3%
3 - Moderate impact	26	34.7%
4	20	26.7%
5 - High impact	6	8.0%
Total	75	100.0%

Availability of suppliers (material)

	Frequency	Percent
1 - Low impact	16	21.3%
2	17	22.7%
3 - Moderate impact	21	28.0%
4	14	18.7%
5 - High impact	7	9.3%
Total	75	100.0%

Availability of supportive services (e.g., logistics, financial knowledge)

	Frequency	Percent
1 - Low impact	14	18.7%
2	20	26.7%
3 - Moderate impact	27	36.0%
4	14	18.7%
5 - High impact	0	0.0%
Total	75	100.0%

Supply of affordable energy

	Frequency	Percent
1 - Low impact	8	10.7%
2	15	20.0%
3 - Moderate impact	18	24.0%
4	23	30.7%
5 - High impact	11	14.7%
Total	75	100.0%

Transportation infrastructure

	Frequency	Percent
1 - Low impact	12	16.2%
2	14	18.9%
3 - Moderate impact	28	37.8%
4	18	24.3%
5 - High impact	2	2.7%
Total	74	100.0%

Quality of life for managers and employees

	Frequency	Percent
1 - Low impact	9	12.0%
2	9	12.0%
3 - Moderate impact	19	25.3%
4	27	36.0%
5 - High impact	11	14.7%
Total	75	100.0%

Tradition/history of operating in Wisconsin

	Frequency	Percent
1 - Low impact	14	18.7%
2	12	16.0%
3 - Moderate impact	12	16.0%
4	23	30.7%
5 - High impact	14	18.7%
Total	75	100.0%

Government policies - taxes and regulation

	Frequency	Percent
1 - Low impact	6	8.0%
2	6	8.0%
3 - Moderate impact	19	25.3%
4	27	36.0%
5 – High impact	17	22.7%
Total	75	100.0%

14.4 Wisconsin Manufacturing Extension Partnership Survey

WMEP Manufacturing Study

Thank you for participating in the Wisconsin Manufacturing Study. Information provided will be used to compile a comprehensive report on the state of Wisconsin manufacturing. Your comments can remain anonymous, or you may go on the record and provide personal information to the optional questions (#1, #2, and #3) immediately below.

PROFILE

1. Name (optional): _____ 1

2. Company name (optional): _____ 2

3. Job title (optional): _____ 3

4. Primary product sold by your company: _____ 4

5. Wisconsin county in which facility is located: _____ 5

6. Is this a multilocation business or one location? (check one) Multilocation One location

7. Which of the following business functions are presently performed by your company at this location, and which business functions will likely be in place in five years? (check all that apply)

	Currently	In Five Years
Corporate headquarters	<input type="checkbox"/> 7	<input type="checkbox"/> 8
Division/unit headquarters	<input type="checkbox"/> 9	<input type="checkbox"/> 10
Research, development and product deployment	<input type="checkbox"/> 11	<input type="checkbox"/> 12
Manufacturing, production, procurement and assembly	<input type="checkbox"/> 13	<input type="checkbox"/> 14
Logistics/distribution/fulfillment	<input type="checkbox"/> 15	<input type="checkbox"/> 16
Data center/IT	<input type="checkbox"/> 17	<input type="checkbox"/> 18
Call center/customer care	<input type="checkbox"/> 19	<input type="checkbox"/> 20
Service	<input type="checkbox"/> 21	<input type="checkbox"/> 22
Sales and marketing	<input type="checkbox"/> 23	<input type="checkbox"/> 24
Administration/shared services (back office)	<input type="checkbox"/> 25	<input type="checkbox"/> 26

8. What are the primary raw materials and components that your company sources? (list up to three)

_____ 27

_____ 28

_____ 29

9. What is the primary radius from which you source these materials? (check one)

Locally in WI State Region (Great Lakes) U.S. Globally

10. If your firm sources material from overseas, which country is the largest provider? _____ 31

11. If your company outsources services and business activities, what is the primary radius to which you direct these activities? (check one)

- 32-1 Locally in WI 2 State 3 Region (Great Lakes) 4 U.S. 5 Globally

12a. By what percentage are you projecting your company's sales volumes to change in the next five years? (indicate a percentage of growth + or decline -) % 33

