



WISCONSIN Next Generation Manufacturing

Executive Summary

prepared by

the Wisconsin Manufacturing Extension
Partnership

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Introduction

The Wisconsin Next Generation Manufacturing Study has been renewed with data from 95 Wisconsin manufacturers. The original study in 2008 was developed to better define the strategies and business activities necessary for world-class performance and success into the next generation. More than 500 manufacturers responded to the 2008 Study, the first of its kind. Both the 2008 and the 2011 studies were conducted by the Manufacturing Performance Institute (MPI), a global research firm.

The framework of the Next Generation Manufacturing (NGM) Study presents forward-looking strategies to drive manufacturing growth and profitability into the 21st century. The six Next Generation Manufacturing business activities examined are:

- ▶ Customer-Focused Innovation
- ▶ Advanced Talent Management
- ▶ Systemic Continuous Improvement
- ▶ Extended Enterprise Management (Supply Chain)
- ▶ Sustainable Products & Process Development
- ▶ Global Engagement

This update of the NGM Study provides critical insights into the state's manufacturing base, revealing the changes that have occurred over the past four years. A notable change is the dramatic increase in the number of firms that rate sustainability as highly important to their firms' success in the next five years and are making progress toward world-class performance in this attribute.

Unfortunately, the data also reveals very slight progress toward global engagement—only about one quarter of manufacturers see exporting as important. Given that starting point, it's not surprising that the number of manufacturers that made significant progress in global engagement has dropped in the past three years. It is important for Wisconsin's economy that manufacturers access and profit from emerging markets in developing countries; developing e

The good news is that Wisconsin manufacturers are a resourceful and innovative group—the data shows a renewed focus on measuring innovation and quality. These are hallmarks of leading manufacturers. The past three years have truly tested manufacturers, and this sector has proven that it is up to the challenge of leading the economic recovery in Wisconsin. This study shows that Wisconsin businesses have the focus and drive to become Next Generation Manufacturers, benefitting both the state and the country.

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Key Findings

- ▶ **Strong leadership** is necessary to attaining world-class status in the 21st century. Fifty six percent of Wisconsin companies may face a succession of leadership over the next five years and almost seventy percent of the CEO's in Wisconsin are aged fifty or more. Twenty six percent are over the age of sixty. Planning for retirements and developing younger leaders should be a strategy embraced by our Wisconsin firms to remain competitive.
- ▶ Wisconsin manufacturers realize they must continue to be **innovative**. Progress toward achieving world-class customer focused innovation has improved since the study was done in 2008. Nevertheless, just ten percent of our companies innovate at the highest levels. It is likely that innovation has taken a back seat to financial survival over the past few years.
- ▶ The economy also affected companies' **investment in R&D**. Eleven percent of Wisconsin companies invested less than 1% of their sales in R&D. On a positive note, Wisconsin companies are realizing the value of implementing systems that measure return from customer-focused innovation. Fourteen percent more companies have implemented some type of measurement system. More companies are also realizing the value of regular development review by operational and senior executives.
- ▶ Companies realize the importance of an **engaged and trained workforce**, but are not executing in this area. Sixty-six percent of our Wisconsin companies provide less than twenty hours of training annually to their workforce, which also explains the fact that two-thirds are experiencing suboptimal progress toward world-class human capital acquisition, development and retention.

What matters, gets measured, so it's good news that there has been a small increase (5%) in companies that have world-class monitoring of return on human capital. On the other end of the scale, sixty-one percent of our companies have "no or ad hoc" measurement systems in place.

Job losses at the state and national level have had a positive impact on employee turnover. Employees are staying on the job—the number of companies with turnover rates of more than 10% annually has decreased.

- ▶ **Human capital engagement and development** also correlates to creating a culture of performance excellence. Our Wisconsin companies are making good progress toward process and process improvements and are doing a much better job of engaging their workforce in specific improvement methods than they were in 2008.
- ▶ **Sustainability** awareness has increased since 2008. Companies are realizing how important sustainable and green practices are to their bottom line and are making progress in this area. For Wisconsin to remain competitive, larger numbers of manufacturers must make world-class progress in sustainable practices.
- ▶ There is an increased awareness of **global engagement** by our companies. Since 2008, there was a twelve percent decrease in companies stating that global engagement is not important to their success. Still, less than five percent are making world-class progress toward global engagement.

What Makes a Next-Generation Manufacturer?

The business strategies and best practices that comprise Next-Generation Manufacturing (across six broad activities) are familiar to Wisconsin manufacturers, but the effort put into implementing associated best practices varies widely among Wisconsin firms.

The best way to measure organizational commitment to a particular goal is to determine *if* a measurement system is in place to track progress, and *how* that data is shared within the organization. In every attribute but one (Global Engagement), Wisconsin manufacturers have made significant progress since 2008 in measuring progress at the world-class level (sharing the data transparently throughout the organization).

Regular monitoring and review of company-specific metrics by CEO and senior staff and transparency and clarity throughout the organization.	2008	2011
Customer-Focused Innovation	9.7%	12.6%
Advanced Talent Management	4.4%	9.5%
Superior Processes/Improvement Focus	12.4%	19.0%
Supply Chain Management & Collaboration	5.7%	11.6%
Sustainability/Green	2.1%	4.3%
Global Engagement	2.7%	2.2%

Definition of World-Class:

“World-class status” is generally considered to be a threshold of performance that is superior to that of the competition, supported by ongoing efforts to continually improve that performance, and comparable to the NGM activity description provided on the NGM Study questionnaire.

For purposes of the Wisconsin NGM study, participants self-assessed their progress toward world-class status. This study confirmed what research across thousands of manufacturing firms have learned over the past decade: Manufacturers who self-assess as being closest to world-class status consistently have better performance metrics and different management practices than those who self-assess at lower levels of world-class achievement. This means that firms seeking to improve generally do so by emulating the practices and performances of those organizations closest to world-class status.



Customer-Focused Innovation:

Delivering services and products before your customers know they're needed.

Performance

Wisconsin manufacturers are innovating at a faster pace than in the past. Manufacturers that launched more than 10% new products (as a total of all SKUs) rose from 16.4% in 2008 to 23.1% in 2011. This is impressive, considering the volatile economic environment of the past three years. Unfortunately, the increase in new products has not driven sales; the percentage of annual sales derived from products introduced in the past three years has slipped. This appears to have impacted the investment in R&D. Companies are investing less sales revenue in new product development, and the number of companies that report investing less than 1% has increased by more than 10% since 2008. Further, Wisconsin companies are investing less than companies in other states. Nationally, 22.1% percent of companies invested six percent or more of sales into R&D; the Wisconsin figure is 20%.

