

**Performance Benchmarking Report
prepared for:**

**Sample Company
City, State**

April 5, 2007

Table of Contents

1. Productivity and Profitability	3
2. Global Competitiveness	4
3. Performance Measures	6
3.1 General Business	7
3.2 Quality	7
3.3 Timeliness	8
3.4 Utilization	8
3.5 Working Conditions and Employee Commitment	9
3.6 Addressing Weaknesses	10
4. Practices	12
4.1 Order-to-Cash Cycle	13
4.2 Cost Profile	14
4.3 People, Skills and Technology	15
4.4 Marketing	16
5. Yes/No and Categorical Questions	17
5.1 Yes/No Questions	17
5.2 Pricing, Quality Certification, and Costing	18
6. Profile of the Comparison Group	20
6.1 Industry Breakdown	20
6.2 Geographic Distribution	21
6.3 Profile of Business Characteristics	22
6.4 Yes/No Characteristics	22
Appendix 1: Distribution of Comparison Group Values - Performance Measures	23
Appendix 2: Distribution of Comparison Group Values - Practices	25
Appendix 3: Formulas	28

1. Productivity and Profitability

Throughout this report, we display your facility's performance on many metrics. The comparison is done metric-by-metric, since no company is best at everything. That said, two metrics in this report are most critical.

The first is Value-Added per Full-Time-Equivalent Employee (FTE). Value-added is defined as sales less the cost of inputs (material, parts, supplies, services and energy) purchased from other firms. It measures *the market value of the work done at your location*. Dividing value-added by FTEs turns it into your output per employee, a fundamental measure of labor productivity. Achieving and maintaining high labor productivity is absolutely critical for North American, Western European, and Japanese manufacturers. Plants in these high-wage regions will never win the global competition with extremely low-wage producers unless they focus on business areas in which they can attain high output per worker.

But it's also clear that high labor productivity is not sufficient for sustainable success. If high productivity comes at very high cost -- due to high labor costs or large capital equipment requirements -- then profitability suffers.

Thus the second critical metric is our Global Competitiveness Index. This index is an indicator of how your cost-to-output ratio compares against what we view as the global benchmark: the North American landed cost for a low-wage Asian country producer.

	Value	Percentile (100 = Best in Group)
Your Value-Added per FTE	\$ 69,926	46
Your Cost-to-Output Ratio Compared to Global Benchmark	124.5%	28

Together these metrics summarize your global competitive risk. The more you compete, or expect to compete, against low-wage offshore companies that are willing to accept thin profit margins, the more critical it is that you reduce your costs.

See Section 3.1 and Appendix 1 for more data on Value-Added per FTE. See Section 2 for a fuller discussion of our Global Competitiveness Index, and for an analysis of how much you can reduce your Index value through various improvement tactics.

2. Global Competitiveness

We compute your Global Competitiveness Index by estimating how your costs compare with the *North American landed cost* of products manufactured offshore. Our assumptions about the relative costs of offshore producers are:

1. Production worker wage rates are roughly 10% of wages in the typical North American plant.
2. Labor productivity (output per labor hour) is 25% that of the typical North American plant.
3. Costs for purchased material, parts and energy are 90% those for the typical North American plant.
4. Waste rates (scrap, rework, rejects) run roughly five times higher for the typical offshore facility.
5. Freight, duty and taxes -- combined with extra logistics costs -- add roughly 12% to the offshore cost.

Our research indicates that, in most industries, about 15% of small and medium-sized North American manufacturers are already lower-cost than the landed cost of the benchmark offshore competitor. Another 15% would beat the offshore landed cost benchmark if they were successfully to implement the Thorough Improvement program (Scenario 8, below).

Consistent with assumption 5, we add 12% to your costs in comparing you against the global benchmark *if your plant is located outside of North America*. Further, non-North American plants would fail to gain relative to other offshore producers in case of a devaluation of the dollar (i.e., they show no improvement in Scenario 9, below).

**Global Cost Benchmark
= 100**

Cost Cutting Scenario	Your Cost Relative to Global Benchmark
Base Case -- Your Current Costs Relative to Typical Offshore Producer	124.5%
Scenario 1: You Achieve a 10% Reduction in Material Cost	117.6%
Scenario 2: You Achieve a 10% Increase in Labor Productivity	120.2%
Scenario 3: You Achieve a 10% Reduction in Fringe Benefits	123.8%
Scenario 4: You Achieve a 10% Reduction in Energy Costs	124.4%
Scenario 5: You Achieve a 25% Reduction in Waste (Scrap and Rework)	
Scenario 6: You Achieve a 25% Reduction in Inventory	123.1%
Scenario 7: You Achieve a 10% Increase in Output with Your Current Capital Stock	124.3%
Scenario 8: Thorough Improvement (Mat'l, Prod'ty, Energy, Waste, Inventory, Output)	124.5%
Scenario 9: The Dollar is Devalued by 10% Relative to World Currencies	112.1%

For most companies, labor and material dominate total costs, so it is not surprising that raising labor productivity - getting the same output with fewer labor-hours - and reducing the amount or cost of material in the product have the biggest impact. But this should not blind companies from paying attention to other types of waste:

Capital costs. Especially for facilities that have a lot of expensive new equipment, keeping that equipment busy is very important.

Inventory. Not only does carrying excessive inventory stocks result in carrying costs and lost floorspace that competitors do not have to shoulder, but it also ties up cash that could instead be invested in increasing labor productivity and designing out material cost.

Quality spills. Scrap, rework, and customer rejects/returns, like excessive inventory, tie up your cash and your people's time on sorting and firefighting, rather than freeing it up to focus on productivity and material.

In addition, it is likely that, in the next few years (and perhaps much sooner), the US dollar will depreciate by 10% or more against competitor-country currencies. If so, instead of only about 15% of North American manufacturers having lower costs than the estimated landed cost of their offshore competitors, roughly 30% would beat that benchmark. If the dollar fell by 10% AND manufacturers implemented the Thorough Improvement program, then just over 50% could beat it.

Finally, not all competition is on the basis of cost. Many manufacturers win orders for at least part of their product line based also on features, performance, brand reputation, and/or after-sale service. As you attack costs, some of the savings should be applied not just to winning new orders through lower quotes, but also to increasing the proportion of your sales that are won on more than cost alone. This may require investments in design (which could also pay off in reducing the cost of material in the product), engineering, marketing, sales, distribution, and service.

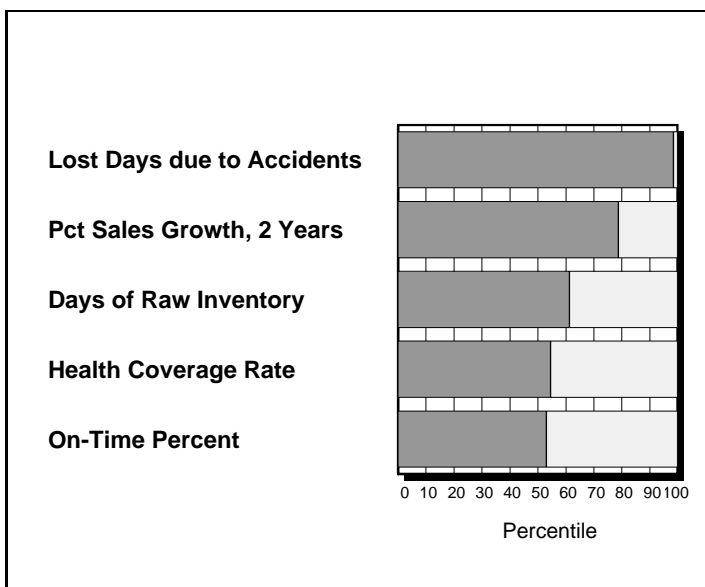
3. Performance Measures

This section reports on what we call Performance Measures. These are the metrics for which it is clear whether higher or lower values constitute better performance. For On-Time Delivery Rate, for example, higher values are clearly better, and 100% on time is best. For Customer Reject Rate, low values are preferred, and zero rejects is best. This is not to say, of course, that every company should strive to attain these "best" values, regardless of the impact of doing so on their profits.