12b. If sales growth is anticipated, what percentage of growth will come from:

Internal growth	% 34
Growth via mergers or acquisitions	% 35
Total of above should =	100%

13. Which of the following strategies are you planning to emphasize over the next five years to encourage profitable growth? (check your top three)

- | | |
|---|--|
| <input type="checkbox"/> 36 New features/services on existing products | <input type="checkbox"/> 37 New products |
| <input type="checkbox"/> 38 New product markets or distribution channels | <input type="checkbox"/> 38 Enhanced service and support |
| <input type="checkbox"/> 40 Increased customization of products and services by staff | <input type="checkbox"/> 41 Enter new geographic markets |
| <input type="checkbox"/> 42 Improved operations (e.g, speed, cost, quality, delivery) | <input type="checkbox"/> 43 None of these |

HUMAN RESOURCES

14. As you consider your industry and business for the next 5 to 10 years, what are the most prominent workforce-related concerns? (limit to 50 words)

44

15. As you consider your industry and business for the next 5 to 10 years, what are the most prominent advantages that the Wisconsin workforce can offer? (limit to 50 words)

45

16. Will your company be able to retain and attract the talent in Wisconsin necessary for your business to succeed over the next 5 to 10 years?

- 46-1 Absolutely 2 Highly likely 3 Likely 4 Somewhat unlikely 5 Highly unlikely

17. What changes, if any, would you like to see in the Wisconsin higher education system to better meet the long-term needs of your industry and firm in the state? (limit to 50 words)

47

18. Describe any innovative workforce attraction or development programs that you would like to see expanded in Wisconsin? (limit to 50 words)

48

19. As you consider your business plans for the next 5 to 10 years, please rate the following workforce factors on a scale of 1 to 5: (check on in each row)

	1 = No Problem		3 = Neutral		5 = Major Problem	Not applicable
Entry-level labor						
Cost	49-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Availability	50-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Skill-level	51-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Semiskilled production labor						
Cost	52-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Availability	53-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Skill-level	54-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Entry-level managerial labor						
Cost	55-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Availability	56-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Skill-level	57-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Skilled or technical labor						
Cost	58-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Availability	59-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Skill-level	60-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Professional managerial labor						
Cost	61-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Availability	62-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Skill-level	63-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA

20. Please record your opinion regarding the following higher education issues: (check one in each row)

	1 = Agree		3 = Neutral		5 = Disagree	Not applicable
Graduates leave academia understanding opportunities available in manufacturing	64-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Graduates leave academia with a sound understanding of all facets of manufacturing	65-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Manufacturers have access to academic R&D facilities	66-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Coordination between manufacturing and higher education is good	67-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA

INFRASTRUCTURE

21. As you consider your business plans over the next 5 to 10 years, please rate the following infrastructure factors on a scale of 1 to 5: (check one in each row)