The 2011 study contained several new questions; since comparison cannot be made to the 2008 results, the numbers will be compared to national results.

Though Wisconsin companies are investing less in R&D, the results of that investment are paying off at a better rate than the national average. For example, 7.5% of Wisconsin companies commercialize three-quarters of R&D investment; the national figure is 6.0%. Further, game-changing market breakthroughs are achieved by 6.4% of

Wisconsin manufacturers vs 5.8% nationally.

New products as a percentage of total SKUs launched annually	2008	2011
<5%	56.5%	50.5%
5-10%	27.1%	26.3%
11-20%	11.4%	16.8%
>20%	5.0%	6.3%

Approximately what percentage of annual sales are derived from products introduced in the past three years?	2008	2011
<5%	26.3%	38.3%
5-25%	47.0%	44.7%
26-50%	19.3%	11.7%
>50%	7.4%	5.3%

Percentage of sales invested in new-product development/R&D	2008	2011
<1%	25.5%	36.8%
1-5%	47.8%	43.2%
6-10%	15.1%	13.7%
>10%	11.6%	6.3%

NEW 2011 QUESTIONS		
What percentage of R&D (by expense) is commercialized?		
	WI	US
<5%	67.0%	70.0%
25-50%	21.3%	17.6%
51-75%	4.3%	6.3%
>75%	7.5%	6.0%

What percentage of R&D (by expense) results in game-changing market breakthroughs?		
	WI	US
<5%	68.1%	66.3%
25-50%	18.1%	20.5%
51-75%	7.5%	7.4%
>75%	6.4%	5.8%

Note: The 2011 survey contained a number of new questions; some are specific to a particular NGM attribute. In addition, three questions were added for each attribute that focus on strategy, leadership and business systems. New questions are identified by the darker blue headings and the absence of comparison data from 2008. In this data, the US numbers include Wisconsin data.

Best Practices

Several new questions were included in the 2011 survey that evaluate organizational approaches to customer-focused innovation. Most surveyed companies have strategic plans for innovation; Wisconsin data tracks closely with national figures. Deeper analysis shows that smaller companies lag behind larger companies in innovation strategy development and implementation. Just 15% of small (less than \$20 million in annual revenue) Wisconsin companies rank themselves as world-class; 30.6% of large (revenue more than \$20 million) Wisconsin companies rank themselves as world-class in customer-focused innovation strategy.

Leadership in innovation in Wisconsin also tracks with national results; a comparison of small vs large Wisconsin companies reflects a divergence in world-class innovation talent. 17.5% of small companies ranked themselves as world-class, compared to 30.6% of large Wisconsin companies.

Wisconsin companies perform better than the national average in having state-of-the-art business systems to provide long-term support for innovation - 26.3% vs 17.8% nationally. Interestingly, both small and large Wisconsin companies have invested in business systems - 27.5% of small and 28.6% of large companies have state-of-the-art systems in place and all of the surveyed companies have some business system to measure innovation.

NEW 2011 QUESTIONS		
What best describes your customer-focused innovation strategy?		
	WI	US
No strategy	6.3%	7.4%
Generic strategy with little or no functional involvement and buy-in	16.8%	20.9%
Company-specific strategy with some functional involvement and buy-in	52.6%	47.6%
Company-specific strategy with full functional involvement and buy-in	24.2%	24.2%
Does your organization have the skilled innovation leadership and talent and a talent-development program to drive world-class customer-focused innovation to the next generation?		
	WI	US
Insufficient talent and no development program	16.8%	16.9%
Sufficient talent but no development program	37.9%	40.0%
Insufficient talent but a development program in place	20.0%	19.5%
Sufficient talent and a development program in place	25.3%	23.6%
What best describes the quality of your business systems and equipment to support world-class customer-focused innovation?		
	WI	US
None	0.0%	2.7%
Inadequate for current requirements	14.7%	15.1%
Adequate but limited to current requirements	59.0%	64.4%
State-of-the-art and able to provide long-term support	26.3%	17.8%

Measurement Systems

The number of Wisconsin companies that are measuring results of their innovation effort has greatly increased, while the number that don't measure return from innovation efforts was almost halved - dropping from 31.7% in 2008 to 17.9% in 2011.

In 2011, 12.6% of Wisconsin companies rank themselves as world-class in measurement systems vs 10.7% nationally.

Though Wisconsin companies are investing less in R&D, they are doing a better job of measuring return.

Measurement system for reviewing return from customer-focused innovation	2008	2011
No measurement system per se or reviews	31.7%	17.9%
Ad hoc monitoring of basic measures and ad hoc reviews	30.7%	36.8%
Company-specific metrics monitored regularly by operations staff	9.9%	15.8%
Regular monitoring and review of company-specific metrics by CEO and senior staff	18.0%	16.8%
Regular monitoring and review of company-specific metrics by CEO and senior staff and transparency and clarity throughout the organization	9.7%	12.6%

Awareness and Focus

There has been little change in how the importance of customer-focused innovation is viewed by Wisconsin firms since 2008. Fewer companies view innovation as unimportant, and fewer say they've made no progress toward world-class innovation.

Nationally, Wisconsin ranks lower in how customer-focused innovation is viewed and implemented. In 2011, 57.0% of companies nation-wide ranked customer-focused innovation as highly important; 12.3% rank their progress as world-class.

Wisconsin manufacturers, both large and small, appear to be applying internal resources toward innovation, but not investing cash into R&D. The data maintains the interpretation that companies, stressed by recessionary pressures, are making the most of a smaller investment in R&D with careful planning and increased tracking.

Importance placed on Customer-Focused Innovation	2008	2011
Rating 1 to 3 (1=not important)	14.2%	13.8%
Rating 4	31.3%	32.6%
Rating 5 (5=highly important)	54.5%	53.7%

Rate your organization's progress toward world-class customer-focused innovation	2008	2011
Rating 1 to 3 (1=no progress)	56.8%	51.6%
Rating 4	33.7%	39.0%
Rating 5 (5=world-class)	9.5%	9.5%



Engaged People/Human Capital Acquisition, Development and Retention:
The ability to harness the full power of the modern manufacturing workforce

Performance

It's no secret that manufacturing productivity has been rising; productive Wisconsin employees have become even more productive since 2008. They are also more productive than employees nationally — just 27.9% of employees nationally provide a value add of more than \$125,000; in Wisconsin, that percentage is 33.1%.