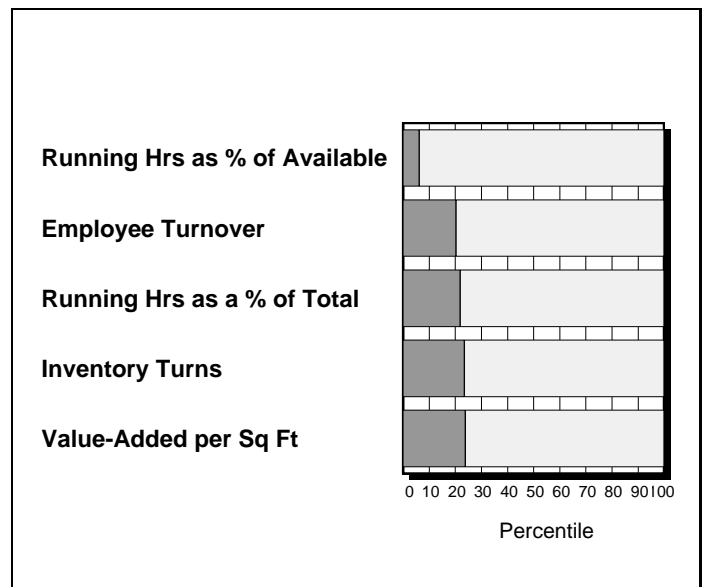
Your strengths as presented below are the five metrics on which you scored the best relative to your comparison group, and for which you achieved a ranking at least in the top half. (That is, if you rank in the top half of your comparison group on only three metrics, then only those three will be reported as strengths.) Weaknesses are the five metrics on which you scored the worst relative to others, and on which you rank in the bottom half.

In the graphs that follow, the length of each bar indicates your percentile ranking, ranging from 0 (worst in the group) to 100 (best in the group). That is, the longer the bar, the higher your ranking. The actual value you reported for each measure, as well as the values that constitute the cut-offs for the top tenth, top quarter, etc., appear in Appendix 1. Descriptive information about the plants you are compared against is in Section 6, Profile of the Comparison Group.

Strengths



Weaknesses



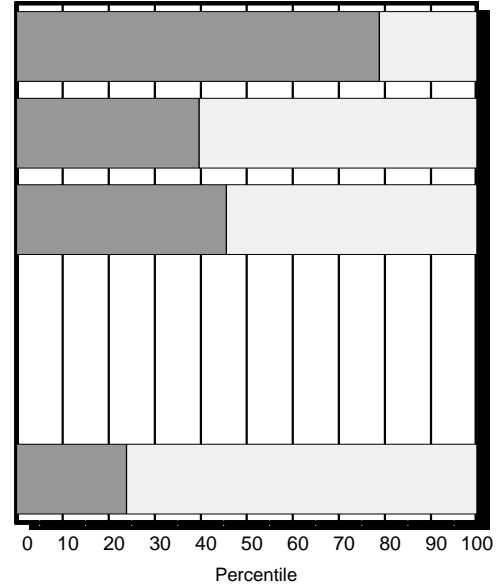
The rest of this section is organized as follows:

- 3.1 General Business
- 3.2 Quality
- 3.3 Timeliness
- 3.4 Utilization
- 3.5 Working Conditions and Employee Commitment
- 3.6 Addressing Weaknesses.

3.1 General Business

Measures of your company's General Business performance include several indicators of your labor and capital productivity; your recent sales growth; and your gross profit rate.

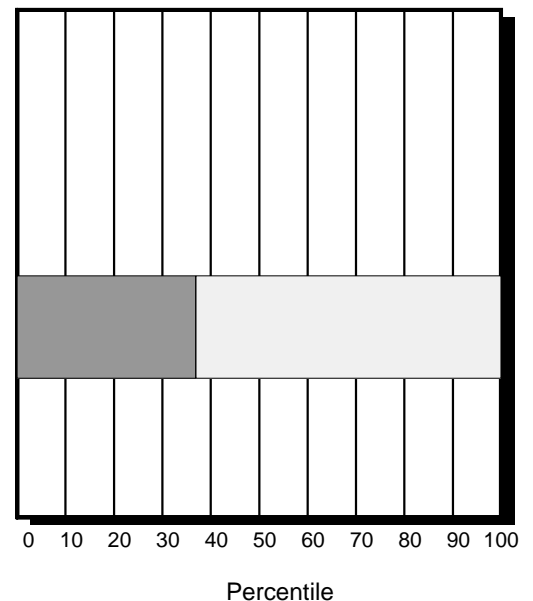
1. Percent Change in Sales, Past 2 Years
2. Gross Profit Rate - Sales Less Cost of Goods Sold as a % of Sales
3. Value-Added Per FTE
4. Annual Value-Added per Dollar in Machinery Value
5. Value-Added per Dollar of Capital and Labor Expense
6. Value-Added per Square Foot of Production Floorspace



3.2 Quality

Measures of your shop's Quality performance include the percent of units scrapped, and the percent of units you shipped that were rejected by the customer for quality reasons.

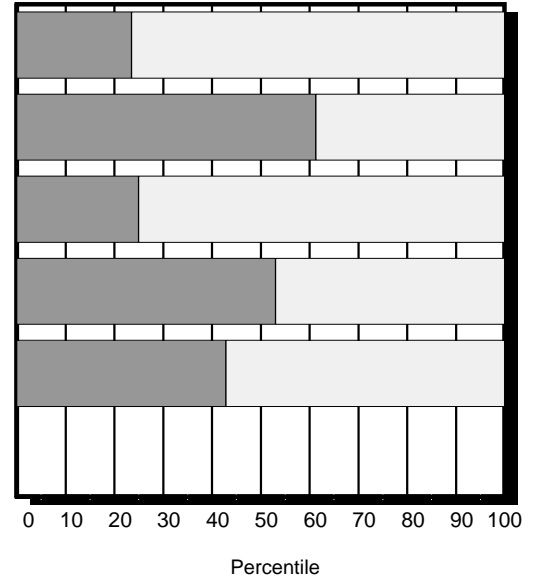
7. Scrap Rate Due to Errors
8. Percent of Units Reworked
9. Percent of Units Shipped Bad or Rejected
10. Percent of Units Made Right the First Time



3.3 Timeliness

Measures of your company's Timeliness performance include inventory turnover, your and your suppliers' on-time delivery, and job bumping.