	1 = No Problem		3 = Neutral		5 = Major Problem	<i>Not applicable</i>
Transportation infrastructure (highways, roads, ports)	⁶⁸⁻¹ <input type="checkbox"/> 1	² <input type="checkbox"/> 2	³ <input type="checkbox"/> 3	⁴ <input type="checkbox"/> 4	⁵ <input type="checkbox"/> 5	⁶ <input type="checkbox"/> NA
Energy infrastructure	⁶⁹⁻¹ <input type="checkbox"/> 1	² <input type="checkbox"/> 2	³ <input type="checkbox"/> 3	⁴ <input type="checkbox"/> 4	⁵ <input type="checkbox"/> 5	⁶ <input type="checkbox"/> NA
Communications infrastructure (especially high-speed and wireless data)	⁷⁰⁻¹ <input type="checkbox"/> 1	² <input type="checkbox"/> 2	³ <input type="checkbox"/> 3	⁴ <input type="checkbox"/> 4	⁵ <input type="checkbox"/> 5	⁶ <input type="checkbox"/> NA
Industry expertise (access to research centers, expertise, etc., specific to your industry)	⁷¹⁻¹ <input type="checkbox"/> 1	² <input type="checkbox"/> 2	³ <input type="checkbox"/> 3	⁴ <input type="checkbox"/> 4	⁵ <input type="checkbox"/> 5	⁶ <input type="checkbox"/> NA
Business support (availability and quality of business-assistance resources such as manufacturing extension centers)	⁷²⁻¹ <input type="checkbox"/> 1	² <input type="checkbox"/> 2	³ <input type="checkbox"/> 3	⁴ <input type="checkbox"/> 4	⁵ <input type="checkbox"/> 5	⁶ <input type="checkbox"/> NA
Capital for expansion (ease with which you can access capital to expand your operations, invest in R&D, etc.)	⁷³⁻¹ <input type="checkbox"/> 1	² <input type="checkbox"/> 2	³ <input type="checkbox"/> 3	⁴ <input type="checkbox"/> 4	⁵ <input type="checkbox"/> 5	⁶ <input type="checkbox"/> NA
Capital for start-up/spin-off (ease with which you can access capital to start up or spin off new business units)	⁷⁴⁻¹ <input type="checkbox"/> 1	² <input type="checkbox"/> 2	³ <input type="checkbox"/> 3	⁴ <input type="checkbox"/> 4	⁵ <input type="checkbox"/> 5	⁶ <input type="checkbox"/> NA
Other:	⁷⁵⁻¹ <input type="checkbox"/> 1	² <input type="checkbox"/> 2	³ <input type="checkbox"/> 3	⁴ <input type="checkbox"/> 4	⁵ <input type="checkbox"/> 5	⁶ <input type="checkbox"/> NA

BUSINESS DEVELOPMENT

22. How would you rate the health of manufacturing in Wisconsin currently and five years from now: (check one in each row)

Current health	⁷⁶⁻¹ <input type="checkbox"/> Excellent	² <input type="checkbox"/> Good	³ <input type="checkbox"/> Fair	⁴ <input type="checkbox"/> Poor	⁵ <input type="checkbox"/> Abysmal
In five years	⁷⁷⁻¹ <input type="checkbox"/> Excellent	² <input type="checkbox"/> Good	³ <input type="checkbox"/> Fair	⁴ <input type="checkbox"/> Poor	⁵ <input type="checkbox"/> Abysmal

23. What percentage of revenue does your company or division now devote to the following, and how will that investment (by dollar volume) change in the next five years?

	Current as % of sales	Anticipated change in 5 years
Direct labor	% ⁷⁸	% change ⁷⁹
Outsourced services	% ⁸⁰	% change ⁸¹
Sourced raw material (not processed)	% ⁸²	% change ⁸³
Sourced components (processed)	% ⁸⁴	% change ⁸⁵
Sales and marketing	% ⁸⁶	% change ⁸⁷
Research and development	% ⁸⁸	% change ⁸⁹
Training	% ⁹⁰	% change ⁹¹

24. What is the likelihood, on a scale of 1-to-5, of your company making the following moves in the next 5 years? (check one in each row)

	Not likely		Neutral		Very likely	<i>Not applicable</i>
Major purchase of equipment	92-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Major purchase of IT systems or applications (e.g. ERP)	93-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Major site expansion or addition	94-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Install new management/leadership	95-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Execute an acquisition or merger	96-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Change primary suppliers	97-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Bring more functions in-house (reduce outsourcing)	98-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA
Perform fewer functions in-house	99-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5	6 <input type="checkbox"/> NA

25. What are the technologies that will most affect your industry in the next 5 years (list up to three)?

_____ 100

_____ 101

_____ 102

26. What operations improvement methodology do you plan to emphasize in the next 5 years? (check one)

- | | | |
|---|--|---|
| 103-1 <input type="checkbox"/> Agile Manufacturing | 2 <input type="checkbox"/> Lean Manufacturing | 3 <input type="checkbox"/> Six Sigma |
| 4 <input type="checkbox"/> Lean and Six Sigma | 5 <input type="checkbox"/> Theory of Constraints | 6 <input type="checkbox"/> Total Quality Management |
| 7 <input type="checkbox"/> Toyota Production System | 8 <input type="checkbox"/> Other | 9 <input type="checkbox"/> No methodology |