The other key human-capital performance measure — annual labor turnover — has improved significantly since 2008. Because of the recession, separations have decreased. Wisconsin firms that claim a turnover rate of more than 10% have dropped from 16% to 9.5% - nationally, this figure is 8.8%. Interestingly, smaller (less than \$20 million in annual revenues) Wisconsin companies have lower turn-over rates than larger companies 7.5% of small companies have a turnover rate of 0% vs 2.0% of larger companies.

Because of the intense focus on talent acquisition and development issues facing manufacturers, the 2011 survey expanded the scope to include questions on talent strategy. Wisconsin manufacturers surpass other manufacturers nationally - more than 90% have a strategy, and the percentage that have a world-class strategy is greater than the national number as well.

Value-added per employee [(sales – cost of materials) ÷ number of employees]	2008	2011
<\$75,000	32.3%	31.2%
\$75,000-\$125,000	39.4%	35.5%
\$125,001-\$175,000	18.1%	20.4%
>\$175,000	10.2%	12.9%
Annual labor turnover rate (number of voluntary and involuntary separations ÷ typical staffing level)	2008	2011
0%	5.2%	5.3%
0.1-1%	17.9%	19.0%
1.1-5%	32.9%	42.1%
5.1-10%	28.1%	24.2%
>10%	16.0%	9.5%

NEW QUESTIONS FOR 2011		
What best describes your human-capital-management strategy?		
	WI	US
No strategy	9.6%	15.1%
Generic strategy with little or no functional involvement and buy-in	27.7%	28.6%
Company-specific strategy with some functional involvement and buy-in	46.8%	43.8%
Company-specific strategy with full functional involvement and buy-in	16.0%	12.5%

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Wisconsin manufacturers rank their HR leadership and talent development programs as world-class almost 10% higher than the national rate - 27.4% vs 18.5% nationally. Both large and small Wisconsin manufacturers responded similarly to this question, though more small manufacturers than large stated that they had “insufficient talent and no development program.”

Wisconsin manufacturers also rank higher than the national statistics on the quality of their business systems to support world-class HR. 72.6% of Wisconsin firms have adequate or state-of-the-art systems vs 66.8% nationally.

Overall, Wisconsin manufacturers do better than the national averages in providing established skill standards and aligning training with those skill standards. In Wisconsin, even small companies have established skill standards - according to the data, 15% of small Wisconsin companies rank themselves as world class in skill standards and aligned training.

Does your organization have the skilled HR leadership and talent (e.g. recruiters, benefits experts) and talent-development programs to drive world-class human capital management into the next generation?

	WI	US
Insufficient talent and no development program	28.4%	32.8%
Sufficient talent but no development program	31.6%	38.5%
Insufficient talent but a development program in place	12.6%	10.3%
Sufficient talent and a development program in place	27.4%	18.5%

What best describes the quality of business systems and equipment to support world-class HR?

	WI	US
None	8.4%	12.4%
Inadequate for current requirement	19.0%	20.9%
Adequate but limited to current requirements	60.0%	57.6%
State-of-the-art and able to provide long-term support	12.6%	9.2%

To what degree has your organization established skill standards and aligned training with employee mastery of these skill standards?

	WI	US
No established skill standards	12.6%	16.9%
Skill standards and training alignment for a few positions	40.0%	40.7%
Skill standards and training alignment for a majority of positions	39.0%	34.7%
Skill standards and training alignment for all positions	8.4%	7.7%

Best Practices

The percentage of Wisconsin companies that provide 8 or fewer hours of training has decreased, and more companies are providing 21-40 hours of training.

Training invested in employees appears to be yielding results—in 2008, almost 40% of respondents said that less than one quarter of their employees regularly participate in empowered work teams. This year, just 15% of respondents said that one quarter of their workforce could excel in high-performance work teams.

Formal training hours devoted annually to each employee	2008	2011
8 or fewer	29.0%	24.2%
9-20	43.0%	41.1%
21-40	18.4%	25.3%
>40	9.7%	9.5%

	2008	2011
	Percentage of employees that regularly participate in empowered work teams (i.e., make decisions without supervisor approval)	What percentage of employees have the technical skills, problem-solving skills and work ethic to excel in high-performance work teams?
<25	39.9%	14.9%
25-50%	30.3%	35.1%
51-75%	14.9%	28.7%
76-90%	9.6%	16.0%
>90%	5.3%	5.3%

Measurement

In 2011, greater numbers of Wisconsin manufacturers report that they measure the return from their HR efforts—those reporting that they have no measurement systems in place has decreased by almost 10% since 2008. Comparing Wisconsin to the national average in 2011, we see that 27.2% of manufacturers nationally report having no measurement systems in place vs. 19% for Wisconsin manufacturers.

Measurement system for reviewing return from engaged people/human capital acquisition, development and retention	2008	2011
No measurement system per se or reviews	28.3%	19.0%
Ad hoc monitoring of basic measures and ad hoc reviews	35.7%	42.1%
Company-specific metrics monitored regularly by operations staff	13.5%	14.7%
Regular monitoring and review of company-specific metrics by CEO and senior staff	18.2%	14.7%
Regular monitoring and review of company-specific metrics by CEO and senior staff and transparency and clarity throughout the organization	4.4%	9.5%

Awareness and Focus

Wisconsin manufacturers are increasingly seeing human capital management as important. Nevertheless, they feel their progress lags. In fact, the percentage of respondents that believe their progress is world-class has dropped slightly. This reflects the well-known skill gap in Wisconsin—there are many more job openings for skilled workers than qualified workers to fill those openings.

Importance placed on Human-Capital Acquisition, Development and Retention	2008	2011
Rating 1 to 3 (1=not important)	18.5%	11.6%
Rating 4	32.1%	35.8%
Rating 5 (5=highly important)	49.4%	52.6%

Rate your organization's progress toward world-class Human Capital Acquisition, Development and Retention	2008	2011
Rating 1 to 3 (1=no progress)	71.1%	67.0%
Rating 4	23.8%	28.7%
Rating 5 (5=world-class)	5.1%	4.3%

Superior Processes/Improvement Focus:
Establishing a culture that sets new performance standards every day

Performance

The change in Wisconsin survey responses from 2008 through 2011 indicate that quality and productivity are improving. Interestingly, the number of Wisconsin firms who said they delivered perfect, on-time orders more than 98% of the time was 24.2%—the national average was 27.0%. There is no obvious explanation for this finding.