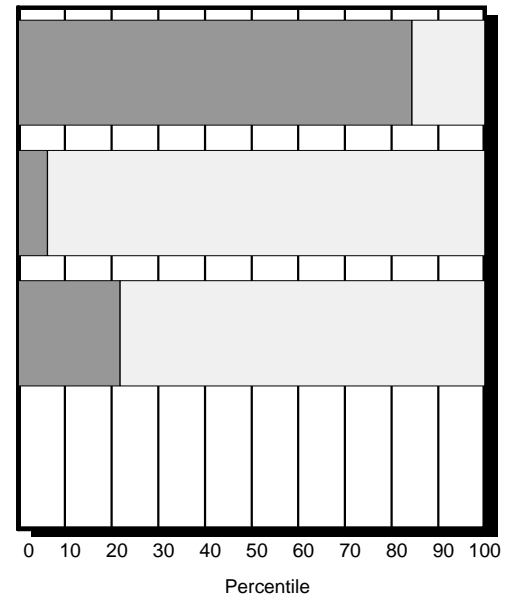
- 11. Inventory Turns (Cost-of-Goods-Sold/Total Inventory)
- 12. Days of Raw Material/Parts Inventory
- 13. For Shops Holding Finished Goods, Days of Finished Goods Inventory
- 14. Percent On-Time Deliveries to Your Customers
- 15. Percent of Supplier Shipments Delivered to You on Time
- 16. Percent of Jobs Causing Other Scheduled Jobs to be Bumped



3.4 Utilization

Measures of your shop's machine Utilization performance include average running hours per machine, and downtime due to setups.

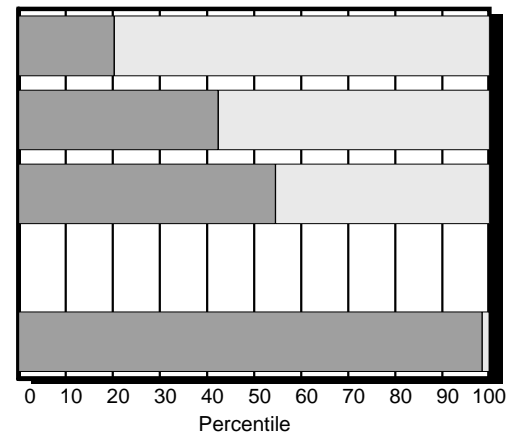
- 17. Available (Manned) Hrs as a % of Hrs in a Year, Avg Per Machine
- 18. Running Hrs as a % of Available Hrs, Regular-Use Machines
- 19. Running Hrs as a % of Hours in a Year, Regular-Use Machines
- 20. Setup Hours as a % of Available (Manned) Machine Hours



3.5 Working Conditions and Employee Commitment

A committed, stable workforce is critical to achieving improved performance and to building on successes. Analysis of our own and others' data makes clear that low employee turnover and low shop employee absenteeism are critical to high productivity levels and growth, and that both of them are predicted by having above-average wage rates, a health plan with substantial employer participation in premium payments, and a safe workplace.

- 21. Employee Turnover Rate
- 22. Average Hourly Wage, Shop Employees
- 23. Pct of Shop Workers Covered by Your Health Plan
- 24. Days Absent as Pct of Total Scheduled Work Days, Shop Workers
- 25. Work Days Lost Due to Accidents per 100 FTEs, Past Year



3.6 Addressing Weaknesses

This section presents a brief analysis of up to five "Weaknesses": those metrics on which your performance looks worst relative to the other shops in your comparison group. Of course, this selection of your five worst metrics is somewhat arbitrary and uninformed. Our analysis of past Benchmarking data confirms what common sense tells us – virtually no companies are "good" across the board, and trying to achieve the Top Tenth on every metric is a prescription for bankruptcy. Metrics on which you score poorly are worthy of attention if: 1) the cost to fix the problem is less than the payoff to doing so, and 2) customers will effectively pay you for better performance, or drop you if you don't achieve it.

With that in mind, we offer a brief discussion of your "bottom five" performance metrics: possible causes, connections and prescriptions. If this section contains only three weaknesses (i.e., you had only three or fewer metrics on which you were in the bottom half of the group), the next page may be blank.

Running Hrs as a % of Available Hrs, Regular-Use Machines

The best measure of your machine utilization is how many hours they run in a year. But once you determine the level of manning appropriate to your order book, you also need to look at how many of those manned, or available, hours your machines are running. The goal is to attack the drivers of downtime, including: long or unnecessary setups, unreliable supplier delivery, poor housekeeping and tool management, inadequate preventive maintenance, incapable machines, and poor breakdown prediction.

Employee Turnover Rate

Calculated as the ratio of W2s to average headcount during the 12-month reporting period, employee turnover is an highly useful measure of employee commitment and attachment. Our research shows that companies with lower rates of turnover have higher productivity. Academic literature traces this effect to the fact that low-turnover companies hold on to their best, most experienced employees. Factors that help companies achieve lower employee turnover include higher wages, better employee health insurance coverage, and better working conditions, including a lower accident rate.

Running Hrs as a % of Hours in a Year, Regular-Use Machines

The best measure of your machine utilization is how many hours they run in a year – your running time as a percent of 365 days x 24 hours. Especially for newer, more expensive machinery, high running time is essential if fixed costs per unit are to be kept manageable. Steps include two- or three-shift, or even three-crew, operation; fuller manning on more shifts; and an assault on all the causes of downtime, including: long or unnecessary setups, unreliable supplier delivery, poor housekeeping and tool management, inadequate preventive maintenance, incapable machines, and poor breakdown prediction.

Inventory Turns (Cost-of-Goods-Sold/Total Inventory)

Low turns may result from excessive raw, finished, or in-process inventory stocks. You should examine your percentile position on each of these to determine the culprit(s). Low raw turns (i.e., high days) usually signal poor demand forecasting or suppliers that are unwilling to deliver small lots frequently. Low finished goods turns (high days) often result from excessive stockpiling to insure the ability to fill rush orders; where possible, consider instead stocking standard components but assembling to order. Finally, high work-in-process (WIP) often reflects bottlenecks that result in long waits between processing or assembly steps. Poor routings, bad line balancing, and frequent but unanticipated machine failures are common culprits. Many companies have attacked high WIP by changing shop layout to cells, and by making inventory costs visible by replacing warehousing with floor stock.

Value-Added per Square Foot of Production Floorspace

Value-added, which is defined as sales less the cost of inputs (materials, parts, services, and energy) purchased from the outside, measures the market value of work done inside the company. Value-added per square foot of production floorspace measures whether your factory floorspace -- part of your fixed costs -- is being used effectively to produce income. A low value on this measure -- especially if you score fairly well on value-added per FTE, and on value-added per dollar of equipment -- is worthy of attention even if your site is not particularly space-constrained. It may indicate that you are struggling with a poor layout, putting significant labor time into merely moving product around. Or, it may indicate that a large share of floorspace is devoted to storing inventory. In either case, your shop would probably benefit from a disciplined application of "lean production" techniques.

4. Practices

Where Performance Measures are goals, or *ends*, Practices are *means* to those ends. They are metrics on which it is useful to know where your company stands compared to others in the comparison group. It is not necessarily good to rank very high or very low if doing so is not required to achieve your goals. Practices include metrics that summarize your marketing and sales activities, your use of PCs and other keyboarded devices, and your HR investments.