DOING BUSINESS IN WISCONSIN

27. What are the business challenges that your organization faces — what most keeps you up at night? (limit to 50 words)

104

28. What are the business strengths and/or advantages your organization has by being located in Wisconsin? (limit to 50 words)

105

29. As you consider the next 5 to 10 years, to what degree will the following issues pose an obstacle to your business success? Rate on a scale of 1 to 5. (check one in each row)

	No obstacle		Some obstacle		Major obstacle
Health of national economy	106-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Health of state economy	107-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Overseas competition	108-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Human resources availability	109-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Health insurance costs	110-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Government regulations	111-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Cost of goods and materials	112-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Rising customer expectations	113-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Torts and associated insurance and legal costs	114-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Access to capital	115-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5

30. Please identify the level of impact that each of the following has on your decision to stay or expand in Wisconsin. (check one in each row)

	Low impact		Moderate impact		High impact
General Issues					
Availability of a skilled manufacturing workforce	116-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Availability of industry professionals	117-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Availability of suppliers (material)	118-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Availability of supportive services (e.g., logistics, financial knowledge)	119-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Supply of affordable energy	120-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Transportation infrastructure	121-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Quality of life for managers and employees	122-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Tradition/history of operating in Wisconsin	123-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5
Government policies – taxes and regulation	124-1 <input type="checkbox"/> 1	2 <input type="checkbox"/> 2	3 <input type="checkbox"/> 3	4 <input type="checkbox"/> 4	5 <input type="checkbox"/> 5

Thank you for completing the WMEP questionnaire. If you would like to speak with someone and provide more detailed responses, please include a phone number at which you may be contacted:

Phone Number: _____

14.5 WMEP Manufacturing Study: Description of Data Tables

The following data files are available on CD-ROM.

14.5.1 Excel Spreadsheet Files:

14.5.1.1 All Comparison States 2-digit Employment-1

Contains the following data for WI, the U.S., & 8 competitor states:

1. Employment by Major Sector (all industries) 1993-2002 & 2002-2008
-NAICS code & title & then number of employees from 1993 through 2002; 2002-2008
2. Employment by Major sector, Change 1993-2002 & 2002-2008
-NAICS code & title & then number of employees by years
3. Employment by Major Sector, Change as a %, 1993-2002 & 2002-2008
-NAICS code & title & then number of employees by years

14.5.1.2 All Comparison States 2-digit GDP per EMP

These are “Productivity” figures,” i.e., gross product per employee (The D in GDP should be omitted from the file title.) Contains the following for WI, U.S., and the 8 competitor states:

1. Productivity per Employee by Major Sector, 1993-2002 & 2002-2008
-NAICS code & title and then number in dollars
2. Productivity per employee by Major Sector, Change, 1993-2002 & 2002-2008
-NAICS code & title and then number in dollars
3. Productivity per employee by Major Sector, Change as a %, 1992-2002 & 2003-2008

14.5.1.3 All Comparison States 2-digit Gross Product-2

Contains gross product data for WI, the U.S., and the 8 competitor states

1. Gross product by Major Sector, 1993-2002 & 2002-2008
-NAICS code & title and then dollar figures
2. Gross product by Major Sector, Change, 1993-2002 & 2002-2008
-NAICS code & title and then dollar figures
3. Gross product by Major Sector, Change as a %, 1993-2002 & 2002-2008
-NAICS code & title and then dollar figures

14.5.1.4 Matrix of Drivers ver3-1

Contains a table of all Industry Sectors in WI (NAICS 1133, Logging, through 8139, Business, Professional, Labor, Political, and Similar Organizations, as well as FR, Farming) by NAICS code, title, and an X for each region in which that industry is a driver.