Smaller Wisconsin firms struggle with perfect, on-time deliveries; just 20% report that they deliver product in perfect order and on-time more than 98% of the time vs. larger firms that report 26.5%.

Customer satisfaction in Wisconsin appears to have remained fairly static; productivity continues to improve, but the percentages aren't as high on the upper end of the scale when comparing 2011 figures with the national results. Wisconsin firms' productivity improvement of more than 76% was 4.2%, while the national results were 8.5%.

Considering that Wisconsin workers are very productive. The reason for this could be that productivity is already at a high level which make large increases more difficult to achieve.

Percentage of deliveries reaching customers in perfect order (on time, high quality, to all customer specifications)	2008	2011
<80%	8.6%	2.1%
80-90%	16.0%	12.6%
91-95%	23.6%	32.6%
96-98%	26.5%	28.4%
>98%	25.3%	24.2%
Customers' satisfaction with your overall performance	2008	2011
Threatens to pull business because we don't match the competition	1.7%	2.1%
Indifferent to buying our product or competitors	5.2%	3.2%
Preference for our products by virtue of price, quality, and delivery performance	47.1%	48.9%
Strong loyalty to our products due to ongoing trust in our organization's people and capabilities	46.0%	45.7%
Percentage productivity (i.e., value add) improved over the past three years?	2008	2011
<25%	48.1%	43.2%
26-50%	33.0%	32.6%
51-75%	12.9%	20.0%
76-99%	5.0%	4.2%
>100%	1.0%	0.0%

Best Practices

Wisconsin manufacturers are also showing a greater commitment to continuous improvement. The surveyed companies clearly demonstrate a trend toward engaging employees in continuous improvement. Overall, half of Wisconsin companies said that more than 50% of their workforce is fully engaged in the organizations' specific improvement method/approach vs. the national average of 44%.

Wisconsin manufacturers are clearly working toward driving continuous improvement from the top—more than 80% of companies surveyed have a continuous improvement strategy, with 35% stating this strategy has full functional involvement and buy-in. This result outpaces the national average of just 26%.

As far as talent development, more than half of Wisconsin manufacturers have a development program in place, though one-quarter note that they do not have sufficient talent in place; this tracks very closely with the national figure.

Manufacturers have also invested in business systems to support continuous improvement. Fewer than 20% of Wisconsin respondents say they have inadequate or no business systems to meet current requirements; one-fifth have state-of-the-art systems able to provide long-term support of continuous improvement. Nationally, just 13.5% of manufacturers say they have world-class business systems for continuous improvement—again Wisconsin outpaces national averages.

Percentage of workforce fully engaged in organization's specific improvement method/approach	2008	2011
<25%	32.6%	28.4%
26-50%	22.8%	19.0%
51-75%	18.0%	22.1%
76-99%	17.7%	25.3%
100%	8.9%	5.3%

NEW 2011 QUESTIONS

What best describes your continuous improvement strategy?

	WI	US
No strategy	5.3%	5.9%
Generic strategy with little or no functional involvement and buy-in	12.6%	20.8%
Company-specific strategy with some functional involvement and buy-in	47.4%	47.2%
Company-specific strategy with full functional involvement and buy-in	34.7%	26.0%

Does your organization have the skilled process-improvement leadership and talent (e.g. CI experts, black belts, lean experts) and talent-development program to drive continuous operations improvement into the next generation?

	WI	US
Insufficient talent and no development program	19.0%	20.3%
Sufficient talent but no development program	29.5%	36.1%
Insufficient talent but a development program in place	25.3%	18.7%
Sufficient talent and a development program in place	26.3%	24.9%

What best describes the quality of business systems and equipment to support continuous operations improvements?

	WI	US
None	1.1%	4.9%
Inadequate for current requirements	18.1%	18.9%
Adequate but limited to current requirements	60.6%	62.7%
State-of-the-art and able to provide long-term support	20.2%	13.5%

Measurement

A key measure of continuous improvement is keeping metrics in place that are monitored by everyone in the organization. Since 2008, Wisconsin manufacturers have made significant progress in establishing and monitoring key metrics—almost one fifth of manufacturers now have a world-class measurement system in place for monitoring continuous improvement. Again, Wisconsin has a higher percentage of world-class metrics than manufacturers nationally—just 13.3% of manufacturers nationwide rank themselves as world-class in measurement systems for continuous improvement.

Awareness and Focus

Wisconsin manufacturers view continuous improvement as critical to their company's success over the next five years; the percentage of companies who made significant progress in 2011 in continuous improvement jumped by almost 13%.

In 2011, national responses show that manufacturers don't value process improvement as highly as they once did—just 56.7% say it's highly important, yet 7.0% of manufacturers nationwide rank their progress toward world-class process improvement at the highest level.

Measurement system for reviewing return from process improvements	2008	2011
No measurement system per se or reviews	15.3%	10.5%
Ad hoc monitoring of basic measures and ad hoc reviews	28.2%	24.2%
Company-specific metrics monitored regularly by operations staff	21.4%	25.3%
Regular monitoring and review of company-specific metrics by CEO and senior staff	22.7%	21.1%
Regular monitoring and review of company-specific metrics by CEO and senior staff and transparency and clarity throughout the organization	12.4%	19.0%

Importance of process improvement to your organizations success over the next five years:	2008	2011
Rating 1 to 3 (1=not important)	12.5%	8.4%
Rating 4	26.4%	25.3%
Rating 5 (5=highly important)	61.1%	66.3%

Rate your organization's progress toward world-class processes and process improvement:	2008	2011
Rating 1 to 3 (1=no progress)	58.2%	46.4%
Rating 4	34.5%	47.4%
Rating 5 (5=world-class)	7.4%	6.3%

Supply-Chain Management & Collaboration:
Making supply chains that are strong and profitable for everyone.

Performance

Wisconsin manufacturers are focusing on reducing costs in the supply chain—more than half of respondents in 2011 state that they have reduced the value of inventory in the supply chain by more than 10%, with an increase of almost 10 percentage points since 2008.

Conversely, Wisconsin respondents appear to have made little progress in using the supply chain as a competitive advantage since 2008.

Wisconsin respondents struggle with managing spikes in demand throughout the supply chain, as do manufacturers across the U.S.