The bars in the charts in this section are drawn relative to the median, or typical, firm. Bars that extend far to the left show that your value is near the minimum for the group; bars extending to the right indicate that your value is unusually large. You should look for your "outliers" and think carefully about what might be driving those aspects of your business that make you unusual.

Note that having no bar at all for a particular metric implies either that your value *is* the median, or that you did not provide the data necessary to calculate it. Please see Appendix 2 to see your own value, and the range of values for your comparison group, for each Practice metric.

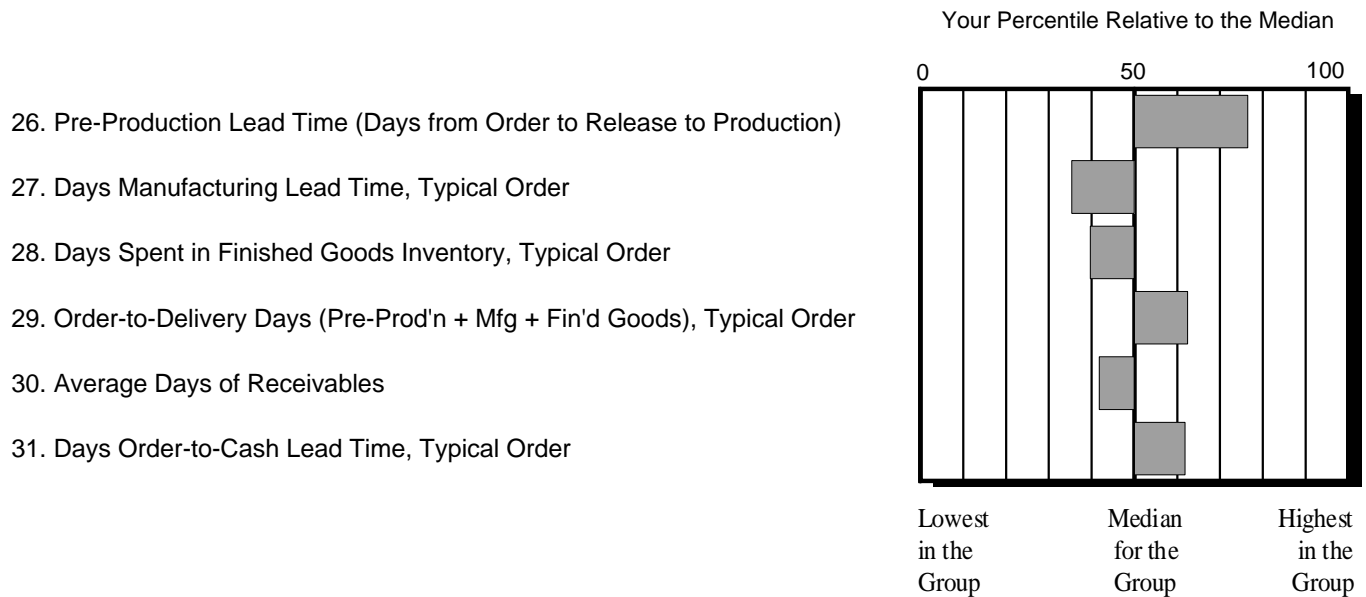
This section is organized as follows:

- 4.1 Order-to-Cash Cycle
- 4.2 Cost Profile
- 4.3 People, Skills and Technology
- 4.4 Marketing

4.1 Order-to-Cash Cycle

Time is money. Manufacturers are appropriately increasing their focus on factory time compression, via lean production approaches and similar techniques. Yet Manufacturing Lead Time is often a small part of total Order-to-Cash time. Pre-production steps, involving everything from when the order is placed until test parts have been run and approved, can take months. And customers have an interest in extending Receivables for as long as possible.

The bar chart below indicates how the components of your Order-to-Cash Cycle compare with those reported by others in your comparison group. Bear in mind, however, that some group members do mostly repeat orders with trivial pre-production requirements. Others must do all-new design and order all-new tooling with each order. And, of course, manufacturing lead times will vary with product complexity.



In fact, how your lead times compare with the group isn't really the point. What matters is that you recognize the potential cash flow benefits of reducing *your* order-to-cash cycle. If your Pre-Production Lead Times are significant, you might want to consider whether orders are unnecessarily queued before they even get to the shop floor.

Your Data

26. Pre-Production Lead Time (Days from Order to Release to Production)	84.0
27. Days Manufacturing Lead Time, Typical Order	10.0
28. Days Spent in Finished Goods Inventory, Typical Order	5.0
29. Order-to-Delivery Days (Pre-Prod'n + Mfg + Fin'd Goods), Typical Order	99.0
30. Average Days of Receivables	46.6
31. Days Order-to-Cash Lead Time, Typical Order	145.6

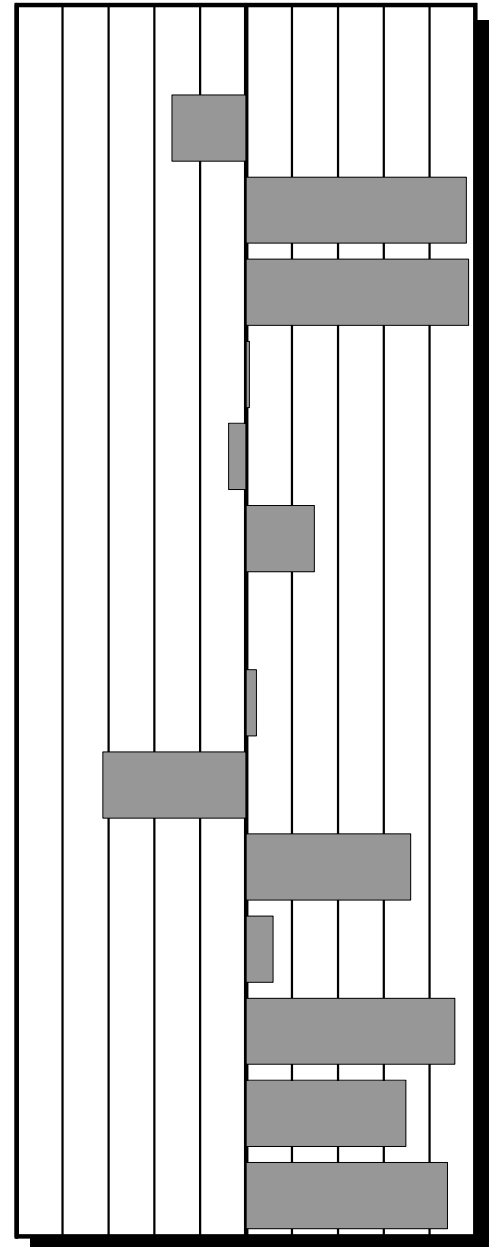
4.3 People, Skills and Technology

Technology use is closely tied to how you manage your workforce. A highly capital- and technology-intensive factory requires highly skilled and well-trained employees.