14.5.1.5 Regions 2-digit Employment

Contains employment figures by major industry sector for each of the 7 regions

1. Employment by major sector (all industries) 1993-2002 & 2002-2008
-NAICS code & title & then number of employees from 1993 through 2002; 2002-2008
2. Employment by major sector, change 1993-2002 & 2002-2008
-NAICS code & title & then number of employees by years

3. Employment by major sector, change as a %, 1993-2002 & 2002-2008
-NAICS code & title & then number of employees by years

14.5.1.6 Regional 2-Digit (Region Name)

A series of 7 regional files containing 2-Digit Gross Product and Gross Product per Employee are companion pieces to the employment data in the file “Regions 2-digit Employment.” The Regional 2-Digit Central file does contain employment data plus GP and GP per EMP, but for all other regions, refer to Regions 2-Digit Employment for the employment figures. Contains:

1. Gross product by Major Sector, 1993-2002 & 2002-2008
-NAICS code & title and then dollar figures
2. Gross product by Major Sector, Change, 1993-2002 & 2002-2008
-NAICS code & title and then dollar figures
3. Gross product by Major Sector, Change as a %, 1993-2002 & 2002-2008
-NAICS code & title and the number as a percent
4. Productivity per Employee by Major Sector, 1993-2002 & 2002-2008
-NAICS code & title and then number in dollars
5. Productivity per employee by Major Sector, Change, 1993-2002 & 2002-2008
-NAICS code & title and then number in dollars
6. Productivity per employee by Major Sector, Change as a %, 1992-2002 & 2003-2008
-NAICS code and title and the number as a percent
7. Wage & Salary by Major Sector, 1993-2002, 2002-2008
-NAICS code and title and the number in dollars
8. Wage & Salary by Major Sector, Change, 1993-2002, 2002-2008
-NAICS code and title and the number in dollars
9. Wage & Salary by Major Sector, Change as a %, 1993-2002, 2002-2008
-NAICS code and title and number as a percent

The titles for “Statewide Drivers ver2” are:

- Regional 2-Digit Central
- Regional 2-Digit East Central
- Regional 2-Digit North
- Regional 2-Digit South
- Regional 2-Digit Southeast
- Regional 2-Digit West Central I
- Regional 2-Digit West Central II

14.5.1.7 Top Firms by Region

Contains for each of the 7 regions the following information:
Driver Industry by NAICS code & title (4 digit)

1. Followed by the primary NAICS & description (6 digit)

2. Followed by the company name for each primary NAICS description
3. Followed by Employment by Site & All Sites
4. Followed by Location Type (parent or branch)
5. Followed by Ownership Status (private or public)
6. Followed by Sales range in MM of dollars
7. Followed by year established
8. Parent country
9. Parent state
10. Mail address
11. Mail city
12. Mail county
13. Mail state
14. Mail zip code

14.5.1.8 WMEP Clusters ver4 All-2

Contains data for all 7 regions this information by 4-digit NAICS & title:

1. Supplier industries for typical REGIONAL industry
2. Supplier industries for typical NATIONAL industry
3. Consumer industries for typical REGIONAL industry

14.5.1.9 Statewide Drivers ver2

Contains 5 sets of data:

1. A matrix of the drivers arrayed by statewide and all 7 regions by NAICS code and title (NAICS ordered from 3114 through 3369)
2. The 24 drivers arrayed by 3-digit and then 4-digit NAICS code, driver title and totals for employment and gross product for 2002
3. The 24 drivers seen as a “composite” of the 13 drivers (4 3-digit and 9 4-digit) including employment and gross product for 2002
4. The 24 drivers by NAICS code and title showing GP alone from 1993 through 2008
5. The 24 drivers by NAICS code and title showing employment alone from 1993 through 2008

14.5.1.10 WMEP Clusters ver4 All-2

Contains data for all 7 regions, including 4-digit Driver Industry NAICS code and industry sector title, this information:

1. Supplier industries for a typical regional industry
2. Supplier industries for a typical national industry
3. Consumer industries for a typical regional industry

14.5.1.11 EMP, GP, GPperEMP Statewide Drivers

Contains for Wisconsin, the eight competing states, and the U.S. these figures for each of Wisconsin’s statewide drivers (NAICS codes 3114 through 3369; also includes selected nondriver NAICS codes, 4452 through 8134, as well as FR, Agricultural Production):

1. Statewide driver employment, 1993-2008
2. Statewide driver gross product, 1993-2008
3. Statewide driver gross product per employee, 1993-2008

14.5.1.12 Comparison States Mfg Only

Contains data for Wisconsin, the eight competing states, and the U.S. manufacturing employment only for the years 1993-2008:

1. Manufacturing employment
2. Manufacturing employment, change
3. Manufacturing employment, change as a %

14.5.1.13 WMEP Summary Data for Drivers ver4

Contains for each of the 7 regions the driver industry NAICS code and name with the following information:

1. Employment, 2003-2008
2. Compound annual growth rate of employment as a percentage, 1993-2008
3. Gross Product in dollars, 1993-2008
4. Compound annual growth rate of gross product as a percentage, 1993-2008
5. Wage & Salary in dollars, 1993-2008
6. Output Location Quotient for gross product, 1993-2003
7. Labor Location Quotient for employment, 1993-2003
8. Gross Product per employee in dollars, 1993-2008

14.5.1.14 Statewide Drivers v3 COMBINED SECTORS-1

Contains data for the statewide drivers represented as a composite of 13 NAICS code / industry sectors, showing:

1. Employment, change in employment, and change as a %, 1993-2008
2. Gross product, change in gross product, and change as a %, 1993-2008
3. Gross product per employee, change in gross product per employee, and change as a %, 1993-2008

14.5.1.15 Non-WI Owned Statewide Driver Firms

Contains the following information for (1) out-of-state owners of driver industries in WI, (2) foreign-owned driver industries in WI, and (3) parent country / parent state for each company:

1. Parent country
2. Parent state
3. Company name
4. NAICS code
5. Title of industry sector
6. Region where located
7. County in WI
8. Employment numbers at the WI site and total employment of the company
9. Location type (headquarters, branch, etc.)
10. Ownership (public or private)
11. Sales range (\$MM)
12. Primary NAICS code (6-digit)

13. Primary NAICS industry name

14.5.1.16 Statewide Driver Firms

Contains the top 10 companies by statewide drivers from three views:

1. State drivers firms composite, showing for NAICS 3114 through 3369:
 - a. NAICS code
 - b. Sector name
 - c. Company name
 - d. Region
 - e. County
 - f. Employment at the site and for all sites
 - g. Ownership (private or public)
 - h. Sales range
 - i. Year established
 - j. Primary NAICS code
 - k. Primary NAICS description
2. The same information as found in #1, above, but by NAICS 4-digit code
3. All statewide driver firms ordered by NAICS code 3114 through 3369, with county region, Harris ID #, DUNS #, and numerous other fields of information.

14.5.1.17 Comparison States 2002

Contains both employment data and gross product data for Wisconsin, the eight competing states, and the U.S. for the year 2002 in each of the 13 composite drivers for the year 2002.

14.5.1.18 Exports WI ver2

Contains 2001 through 2004, and 2002 through 2004 international export data from Harris InfoSource for all products by the 3-digit NAICS. (Because the data is available only at the 3-digit level, only seven of Wisconsin's statewide drivers appear here.) All countries importing Wisconsin products are listed by individual driver and dollar value. Data is in constant dollars, and includes percent share of all exports, and the percent change by year.

14.5.2 MS Word Files:

14.5.2.1 Regional Maps:

Central Region Map
East Central Region Map
North Region Map
South Region Map
Southeast Region Map
West Central I Map
West Central II Map

14.5.2.2 Other Project Files:

Drivers & Clusters Report ver4 (State of Wisconsin Manufacturing Extension Partnership:
Driver Industries and Industry Clusters, DRAFT, Prepared for the MPI Group, March 21, 2005)

14.6 Glossary of Technical Terms

ASM. Annual Survey of Manufacturers, conducted by the U. S. Department of Commerce.

BEA. Bureau of Economic Analysis, U.S. Department of Commerce.

Cluster Industries. “Geographic concentration of competitive firms or establishments in the same industry that have close buy-sell relationships with other industries in the region, use common technologies, or share a specialized labor pool that provides firms with a competitive advantage over the same industry in other places.” (Hill & Brennan, 2000).

Compound Annual Growth Rate—CAGR. An average annual growth rate over a specified period of time. It is calculated as: $CAGR = (\text{present value} / \text{base value})^{(1 / \text{number of years})} - 1$

Driver Industries. Those “industries in which the region has its greatest competitive advantage.” (Hill, E., & Brennan, J., 2000. A Methodology for identifying the Drivers of Industrial Clusters: The Foundation of Regional Competitive Advantage. Economic Development Quarterly, 14, 65-96) These industries form the heart of the Industrial Cluster.