Since volatility is expected to continue, focus on managing supply chains is becoming increasingly important. Manufacturers that place strategic importance on managing the supply chain will clearly have a competitive advantage.

Percentage of total value of inventory throughout the supply chain for primary product (furthest supplier to end customer) reduced over the last three years?	2008	2011
<10%	58.6%	47.9%
10-25%	30.0%	33.0%
26-50%	9.5%	17.0%
>50%	1.9%	2.1%

How is your supply chain a competitive advantage in terms of flexibility and speed to the marketplace?	2008	2011
Suppliers regularly measured on cost, quality, and delivery performance	35.8%	40.0%
Suppliers regularly measured on cost, quality, and delivery performance as well as total acquisition cost	10.4%	9.5%
Suppliers regularly measured on cost, quality, and delivery performance as well as total acquisition cost and "soft" qualities (e.g., trust, flexibility)	31.5%	28.4%
Strategic suppliers and customers are active participants in our operations, continuous improvement, and product development efforts	17.5%	16.8%
Strategic suppliers and customers are active participants in our operations, continuous improvement, and product development efforts and participate fully in strategic planning and identifying and responding to new markets	4.7%	5.3%

NEW 2011 QUESTION		
What best describes your end-to-end supply chain's ability to respond to unexpected customer demand for existing products?	WI	US
Major delays communicating demand signal throughout chain and most suppliers struggle to efficiently meet demand - standard delivery times dramatically exceeded and/or excessive inventory	3.2%	6.8%
Minor delays in communicating demand signal throughout chain and some suppliers struggle to efficiently meet demand - standard delivery time exceeded and or too much inventory	42.1%	40.0%
Efficient communication of demand signal throughout chain with most suppliers efficiently satisfying demand - standard delivery times nearly met and right-sized inventories	46.3%	44.0%
Real-time communication of demand signal and entire supply chain flexible to demand spikes - standard delivery times consistently met and just-in-time inventory	8.4%	9.2%

Best Practices

Several new questions relating to supply-chain management have been added in 2011; this data indicates that most Wisconsin manufacturers are focusing on their present needs. Supply chain management has not been elevated to the strategic level for most Wisconsin manufacturers. This is indicated by the high proportion who have a company specific strategy with some functional buy-in (47%), sufficient talent, but no development program (40%), business systems adequate for present needs only (59%) and the large number who state that 5-25% of staff time is spent resolving issues rather than engaged in strategic procurement (46%).

Wisconsin’s performance is slightly better than the national average in treating supply chains as a strategic imperative—just 8.4% of Wisconsin manufacturers have no strategy, vs. 13.3% nationally. Wisconsin tracks slightly better than the national averages in having business systems to support world-class supply-chain management—14.7% of Wisconsin manufacturers rank themselves as world-class vs. 10.9% of manufacturers nationally.

The questions on supply chain management reveal conflicting data: an indication that manufacturers across the nation are struggling with supply chain management.

NEW 2011 QUESTIONS		
What best describes your supply-chain strategy?		
	WI	US
No strategy	8.4%	13.3%
Generic strategy with little or no functional involvement and buy-in	29.5%	28.7%
Company-specific strategy with some functional involvement and buy-in	47.4%	43.4%
Company-specific strategy with full functional involvement and buy-in	14.7%	14.7%
Does your organization have the skilled supply-chain management, leadership and talent (e.g. logistics engineers) and talent-development program to drive supply-chain improvement into the next generation?		
	WI	US
Insufficient talent and no development program	27.4%	27.2%
Sufficient talent but no development program	40.0%	44.3%
Insufficient talent but a development program in place	19.0%	13.8%
Sufficient talent and a development program in place	13.7%	14.7%
What best describes the quality of business systems and equipment to support world-class supply-chain management?		
	WI	US
None	5.3%	9.2%
Inadequate for current requirements	21.1%	22.1%
Adequate but limited to current requirements	59.0%	57.9%
State-of-the-art and able to provide long-term support	14.7%	10.9%
What percentage of staff time and resources is spent expediting, fire-fighting, resolving conflicts with customers and suppliers, etc., rather than strategic procurement and supply-chain planning and partnering?		
	WI	US
<5%	26.3%	23.3%
6-25%	46.3%	50.3%
26-50%	16.8%	19.4%
>50%	10.5%	7.1%

Measurement

Wisconsin manufacturers have made progress since 2008 in putting measurement systems in place to track important supply chain metrics; there's also been an uptick in the percentage of respondents that provide world-class measurement systems for reviewing return. Wisconsin manufacturers fare better than manufacturers nationwide in both having measurement systems (19.0% of Wisconsin manufacturers vs 21.5% of national with no measurement systems). On the high end, 11.6% of Wisconsin manufacturers have world-class measurement systems vs. 8.9% nationally.

Measurement system for reviewing return from supply chain management and collaboration	2008	2011
No measurement system per se or reviews	28.6%	19.0%
Ad hoc monitoring of basic measures and ad hoc reviews	32.8%	33.7%
Company-specific metrics monitored regularly by operations staff	18.3%	24.2%
Regular monitoring and review of company-specific metrics by CEO and senior staff	14.7%	11.6%
Regular monitoring and review of company-specific metrics by CEO and senior staff and transparency and clarity throughout the organization	5.7%	11.6%

Awareness and Focus

Since 2008, supply chain management has become more important to Wisconsin manufacturers, and they are making progress toward world-class performance .

Nationally, more manufacturers see supply chain management as "not important" as compared to Wisconsin. It's not surprising that just 5.5% of national manufacturers rank their organization's progress in supply chain management as "World-class."

Importance placed on Supply-Chain Management and Collaboration	2008	2011
Rating 1 to 3 (1=not important)	33.2%	23.7%
Rating 4	31.3%	33.3%
Rating 5 (5=highly important)	35.5%	43.0%

Rate your organization's progress toward world-class supply-chain management and collaboration:	2008	2011
Rating 1 to 3 (1=no progress)	75.3%	67.0%
Rating 4	21.8%	25.5%
Rating 5 (5=world-class)	3.1%	7.5%

Green/Sustainability:

Reduce the organization’s environmental footprint and improve operating performance

Performance

The data suggest that there has been little change in sustainability performance since 2008, despite the dramatic increase in interest in sustainability.

Wisconsin tracks with national data on annual reduction in energy per unit of product output, but the other data is mixed, with Wisconsin slightly trailing national data in cutting back on using non-recycled materials and manufacturing 100% recyclable/reusable products.