Your Percentile Relative to the Median

0 50 100

- 44. Dollar Value of Machinery Per FTE
- 45. Number of Design/Shop Keyboards and Keypads per Employee
- 46. For Shops Doing Design, % of Design Hours on CAD Terminals
- 47. Percent of Employees Using a Computer at Least Weekly
- 48. Percent of Shop Floor Workers Participating in Work Teams
- 49. Incentive or Bonus Pay as a % of Shop Employee Payroll
- 50. Average Cost of Health Coverage per Year, per Covered Shop Worker
- 51. Inspection Labor Hours as a % of Total Shop Labor Hours
- 52. Pct of Shop Workers Trained in Statistical Quality, Past 3 Years
- 53. Pct of Shop Workers Trained in Technical Areas, Past 3 Years
- 54. Training Tuition and Fees per Employee
- 55. Training Tuition and Fees per Shop Employee
- 56. Spending on Information Technology as a Percent of Sales
- 57. Pct of Sales Accounted for by Orders Received Over the Internet
- 58. Pct of Material and Subcontracting Purchased Over the Internet



Lowest
in the
Group

Median
for the
Group

Highest
in the
Group

4.4 Marketing

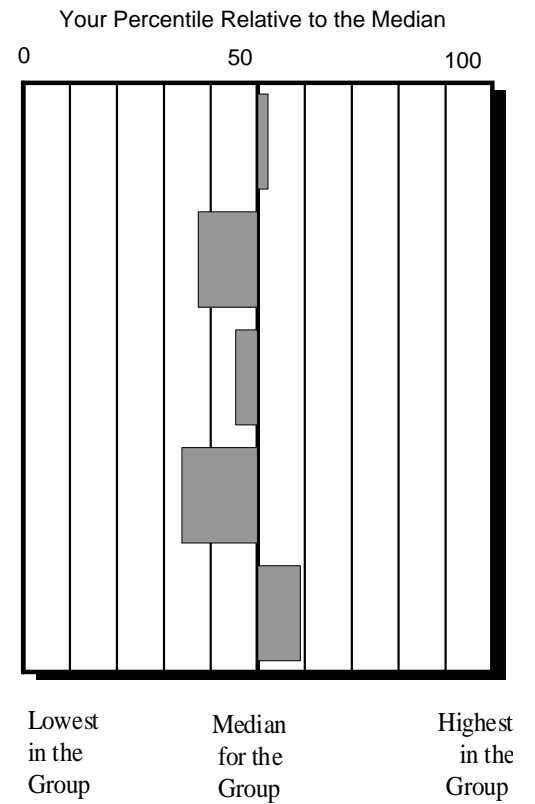
59. Percent of Sales from Products not Made 3 Years Ago

60. Percent of Sales to Customers not Served 3 Years Ago

61. Percent of Sales to Industries not Served 3 Years Ago

62. Percent of Sales Exported Beyond U.S.

63. Percent of Sales for Which You Designed the Part or Assembly



5. Yes/No and Categorical Questions

In contrast to the Practices included earlier in this report, there are some "On/Off" actions that your company either does or does not undertake. These Yes/No Questions include whether or not you use EDI, CAD/CAM, and statistical analysis. If you are not doing some of these, but most companies in the comparison group are, that should be food for thought. This section also reports on any questions for which you were asked to select from three or more categories, such as the extent to which you have changed your prices.

5.1 Yes/No Questions

Question Number	Question	Percent Yes	Your Answer
Q. 56	Do business electronically (send/receive PO's, quotes, invoices, releases)?	93.8%	Yes
Q. 57	Ordering and/or scheduling integrated with EDI or internet?	17.9%	No
Q. 96	In past year, used CAD to generate machine instructions (CAD/CAM)?	72.7%	Yes
Q. 97	In past year, sent/received CAD data to/from suppliers/customers?	82.8%	Yes
Q. 107	In past year, regularly did statistical quality analysis on parts/machines?	73.5%	No
Q. 108	In past year, routinely analyzed quality data with computers or data collection devices?	57.4%	No
	Majority of shop employees belong to a union?	5.8%	No

5.2 Pricing, Quality Certification and Costing

Question Number	Pricing	Percent of Comparison Group
Q. 26	<p>Over the past year, how much have you had to reduce prices?</p> <p>Not at all -- able to raise prices Held the line -- no change A little bit: 0.1 - 2.49% Somewhat: 2.50 - 4.99% Significantly: 5.0 - 9.99% A great deal: 10% or more</p> <p>Your Answer: Not at all -- able to raise prices</p>	<p>20% 28% 32% 12% 5% 3%</p>
Question Number	Quality Certification	Percent of Comparison Group
Q. 109	<p>What is plant's ISO 9001:2000 certification status?</p> <p>Not seeking certification Certified Seeking certification</p> <p>Your Answer: Certified</p>	<p>21% 72% 7%</p>
Q. 110	<p>What is plant's ISO 14001:1996 certification status?</p> <p>Certified Seeking certification Not seeking certification</p> <p>Your Answer: Not seeking certification</p>	<p>3% 3% 94%</p>
Q. 111	<p>What is plant's ISO 14001:2004 certification status?</p> <p>Certified Seeking certification Not seeking certification</p> <p>Your Answer: Not seeking certification</p>	<p>6% 6% 88%</p>
Q. 112	<p>What is plant's TS16949 certification status?</p> <p>Certified Seeking certification Not seeking certification</p> <p>Your Answer: Not seeking certification</p>	<p>15% 19% 66%</p>
Q. 113	<p>Other industry- or function-specific ISO standard?</p> <p>Certified Seeking certification Not seeking certification</p> <p>Your Answer: Not seeking certification</p>	<p>31% 3% 66%</p>

Question Number	Costing	Percent of Comparison Group
Q. 49	For cost estimating, how are estimates of direct material expense computed? Calculated Separately for Each Job For Some Jobs, Adjust Rates or Add Special Mark-Up Always Included in Usual Hourly Billing Rates Your Answer: Calculated Separately for Each Job	93% 4% 3%
Q. 50	For cost estimating, how are estimates of tooling costs computed? Calculated Separately for Each Job For Some Jobs, Adjust Rates or Add Special Mark-Up Always Included in Usual Hourly Billing Rates Your Answer: Calculated Separately for Each Job	79% 17% 5%
Q. 51	For cost estimating, how are estimates of design/engineering labor computed? Calculated Separately for Each Job For Some Jobs, Adjust Rates or Add Special Mark-Up Always Included in Usual Hourly Billing Rates Your Answer: For Some Jobs, Adjust Rates or Add Special Mark-Up	29% 30% 41%
Q. 52	For cost estimating, how are estimates of factory indirect labor computed? Calculated Separately for Each Job For Some Jobs, Adjust Rates or Add Special Mark-Up Always Included in Usual Hourly Billing Rates Your Answer: Always Included in Usual Hourly Billing Rates	18% 14% 68%
Q. 53	For cost estimating, how are estimates of order processing costs computed? Calculated Separately for Each Job For Some Jobs, Adjust Rates or Add Special Mark-Up Always Included in Usual Hourly Billing Rates Your Answer: Calculated Separately for Each Job	11% 5% 84%
Q. 54	For cost estimating, how are estimates of inventory holding costs computed? Calculated Separately for Each Job For Some Jobs, Adjust Rates or Add Special Mark-Up Always Included in Usual Hourly Billing Rates Your Answer: For Some Jobs, Adjust Rates or Add Special Mark-Up	14% 41% 45%