Economic Base Industry. An industry in which firms produce output for export. Since exports bring monies in from places outside of the region, these types of industries generally “drive” regional economic growth.

Employed persons (Current Population Survey). “Persons 16 years and over in the civilian noninstitutional population who, during the reference week, (a) did any work at all (at least 1 hour) as paid employees; worked in their own business, profession, or on their own farm, or worked 15 hours or more as unpaid workers in an enterprise operated by a member of the family; and (b) all those who were not working but who had jobs or businesses from which they were temporarily absent because of vacation, illness, bad weather, childcare problems, maternity or paternity leave, labor-management dispute, job training, or other family or personal reasons, whether or not they were paid for the time off or were seeking other jobs. Each employed person is counted only once, even if he or she holds more than one job. Excluded are persons whose only activity consisted of work around their own house (painting, repairing, or own home housework) or volunteer work for religious, charitable, and other organizations.” (Source: U. S. Department of Labor, Bureau of Labor Statistics, Glossary. See www.bls.gov/bls/glossary.htm)

IMPLAN. “. . . a micro-computer-based, input-output modeling system. With IMPLAN, one can estimate IO models of up to 528 sectors for any region consisting of one or more counties. IMPLAN includes procedures for generating multipliers and estimating impacts by applying final demand changes to the model. The current version of IMPLAN is IMPLAN Pro 2.0. (Source: corpslakes.usace.army.mil/employees/economic/glossary.html)

IW. IndustryWeek, a Penton Media publication. IW informs manufacturing executives of trends, technologies, and manufacturing strategies that drive continuous improvement enterprisewide.

Labor Force (Current Population Survey). “The labor force includes all persons classified as employed or unemployed in accordance with the definitions contained in this glossary.” (Source: U. S. Department of Labor, Bureau of Labor Statistics, Glossary. See www.bls.gov/bls/glossary.htm)

Labor Location Quotient (Employment). See Location Quotient.

Location Quotient. The location quotient (LQ) technique is the calculated ratio between the local economy and the economy of some reference unit – in our case the national economy. The formula for Current Output Location Quotient is:

$$\begin{aligned} LQ_{ir}^t &= \frac{\text{regional output in industry } i \text{ for year } t / \text{total regional output for year } t}{\text{national output in industry } i \text{ for year } t / \text{total national output for year } t} \\ &= \frac{Y_{ir}^t / Y_r^t}{Y_{iN}^t / Y_N^t} \end{aligned}$$

A location quotient greater than one suggests that there is a concentration or specialization of an industry within a region, while a location quotient less than one suggests an industry is not concentrated in the region. The concentration of an industry in a region suggests that the industry is an exporter while the lack of concentration of an industry suggests that the existing industry produces primarily for local consumption and/or that the region must import products produced by the industry.

MPI Group. The Manufacturing Performance Institute based in Cleveland, Ohio, is a research organization that offers access to the best information available on strategy and operation performance as well as staff who know what to do with that intelligence. MPI’s customized products are designed for organizations, associations, and economic regions facing critical issues.

MSA. Metropolitan Statistical Area.

NAICS. North American Industrial Classification System code, replacing the SIC code.

Output Location Quotient (Gross Product). See Location Quotient.

Productivity. “A measure of economic efficiency that shows how effectively economic inputs are converted into output. Productivity is measured by comparing the amount of goods and services produced with the inputs that were used in production.” (Source: U. S. Department of Labor, Bureau of Labor Statistics, Glossary. See www.bls.gov/bls/glossary.htm)

SMEs. Small- and medium-sized enterprises.

Unemployed Persons (Current Population Survey). “Persons aged 16 years and older who had no employment during the reference week, were available for work, except for temporary illness, and had made specific efforts to find employment sometime during the 4-week period ending with the reference week. Persons who were waiting to be recalled to a job from which they had been laid off need not have been looking for work to be classified as unemployed.”