Annual reduction in energy per unit of product output	2008	2011
<10%	84.7%	80.9%
10-25%	13.8%	19.2%
26-50%	1.4%	0.0%
>50%	0.2%	0.0%
Annual reduction in usage of non-recycled material per unit of product output?	2008	2011
<10%	80.0%	69.9%
10-25%	16.0%	26.9%
26-50%	3.1%	2.2%
>50%	1.0%	1.1%
Percentage of products (by sales volume) completely recyclable/reusable?	2008	2011
<50%	55.7%	55.9%
51-75%	10.7%	11.8%
76-89%	8.2%	14.0%
90-99%	16.6%	9.7%
100%	8.8%	8.6%

Best Practices

Sustainability has become part of business for Wisconsin manufacturers, though overall maturity is low. However, progress is being made: Almost 57% of Wisconsin manufacturers have a company-specific sustainability strategy vs just 47.2% of national manufacturers.

Wisconsin manufacturers have made more progress than manufacturers nationally in terms of human resources and business systems that support sustainability. The differences are notable at the high end of the scale, with Wisconsin leading by more than 4 percentage points.

Wisconsin manufacturers are putting measurement systems in place to track sustainability—the results are dramatic. In 2008, 61% of Wisconsin manufacturers had no measurement system in place; today that percentage is 33%—a significant and positive change since 2008. Nationally, 37% of manufacturers have no measurement systems in place in 2011, so Wisconsin’s adoption of sustainability, though immature, is slightly ahead of the nation.

NEW 2011 QUESTIONS

What best describes your sustainability strategy?

	WI	US
No strategy	23.2%	24.5%
Generic strategy with little or no functional involvement and buy-in	20.0%	28.3%
Company-specific strategy with some functional involvement and buy-in	46.3%	35.3%
Company-specific strategy with full functional involvement and buy-in	10.5%	11.9%

Does your organization have the skilled sustainability leadership and talent (e.g. environmental engineers) and talent-development program to drive world-class sustainability into the next generation?

	WI	US
Insufficient talent and no development program	29.8%	35.5%
Sufficient talent but no development program	43.6%	39.6%
Insufficient talent but a development program in place	10.6%	11.0%
Sufficient talent and a development program in place	16.0%	13.9%

What best describes the quality of business systems and equipment to support world-class sustainability?

	WI	US
None	15.8%	21.8%
Inadequate for current requirements	22.1%	21.7%
Adequate but limited to current requirements	49.5%	49.0%
State-of-the-art and able to provide long-term support	12.6%	7.6%

What best describes your measurement system for reviewing return from sustainability efforts?

	2008	2011
No measurement system per se or reviews	61.3%	33.0%
Ad hoc monitoring of basic measures and ad hoc reviews	20.0%	29.8%
Company-specific metrics monitored regularly by operations staff	7.8%	22.3%
Regular monitoring and review of company-specific metrics by CEO and senior staff	8.8%	10.6%
Regular monitoring and review of company-specific metrics by CEO and senior staff and transparency and clarity throughout the organization	2.1%	4.3%

Awareness and Focus

A significant change from 2008 is the jump in the percentage of Wisconsin manufacturers who rate sustainability as important to their business.

Wisconsin manufacturers are more aware of the importance of sustainability than manufacturers nationally—40% of national manufacturers rate sustainability as NOT important vs 32.6% of Wisconsin manufacturers.

In addition, Wisconsin manufacturers are starting to make progress towards world-class sustainability—almost 30% of manufacturers surveyed rate their progress as next to world-class; twice the percentage that rated their progress at this level in 2008.

Nationally, 72.6% of manufacturers have made little or no progress in sustainability in 2011; again Wisconsin is ahead of the nation in making progress toward sustainability.

Importance placed on Green/ Sustainability	2008	2011
Rating 1 to 3 (1=not important)	67.2%	32.6%
Rating 4	21.2%	36.8%
Rating 5 (5=highly important)	11.6%	30.5%
Rate your organization's progress toward world-class sustainability:	2008	2011
Rating 1 to 3 (1=no progress)	83.0%	67.4%
Rating 4	14.8%	29.5%
Rating 5 (5=world-class)	2.3%	3.2%

Global Engagement:

Taking advantage of the global market for goods and services

Performance

Wisconsin manufacturers surveyed did not indicate a strong focus or presence in international markets. Engagement in global markets appears to have increased marginally, not keeping pace with national data.

Wisconsin manufacturers are doing a poorer job of increasing exports when compared to manufacturers nationally. 27% of national manufacturers say more than one-quarter of their sales have come from outside the US; for Wisconsin manufacturers, this figure was 20%.

Wisconsin manufacturers also lag in operating/partnering outside the US: Nationally 54.4% of manufacturers say they have NO facilities outside the US; in Wisconsin, this figure is 66%.

Wisconsin manufacturers sell either domestically or to less than six other countries. 89.2% of Wisconsin manufacturers fall into this category, vs 80.5% nationally.

Clearly, Wisconsin manufacturers must look to the fastest-growing economies outside of the US in order to increase their markets.

Percentage that dollar volume of sales outside the United States has changed over the past three years	2008	2011
<25%	77.0%	79.8%
26-50%	15.8%	16.0%
51-100%	4.1%	3.2%
>100%	3.1%	1.1%
Countries outside of the United States that your organization operates or partners in production facilities	2008	2011
0	67.3%	66.0%
1-5	23.9%	27.7%
6-10	3.7%	0.0%
>10	5.2%	6.4%
Countries outside of the United States that organization have sales and/or distribution facilities	2008	2011
0	62.9%	55.9%
1-5	23.7%	33.3%
6-10	4.8%	2.2%
>10	8.7%	8.6%

Best Practices

Since 2008, there has been virtually no change in the business practices used for exporting products by Wisconsin manufacturers.

Wisconsin manufacturers trail the nation in both having a global strategy *and* in executing a global strategy at a world-class level. Fifty-seven percent of Wisconsin manufacturers say they have insufficient talent and no development program for global engagement, vs 47.8% of manufacturers nationwide.

Global engagement is the only area where Wisconsin trails the nation in having business systems in place to support an initiative; except at the top end of the scale, where Wisconsin manufacturers rank just 0.4% higher than the national data.