6. Profile of the Comparison Group

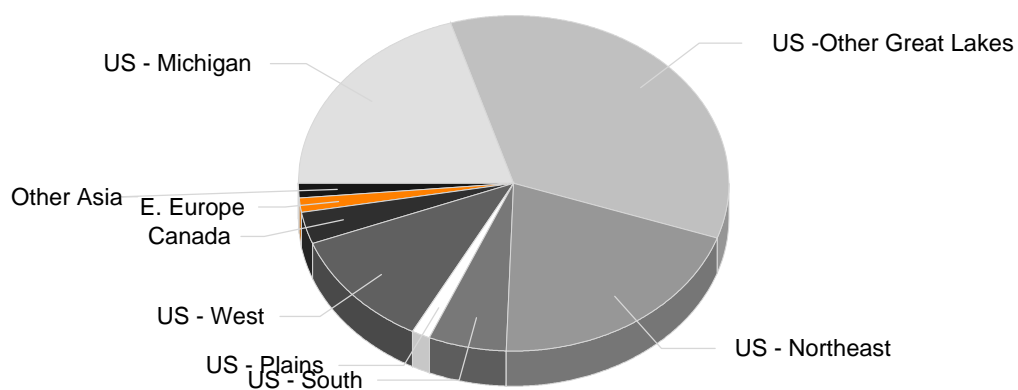
This report is only as good as the fit between your company and the other shops in the comparison group. In this Profile of the Comparison Group section, we describe the group in terms of industry, sales, customer base, average product price, and order type.

6.1 Industry Breakdown

Industry Breakdown of Your Comparison Group (Total Group Size = 69 Plants)	
Apparel and Other Cut-and-Sew	0 (0.0 %)
Wood Products (Including Furniture)	0 (0.0 %)
Commercial Sheetfed Printing	0 (0.0 %)
Plastic and Rubber Products	0 (0.0 %)
Casting and Other Primary Metal Processing	3 (4.3 %)
Metal Forming and Fabrication	48 (69.6 %)
Screws, Nuts, Bolts, Washers and Screw Machine Products	4 (5.8 %)
Metals Services	0 (0.0 %)
Large, Powered Industrial Machinery ("Machine Tools")	0 (0.0 %)
Other Industrial Machines and Assemblies	0 (0.0 %)
Tooling and Machined Parts	7 (10.1 %)
Computer and Electronics Parts and Assemblies	0 (0.0 %)
Other Electrical Assemblies	3 (4.3 %)
Automotive and Heavy Truck	0 (0.0 %)
Aircraft and Aerospace	2 (2.9 %)
Instruments (Including Medical Devices)	2 (2.9 %)
Consumer and Commercial Products	0 (0.0 %)
Food Processing	0 (0.0 %)
Chemicals, Resins and Compounds	0 (0.0 %)
Industries Not Included Above	0 (0.0 %)

6.2 Geographic Distribution

Number (and Percent) of Comparison Group Members Located in:	
US - Michigan	14 (20.3 %)
US -Other Great Lakes	24 (34.8 %)
US - Northeast	14 (20.3 %)
US - South	4 (5.8 %)
US - Plains	1 (1.4 %)
US - West	8 (11.6 %)
Canada	2 (2.9 %)
Mexico, Latin America, or Caribbean	0 (0.0 %)
Western Europe	0 (0.0 %)
Eastern Europe, Turkey and Caucasus	1 (1.4 %)
Australia, Japan, New Zealand	0 (0.0 %)
Hong Kong, S. Korea, Singapore, Taiwan	0 (0.0 %)
Other Asia and the Pacific	1 (1.4 %)
Africa	0 (0.0 %)



6.3 Profile of Business Characteristics

Distribution of Comparison Group Values				
	25% Said At Least	Median	25% Said At or Below	Your Value
Annual Sales (\$000)	\$ 22,344	\$ 15,000	\$ 7,823	\$ 11,400
Average Unit or Piece Price	\$ 15.00	\$ 2.14	\$ 0.75	
Typical Units Per Order	17,000	2,000	250	
Pct of Sales from One-Off Items (Dies, Prototypes, Etc.)	10.0%	5.0%	0.0%	1.0%
Percent of Sales from Short-Term/Job Shop Orders	12.0%	5.0%	0.0%	1.0%
Percent of Sales from Long-Term Jobs Run Regularly	95.0%	87.0%	70.0%	97.0%
Percent of Sales from Make-to-Stock Work	5.0%	0.0%	0.0%	1.0%
Pct of Shop Labor Time Spent Doing Assembly, Packaging, Etc.	28.0%	15.0%	8.0%	10.0%
Percent of Sales to the Auto Industry	40.0%	5.0%	0.0%	2.0%
Percent of Sales to Aircraft/Aerospace Industry	5.0%	0.0%	0.0%	0.0%
Percent of Sales to the Communications/Electronics Industry	10.0%	0.0%	0.0%	0.0%
Percent of Sales to Final Consumers, Wholesalers, or Retailers	1.0%	0.0%	0.0%	0.0%
Percent of Sales that are Military/Defense-Related	2.0%	0.0%	0.0%	0.0%
Number of Distinct Part Numbers Accounting for 80% of Your Sales	300	100	38	176

6.4 Yes/No Characteristics

Question Number	Question	Percent Yes	Your Answer
Q. 61	Service business (do quick-turnaround work on parts/material your customer provides)?	0.0%	No
Q. 116	Is company owner-managed?	64.2%	Yes
Q. 117	Is this the only plant in the company?	76.5%	Yes

Appendix 1: Distribution of Comparison Group Values on Performance Measures

Measure	Top 10%	Top 25%	Median	Bottom 25%	Bottom 10%
1. Percent Change in Sales, Past 2 Years Your Value: 50.0%	81.4%	50.0%	33.0%	14.9%	1.2%
2. Gross Profit Rate - Sales Less Cost of Goods Sold as a % of Sales Your Value: 18.7%	35.4%	30.2%	22.3%	15.2%	11.0%
3. Value-Added Per FTE Your Value: \$69,926	\$ 110,313	\$ 92,332	\$ 71,578	\$ 55,650	\$ 48,068
4. Annual Value-Added per Dollar in Machinery Value Your Value:	\$ 13.13	\$ 3.37	\$ 1.71	\$ 0.98	\$ 0.76
5. Value-Added per Dollar of Capital and Labor Expense Your Value:	\$ 1.79	\$ 1.59	\$ 1.38	\$ 1.20	\$ 1.01
6. Value-Added per Square Foot of Production Floorspace Your Value: \$71	\$ 345	\$ 184	\$ 128	\$ 73	\$ 50
7. Scrap Rate Due to Errors Your Value:	0.100%	0.400%	1.000%	2.000%	3.620%
8. Percent of Units Reworked Your Value:	0.005%	0.200%	1.000%	2.000%	4.000%
9. Percent of Units Shipped Bad or Rejected Your Value: 0.412%	0.004%	0.047%	0.160%	1.000%	2.000%
10. Percent of Units Made Right the First Time Your Value:	99.342%	98.993%	97.400%	95.000%	91.000%
11. Inventory Turns (Cost-of-Goods-Sold/Total Inventory) Your Value: 5.7	15.2	8.9	7.5	5.8	4.0
12. Days of Raw Material/Parts Inventory Your Value: 26.6	13.7	21.3	32.7	50.9	89.8
13. For Shops Holding Finished Goods, Days of Finished Goods Inventory Your Value: 21.1	3.9	6.8	12.7	21.1	28.4