(Source: U. S. Department of Labor, Bureau of Labor Statistics, Glossary. See www.bls.gov/bls/glossary.htm)

WMEP. Wisconsin Manufacturing Extension Partnership.

WMEP Manufacturing Study Survey—Glossary. (See Appendices 12.2 and 12.3)

Frequency: For directive questions, frequency is the number or count of responses for an answer category. For open-ended numeric questions, frequency refers to the total respondents for the question.

Mean: The average value for answers to open-ended questions. The average/mean value for answers to open-ended survey questions is the sum of all measures divided by the total number of responses to the question.

Median: The midpoint value for open-ended questions — the value above which and below which half the answers fall; equivalent to the 50th percentile. The median is frequently the most reliable statistic upon which to base comparisons.

Percent: The percentage of responses for an answer category, based on all responses for that particular question. (*Note: This is not based on the total number of respondents for the survey*). This percent is obtained by dividing the number of responses for the answer category by the total number of responses for the question.

Percentiles: The 25th percentile is the value below which 25% of answers fall. The 75th percentile is the value below which 75% of answers fall.

Total: Total refers to the number of respondents (the frequency) that answered the question. For questions in which respondents were instructed to “check one,” total is also the sum of all frequencies for that question and the percent column equals 100% (or approximately 100% due to rounding). For questions where respondents could check more than one answer, only the frequency is provided because the percent column typically exceeds 100%.

14.7 About the Authors

John R. Brandt

CEO and founder of MPI, Brandt has spent more than two decades studying leadership in effective, purpose-driven organizations. Prior to MPI, he served as president, publisher, and editorial director of the Chief Executive Group, publisher of *Chief Executive Magazine*. Before that, he was publisher and editor-in-chief of *IndustryWeek (IW)*. Under his leadership, the once troubled *IndustryWeek* (the magazine had lost money for more than a decade) won more than 70 editorial awards for excellence while more than doubling its revenues, putting it solidly in the black. Brandt also led the development of several pioneering research efforts at *Industry Week*, including the *IW* Census of Manufacturers, the *IW* Value Chain Survey, the World-Class Communities Project, the *Industry Week* 1000, and the World's Best Managed Companies Program.

Brandt is an internationally recognized expert on management and technology. With representation by The Leigh Bureau, he lectures frequently in the U.S. and abroad. A recipient of the prestigious Neal Award in 1998, he also has served as a judge for the Neal Awards and the National Association of Manufacturers Awards for Workforce Excellence. Brandt is a Phi Beta Kappa graduate of Case Western Reserve University, where he held the James Dysart Magee Economics Fellowship. He can be reached, at jbrandt@mpi-group.net.

George Taninecz

Vice president of research for MPI, Taninecz is a well-known innovator in manufacturing research. Prior to joining MPI, he worked at McKinsey & Company as an intellectual property developer and communications specialist for the firm's manufacturing practice. Before that, he was a managing editor and an associate editor of *IndustryWeek*, managing editor of *IW Growing Companies*, and director of *IW's* America's Best Plants awards competition. He co-designed the inaugural *IW* Value Chain Survey, an assessment of manufacturers' supplier and customer activities, and was the author of the Value Chain Executive Summary and multiple related feature articles. He also developed the inaugural *IW* Census of Manufacturers and authored and coordinated the Census of Manufacturers Research Report and Executive Summary. Taninecz also served as director and member of the team that judges, selects, and validates *Industry Week's* America's Best Plants award winners. In addition, he was instrumental in developing *IW's* Best Plants conference series and has been a popular speaker and moderator at Best Plants conferences and awards ceremonies. He can be reached at gtaninecz@mpi-group.net.

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Dean M. Prestegaard

Dean Prestegaard served as the lead researcher for all quantitative analyses in the Study, including the driver and cluster industry analysis. Mr. Prestegaard is an economist with 10 years of experience conducting applied economic research and over 5 years experience analyzing issues directly related to manufacturing and the Manufacturing Extension Partnership. Mr. Prestegaard currently runs his own economic research firm, DMP Research, which applies economic-based models and techniques to questions related to regional economic development issues in order to assist local decision-makers in developing strategies for promoting future economic growth and development. He can be reached at dean@dmpresearch.com.