Nationally, manufacturers dedicate more of their workforce to supporting global activities. In Wisconsin 63.4% of manufacturers say no staff are dedicated to global business activity; nationally this figure is 58.3%

Measurement

Not only has there been little change in global engagement measurement systems within Wisconsin, but the rest of the country outpaces Wisconsin. Fifty-one percent of companies nationwide had no measurement system in 2011; in Wisconsin that number is almost sixty percent. On the high end of the scale 5.4% of national companies reported world-class measurement, while 2.2% of Wisconsin companies claimed that rank.

NEW 2011 QUESTIONS		
What best describes your global strategy?		
	WI	US
No strategy	36.8%	32.3%
Generic strategy with little or no functional involvement and buy-in	23.2%	22.9%
Company-specific strategy with some functional involvement and buy-in	29.5%	29.5%
Company-specific strategy with full functional involvement and buy-in	10.5%	15.2%
Does your organization have the skilled overseas leadership and talent and talent-development program to drive world-class global engagement into the next generation?		
	WI	US
Insufficient talent and no development program	57.0%	47.8%
Sufficient talent but no development program	21.5%	27.2%
Insufficient talent but a development program in place	8.6%	9.8%
Sufficient talent and a development program in place	12.9%	15.2%
What best describes the quality of business systems and equipment to support world-class global engagement?		
	WI	US
None	30.4%	29.6%
Inadequate for current requirements	18.5%	17.8%
Adequate but limited to current requirements	42.4%	44.3%
State-of-the-art and able to provide long-term support	8.7%	8.3%
Percentage of total direct workforce located overseas and/or located domestically and responsible for global business activities	2008	2011
0%	58.3%	63.4%
1-25%	36.0%	30.1%
26-50%	3.6%	4.3%
>50%	2.1%	2.2%
Measurement system for reviewing return from global engagement	2008	2011
No measurement system per se or reviews	59.8%	59.1%
Ad hoc monitoring of basic measures and ad hoc reviews	16.5%	17.2%
Company-specific metrics monitored regularly by operations staff	7.9%	10.8%
Regular monitoring and review of company-specific metrics by CEO and senior staff	13.1%	10.8%
Regular monitoring and review of company-specific metrics by CEO and senior staff and transparency and clarity throughout the organization	2.7%	2.2%

Awareness and Focus

Since 2008, very little has changed regarding how global engagement is viewed by Wisconsin manufacturers—more than half do not view global engagement as important and consequently, more than three-quarters state that they have made little to no progress in becoming a world-class global player.

Nationally, less than half of the respondents think global engagement is NOT important (49.3%), and 74.8% believe they have made no progress toward becoming a world-class global player.

Importance placed on Global Engagement	2008	2011
Rating 1 to 3 (1=not important)	60.6%	58.5%
Rating 4	18.3%	16.0%
Rating 5 (5=highly important)	21.1%	25.5%
Rate your organizations' progress toward becoming a world-class global player:	2008	2011
Rating 1 to 3 (1=no progress)	83.0%	82.2%
Rating 4	14.8%	13.7%
Rating 5 (5=world-class)	2.3%	4.2%

Focusing on Next Generation Manufacturing Principles

Relatively familiar NGM activities continue to be the focus of Wisconsin manufacturers: Superior Processes/Improvement Focus (63% of Wisconsin manufacturers rate it “highly important”), Customer-Focused Innovation (54%) and Human-Capital Acquisition, Development and Retention (53%); few manufacturing executives would argue the importance of these activities. Green/Sustainability has seen a dramatic leap in importance since 2008 - just 7.5% see it as “not important” (down from 19.6% in 2008), and the number of companies that rate Green/Sustainability as “highly important” has increased to 25.5% from 21.1% in 2008.

Many firms in Wisconsin report they’ve reached “world-class” status in various NGM activities; many more don’t. The high percentages of manufacturers that fail to achieve world-class status in any given NGM activity are not surprising or necessarily alarming; in fact, they seem to indicate candor and objectivity among Wisconsin manufacturers in their self-assessments, especially since these findings are comparable to those of other studies that explore world-class attributes. Global Engagement continues to be fertile territory for Wisconsin manufacturers to gain a competitive world-class advantage, since 51% of manufacturers report having made little or “no progress.” However, this number has improved since 2008, when 60% of manufacturers had made little or no progress toward Global Engagement.

Rate the importance to your organization’s success over the next five years:												
	Customer-Focused Innovation		Human-Capital Acquisition, Development and Retention		Superior Processes/Improvement Focus		Supply-Chain Management and Collaboration		Green/Sustainability		Global Engagement	
	2008	2011	2008	2011	2008	2011	2008	2011	2008	2011	2008	2011
1=Not important	1.3%	1.1%	1.3%	2.1%	0.8%	0.0%	4.7%	2.2%	15.7%	2.1%	19.6%	7.5%
2	2.7%	1.1%	3.2%	1.1%	1.9%	4.2%	8.5%	4.3%	21.6%	13.7%	20.9%	28.7%
3	10.3%	11.6%	14.0%	8.4%	9.8%	4.2%	19.9%	17.2%	29.9%	16.8%	20.2%	22.3%
4	31.3%	32.6%	32.1%	35.8%	26.4%	25.3%	31.3%	33.3%	21.2%	36.8%	18.3%	16.0%
5=Highly important	54.5%	53.7%	49.4%	52.6%	61.1%	66.3%	35.5%	43.0%	11.6%	30.5%	21.1%	25.5%

Rate your organization’s progress toward world-class [in the category]:												
	2008	2011	2008	2011	2008	2011	2008	2011	2008	2011	2008	2011
1=No progress	3.4%	3.2%	7.8%	6.4%	3.6%	3.2%	9.4%	9.6%	21.7%	8.4%	29.0%	21.1%
2	16.5%	16.8%	23.2%	13.8%	16.9%	11.6%	25.6%	22.3%	33.7%	23.2%	31.3%	29.5%
3	36.9%	31.6%	40.1%	46.8%	37.7%	31.6%	40.3%	35.1%	27.6%	35.8%	18.5%	31.6%
4	33.7%	39.0%	23.8%	28.7%	34.5%	47.4%	21.8%	25.5%	14.8%	29.5%	16.8%	13.7%
5=World-class	9.5%	9.5%	5.1%	4.3%	7.4%	6.3%	3.1%	7.5%	2.3%	3.2%	4.4%	4.2%

Going Forward — Support

Wisconsin manufacturers will need assistance in moving forward with NGM activities and gaining the competitive advantages necessary to compete in coming decades. Most of the firms surveyed get outside support on an “as needed basis.” However, if an attribute is seen as important or highly important, such as “Superior Processes/Improvement” (92%), on-going assistance and support is utilized (20%).