Measure	Top 10%	Top 25%	Median	Bottom 25%	Bottom 10%
14. Percent On-Time Deliveries to Your Customers Your Value: 95.8%	99.2%	98.0%	95.2%	86.0%	78.9%
15. Percent of Supplier Shipments Delivered to You on Time Your Value: 87.0%	98.0%	95.0%	90.0%	80.0%	75.0%
16. Percent of Jobs Causing Other Scheduled Jobs to be Bumped Your Value:	1.5%	2.8%	6.3%	14.7%	48.9%
17. Available (Manned) Hrs as a % of Hrs in a Year, Avg Per Machine Your Value: 46.6%	60.8%	41.7%	28.8%	21.7%	16.2%
18. Running Hrs as a % of Available Hrs, Regular-Use Machines Your Value: 23.2%	83.3%	78.3%	65.1%	50.0%	27.6%
19. Running Hrs as a % of Hours in a Year, Regular-Use Machines Your Value: 10.8%	33.4%	24.4%	17.6%	11.2%	7.6%
20. Setup Hours as a % of Available (Manned) Machine Hours Your Value:	1.0%	3.6%	8.3%	13.2%	21.3%
21. Employee Turnover Rate Your Value: 42.4%	6.1%	13.5%	23.5%	40.0%	59.5%
22. Average Hourly Wage, Shop Employees Your Value: \$13.73	\$ 17.44	\$ 15.83	\$ 14.20	\$ 12.23	\$ 11.15
23. Pct of Shop Workers Covered by Your Health Plan Your Value: 85.4%	100.0%	95.6%	83.3%	70.0%	60.0%
24. Days Absent as Pct of Total Scheduled Work Days, Shop Workers Your Value:	0.5%	1.0%	2.0%	3.0%	5.0%
25. Work Days Lost Due to Accidents per 100 FTEs, Past Year Your Value: 0.0	0.0	0.0	3.1	19.6	133.7

Appendix 2: Distribution of Comparison Group Values on Practices

Measure	Highest 10%	Highest 25%	Median	Lowest 25%	Lowest 10%
26. Pre-Production Lead Time (Days from Order to Release to Production) Your Value: 84.0	120.0	84.0	40.0	14.0	6.0
27. Days Manufacturing Lead Time, Typical Order Your Value: 10.0	45.0	30.0	15.0	10.0	3.0
28. Days Spent in Finished Goods Inventory, Typical Order Your Value: 5.0	55.0	30.0	10.0	3.0	1.0
29. Order-to-Delivery Days (Pre-Prod'n + Mfg + Fin'd Goods), Typical Order Your Value: 99.0	180.0	125.0	78.0	50.0	29.0
30. Average Days of Receivables Your Value: 46.6	67.6	60.1	49.0	39.4	34.0
31. Days Order-to-Cash Lead Time, Typical Order Your Value: 145.6	229.2	178.1	128.4	102.7	84.0
32. Purchased Material and Parts Costs as a Percent of Sales Your Value: 53.4%	66.8%	48.0%	40.3%	28.1%	17.9%
33. Pct of Purchases that come from Suppliers Located within 250 Miles Your Value: 95%	95%	90%	75%	25%	10%
34. Purchased Services as a Percent of Sales Your Value: 4.4%	21.4%	13.6%	8.2%	4.4%	3.1%
35. Labor Costs (Payroll, Temps, Benefits) as a % of Sales Your Value: 33.0%	44.1%	40.2%	32.7%	25.5%	20.6%
36. Shop Payroll as a Percent of Sales Your Value: 11.8%	25.0%	20.2%	15.7%	10.6%	7.1%
37. Non-Factory Labor Costs (Payroll Plus Benefits) as a Percent of Sales Your Value: 10.6%	14.3%	10.9%	7.7%	4.6%	2.2%
38. Benefits as a Percent of Labor Costs Your Value: 16.4%	24.0%	18.9%	13.8%	9.8%	6.6%

Measure	Highest 10%	Highest 25%	Median	Lowest 25%	Lowest 10%
39. Temporary or Contract Labor Costs as a % of Total Labor Costs Your Value: 11.5%	11.2%	6.4%	2.0%	0.0%	0.0%
40. Energy & Utility Costs as a Percent of Sales Your Value: 1.02%	2.59%	1.67%	1.20%	0.88%	0.60%
41. Energy Costs per Dollar Value-Added Your Value: \$0.02	\$ 0.07	\$ 0.04	\$ 0.02	\$ 0.02	\$ 0.01
42. Consumables and Packaging Costs per Dollar Value-Added Your Value: \$0.10	\$ 0.14	\$ 0.07	\$ 0.03	\$ 0.02	\$ 0.01
43. Premium Freight Costs as a Percent of Sales Your Value:	0.423%	0.171%	0.051%	0.009%	0.000%
44. Dollar Value of Machinery Per FTE Your Value:	\$ 106,618	\$ 74,608	\$ 43,628	\$ 27,799	\$ 9,690
45. Number of Design/Shop Keyboards and Keypads per Employee Your Value: 0.203	0.778	0.588	0.320	0.167	0.069
46. For Shops Doing Design, % of Design Hours on CAD Terminals Your Value: 100.0%	100.0%	100.0%	90.0%	30.0%	8.0%
47. Percent of Employees Using a Computer at Least Weekly Your Value: 100.0%	100.0%	100.0%	83.3%	40.8%	24.0%
48. Percent of Shop Floor Workers Participating in Work Teams Your Value: 0.0%	78.5%	13.3%	0.0%	0.0%	0.0%
49. Incentive or Bonus Pay as a % of Shop Employee Payroll Your Value: 0.0%	10.0%	5.0%	0.9%	0.0%	0.0%
50. Average Cost of Health Coverage per Year, per Covered Shop Worker Your Value: \$5,343	\$ 6,879	\$ 5,786	\$ 4,750	\$ 3,312	\$ 2,321
51. Inspection Labor Hours as a % of Total Shop Labor Hours Your Value:	16.4%	10.0%	8.1%	5.2%	2.4%
52. Pct of Shop Workers Trained in Statistical Quality, Past 3 Years Your Value: 5%	100%	40%	5%	0%	0%
53. Pct of Shop Workers Trained in Technical Areas, Past 3 Years Your Value: 0.0%	100.0%	70.0%	20.0%	5.0%	0.0%
54. Training Tuition and Fees per Employee Your Value: \$508	\$ 625	\$ 294	\$ 162	\$ 93	\$ 33

Measure	Highest 10%	Highest 25%	Median	Lowest 25%	Lowest 10%
55. Training Tuition and Fees per Shop Employee Your Value: \$183	\$ 694	\$ 286	\$ 147	\$ 71	\$ 20
56. Spending on Information Technology as a Percent of Sales Your Value: 1.4%	1.0%	0.7%	0.3%	0.2%	0.1%
57. Pct of Sales Accounted for by Orders Received Over the Internet Your Value: 60.0%	85.0%	40.0%	1.0%	0.0%	0.0%
58. Pct of Material and Subcontracting Purchased Over the Internet Your Value: 50.0%	50.0%	10.0%	2.0%	0.0%	0.0%
59. Percent of Sales from Products not Made 3 Years Ago Your Value: 17.0%	52.0%	35.0%	17.0%	9.0%	2.0%
60. Percent of Sales to Customers not Served 3 Years Ago Your Value: 5.8%	33.0%	25.0%	10.0%	4.0%	0.0%
61. Percent of Sales to Industries not Served 3 Years Ago Your Value: 0.0%	20.0%	10.0%	1.0%	0.0%	0.0%
62. Percent of Sales Exported Beyond U.S. Your Value: 0.0%	34.0%	15.0%	2.0%	0.0%	0.0%
63. Percent of Sales for Which You Designed the Part or Assembly Your Value: 0%	85%	8%	0%	0%	0%

Appendix 3: Formulas

Measure	Formula
***Cost of Goods Sold (referred to as "COGS" in some of the formulas below)	$Q27+Q28+Q33+Q35+Q37+Q41+(Q45/100)*Q44+ Q46+Q66-Q65)$
1. Percent Change in Sales, Past 2 Years	$(Q24 - Q25)/Q25 * 100$
2. Gross Profit Rate - Sales Less Cost of Goods Sold as a % of Sales	$(Q24-COGS***)/Q24*100$
3. Value-Added Per FTE	$(Q24-(Q37+Q41+Q42+Q44)) / (Q73-Q76+Q76*(Q77/40))$
4. Annual Value-Added per Dollar in Machinery Value	$(Q24-(Q37+Q41+Q42+Q44))/Q47$
5. Value-Added per Dollar of Capital and Labor Expense	$(Q24-(Q37+Q41+Q42+Q44)) / ((Q47+Q65)/10 + Q30+Q35+Q36+Q33+Q34)$
6. Value-Added per Square Foot of Production Floorspace	$(Q24-(Q37+Q41+Q42+Q44)) / Q98$
7. Scrap Rate Due to Errors	Q104
8. Percent of Units Reworked	Q105
9. Percent of Units Shipped Bad or Rejected	Q106
10. Percent of Units Made Right the First Time	$100-(Q104+Q105+Q106)$
11. Inventory Turns (Cost-of-Goods-Sold/Total Inventory)	$COGS***/Q65$
12. Days of Raw Material/Parts Inventory	$365*Q62/Q37$
13. For Shops Holding Finished Goods, Days of Finished Goods Inventory	$365*Q64/Q24$
14. Percent On-Time Deliveries to Your Customers	Q68
15. Percent of Supplier Shipments Delivered to You on Time	Q70
16. Percent of Jobs Causing Other Scheduled Jobs to be Bumped	$Q72 / Q71 * 100$

Measure	Formula
17. Available (Manned) Hrs as a % of Hrs in a Year, Avg Per Machine	$Q101/(Q99*8760)*100$
18. Running Hrs as a % of Available Hrs, Regular-Use Machines	$Q102/Q101*100$
19. Running Hrs as a % of Hours in a Year, Regular-Use Machines	$Q102/(Q99*8760)*100$
20. Setup Hours as a % of Available (Manned) Machine Hours	$Q103/Q101 * 100$
21. Employee Turnover Rate	$(Q75-(Q73-Q74))/(Q73-Q74) * 100$
22. Average Hourly Wage, Shop Employees	Q31
23. Pct of Shop Workers Covered by Your Health Plan	$Q85/Q76 * 100$
24. Days Absent as Pct of Total Scheduled Work Days, Shop Workers	Q78
25. Work Days Lost Due to Accidents per 100 FTEs, Past Year	$Q89*100/(Q76*Q77/40)$
26. Pre-Production Lead Time (Days from Order to Release to Production)	Q91
27. Days Manufacturing Lead Time, Typical Order	Q92
28. Days Spent in Finished Goods Inventory, Typical Order	Q93
29. Order-to-Delivery Days (Pre-Prod'n + Mfg + Fin'd Goods), Typical Order	$Q92+Q91+Q93$
30. Average Days of Receivables	$(Q48/Q24) * 365$
31. Days Order-to-Cash Lead Time, Typical Order	$Q91+Q92+ Q93 + (Q48/Q24 *365)$
32. Purchased Material and Parts Costs as a Percent of Sales	$Q37/Q24*100$
33. Pct of Purchases that come from Suppliers Located within 250 Miles	Q38
34. Purchased Services as a Percent of Sales	$Q43/Q24 * 100$
35. Labor Costs (Payroll, Temps, Benefits) as a % of Sales	$(Q33+Q34+Q35+Q36+Q30)/Q24 * 100$
36. Shop Payroll as a Percent of Sales	$Q27/Q24 * 100$

Measure	Formula
37. Non-Factory Labor Costs (Payroll Plus Benefits) as a Percent of Sales	$(Q29+Q34+Q36)/Q24 * 100$
38. Benefits as a Percent of Labor Costs	$(Q33+Q34)/(Q30+Q33+Q34+Q35+Q36) * 100$
39. Temporary or Contract Labor Costs as a % of Total Labor Costs	$(Q35+Q36) / (Q30+Q35+Q36+Q33+Q34) * 100$
40. Energy & Utility Costs as a Percent of Sales	$Q44/Q24*100$
41. Energy Costs per Dollar Value-Added	$Q44 / (Q24-Q37-Q43-Q44)$
42. Consumables and Packaging Costs per Dollar Value-Added	$Q40 / (Q24-Q37-Q43-Q44)$
43. Premium Freight Costs as a Percent of Sales	$Q69/Q24 * 100$
44. Dollar Value of Machinery Per FTE	$Q47 / (Q73-Q76+Q76*(Q77/40))$
45. Number of Design/Shop Keyboards and Keypads per Employee	$Q60/Q73$
46. For Shops Doing Design, % of Design Hours on CAD Terminals	$Q95$
47. Percent of Employees Using a Computer at Least Weekly	$Q90$
48. Percent of Shop Floor Workers Participating in Work Teams	$Q84 / Q76 * 100$
49. Incentive or Bonus Pay as a % of Shop Employee Payroll	$Q32$
50. Average Cost of Health Coverage per Year, per Covered Shop Worker	$Q86 / Q85$
51. Inspection Labor Hours as a % of Total Shop Labor Hours	$Q81$
52. Pct of Shop Workers Trained in Statistical Quality, Past 3 Years	$Q114$
53. Pct of Shop Workers Trained in Technical Areas, Past 3 Years	$Q115$
54. Training Tuition and Fees per Employee	$Q87 / Q73$
55. Training Tuition and Fees per Shop Employee	$Q87*Q88 / (Q76*100)$
56. Spending on Information Technology as a Percent of Sales	$Q55/Q24 * 100$

Measure	Formula
57. Pct of Sales Accounted for by Orders Received Over the Internet	Q58
58. Pct of Material and Subcontracting Purchased Over the Internet	Q59
59. Percent of Sales from Products not Made 3 Years Ago	Q20
60. Percent of Sales to Customers not Served 3 Years Ago	Q21
61. Percent of Sales to Industries not Served 3 Years Ago	Q22
62. Percent of Sales Exported Beyond U.S.	Q23
63. Percent of Sales for Which You Designed the Part or Assembly	Q94