Manufacturers that place less importance on a given NGM activity are consequently less likely to seek outside services for that attribute. For example, 36% of manufacturers said Global Engagement is of little or no importance; 34% have *never* sought outside assistance for developing that activity.

	Never		Rarely		As Needed		Ongoing Guidance & Support	
	WI	US	WI	US	WI	US	WI	US
Strategic Planning	10.5%	17.3%	23.2%	30.9%	49.5%	39.5%	16.8%	12.4%
Innovation/R&D	11.6%	14.9%	33.7%	33.3%	48.4%	43.2%	6.3%	8.6%
Workforce Skills Development	4.2%	8.9%	19.0%	27.2%	61.1%	49.6%	15.8%	14.3%
Operations Improvement (Lean)	3.2%	9.0%	27.4%	26.8%	49.5%	45.5%	20.0%	18.7%
Supply Chain Development	19.6%	27.7%	40.2%	35.0%	32.6%	30.7%	7.6%	6.6%
Sustainability Initiatives	28.3%	34.5%	35.9%	31.8%	30.4%	27.2%	5.4%	6.5%
Global Sales & Procurement	34.0%	34.7%	30.9%	29.8%	30.9%	29.6%	4.3%	5.9%
Business Development	10.6%	13.1%	29.8%	34.7%	46.8%	40.4%	12.8%	11.8%
Regulatory Compliance Issues	6.3%	8.9%	29.5%	24.2%	48.4%	51.9%	15.8%	15.0%
Government credits/grants?	23.4%	24.9%	37.2%	31.8%	36.2%	35.0%	3.2%	8.4%

In accessing outside resources, Wisconsin manufacturers rely more heavily on industry associations and state manufacturing associations (such as WMEP) than do manufacturers nationally. Wisconsin also rates the positive impact of outside resources as slightly higher than the national average; both nationally and in Wisconsin, the use of resources is seen as beneficial.

Surprisingly, the study found that Wisconsin manufacturers say they use the resources of universities and colleges slightly less than the national average, despite Wisconsin’s extensive network of universities and technical colleges.

If you have used outside resources, which of the following have positively impacted your company?	WI	US
Industry association	62.8%	57.8%
State manufacturing associations (including MEPs)	60.6%	56.1%
Consulting firms	54.3%	54.3%
Universities/colleges	39.4%	41.2%
National manufacturing association	23.4%	24.2%
Local/municipal manufacturing associations	14.9%	24.1%
Other	7.5%	10.0%
No positive impact	4.3%	5.0%

Leadership

Strong leadership is necessary to attaining world-class status in the 21st century. Fifty six percent of Wisconsin companies may face a succession of leadership over the next five years and almost seventy percent of the CEO's in Wisconsin are aged fifty or more. Twenty six percent are over the age of sixty; three years ago, this figure was just 19.7%, matching the national trend of more than 25% of CEOs over the age of sixty.

Clearly, planning for retirements and developing younger leaders is an imperative for manufacturing firms in Wisconsin and throughout the US.

Age of organization's chief executive				
	2008		2011	
	WI	US	WI	US
< 30	0.2%	0.4%	1.1%	0.4%
31-40	6.4%	5.7%	4.2%	4.0%
41-50	34.7%	29.8%	25.3%	25.5%
51-60	39.0%	40.7%	43.2%	43.1%
>60	19.7%	23.5%	26.3%	27.0%

Planned succession of leadership in the next five years?				
	2008		2011	
	WI	US	WI	US
Yes	22.5%	24.9%	24.5%	30.1%
Maybe	30.8%	29.3%	30.9%	29.2%
No	46.7%	45.9%	44.7%	40.7%

Wisconsin leaders' involvement in other organizations tracks with those nationally, with more Wisconsin manufacturers being involved with for-profit boards (22.6% vs 18.3% nationally), and more involved in universities/colleges than nationally (19.4% vs 13.0%). In general, Wisconsin manufacturing leaders are somewhat more involved in other organizations.

How is senior leadership involved outside of your company?	WI	US
Leadership or board position with civic or charitable organization	44.1%	46.7%
Leadership or board position with industry association	38.7%	37.4%
Leadership or board position with local manufacturing association	11.8%	18.5%
For-profit board of directors position	22.6%	18.3%
Leadership or board position with state manufacturing association or MEP	14.0%	18.8%
Leadership, board or teaching position with university/college	19.4%	13.0%
Leadership or board position with national manufacturing association	14.0%	11.5%
No outside involvement	23.7%	28.5%

Methodology

The 2011 Wisconsin Next Generation Manufacturing Study was conducted using an online questionnaire. From May to June 2011, the Next Generation Manufacturing (NGM) Study was conducted by the Manufacturing Performance Institute (MPI) in collaboration with the American Small Manufacturers Coalition (ASMC) and the National Institute of Standards and Technology –Manufacturing Extension Partnership (NIST-MEP).

Participants who provided contact information were given a Data Report, which pit their company's responses against categories of participants with comparable organizational profiles.

A total of 824 manufacturers overall participated in the survey of which 95 were Wisconsin manufacturers (12%)

Of the Wisconsin participants:

- ▶ 86% are stand-alone companies (79% nationally)
- ▶ 14% are from a division or unit of a larger company (21% nationally)
- ▶ 90% are privately held (87% nationally)
- ▶ 54% had fewer than 100 employees with median sales of \$9 million
- ▶ 43% had 100 or more employees with median sales of \$48.5 million
- ▶ Machinery and fabricated metal product manufacturing rank at the top two industries in WI and nationally
- ▶ Median years in operation is 40 years (36 years nationally)
- ▶ 90% were profitable in the previous year (83% nationally)
- ▶ Median number of full time employees was 89 (60 nationally)

About WMEP

WMEP is a private, nonprofit organization committed to the growth and success of Wisconsin manufacturers. Since 1998, WMEP has helped to generate more than \$1 billion in economic impact and create and save more than 13,000 state manufacturing jobs, according to results documented by customers. WMEP receives financial support from the Wisconsin Economic Development Corporation and the NIST Hollings Manufacturing Extension Partnership. WMEP also partners with many public and private organizations to serve Wisconsin manufacturers. For more information, visit www.wmep.org.