

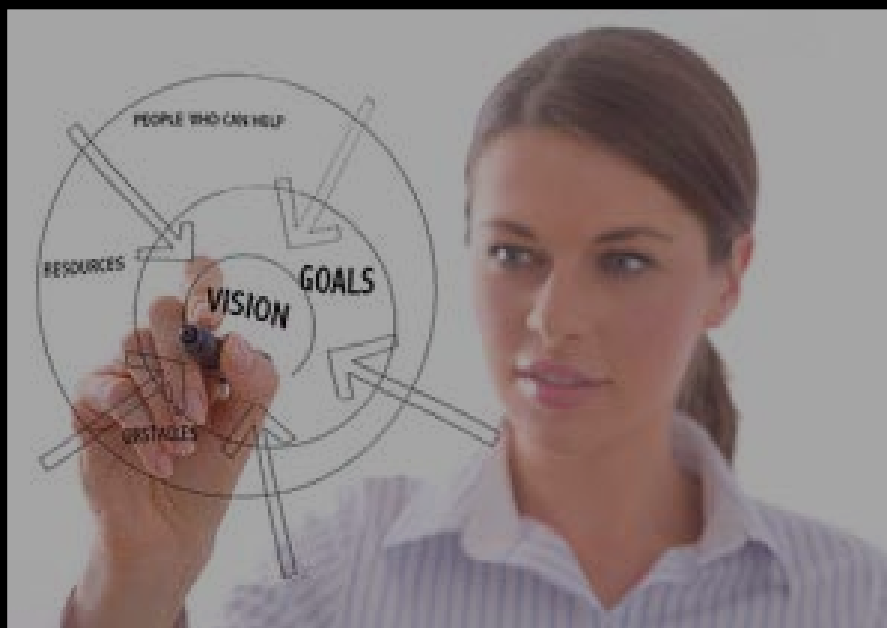
MICHIGAN

MANUFACTURING

TECHNOLOGY

CENTER

Know how you stack up against your competition. Use this information to help improve your quote win rates, demonstrate to your customers why you're better than the competition, or fulfill benchmarking requirements set forth by customers and quality management systems.



Transformation Planner

It can be difficult to identify where the biggest opportunities for improvement exist. Michigan Manufacturing Technology Center's Transformation Planner uses your company's financial and operating data to model the financial impact decision making will have on your PROFITABILITY.

Success doesn't just happen. It takes driven, dedicated, experienced, full-time professionals - like the kind at Michigan Manufacturing Technology Center (The Center), working together to keep Michigan manufacturing strong.

Since 1991, The Center has assisted Michigan's small and medium-sized businesses compete and grow. Through **personalized** services fitted to meet the needs of clients, we develop more effective business leaders, drive product and process innovation, promote company-wide operational excellence and foster creative strategies for business growth and greater profitability. Supported by the Michigan Economic Development Corporation as Michigan's National Institute of Standards and Technology Manufacturing Extension Partnership (MEP) affiliate, we bring well-tested services to our MEP clients.

a NIST | Network
MEP | Affiliate PURE MICHIGAN™

Resource Utilization Benchmarking Report

As you review your report, we commonly refer to the "Percentile." This is your relative position in the selected comparison group for each Transformation Driver. For example, if your percentile is 70, you perform better than 70% of the other companies in the comparison group. Conversely, you perform more poorly than 30% of the other companies in your comparison group.

Next to each driver is a click-able image with a description of the Transformation Driver along with other information that we think can add insight into the value of the respective Driver.

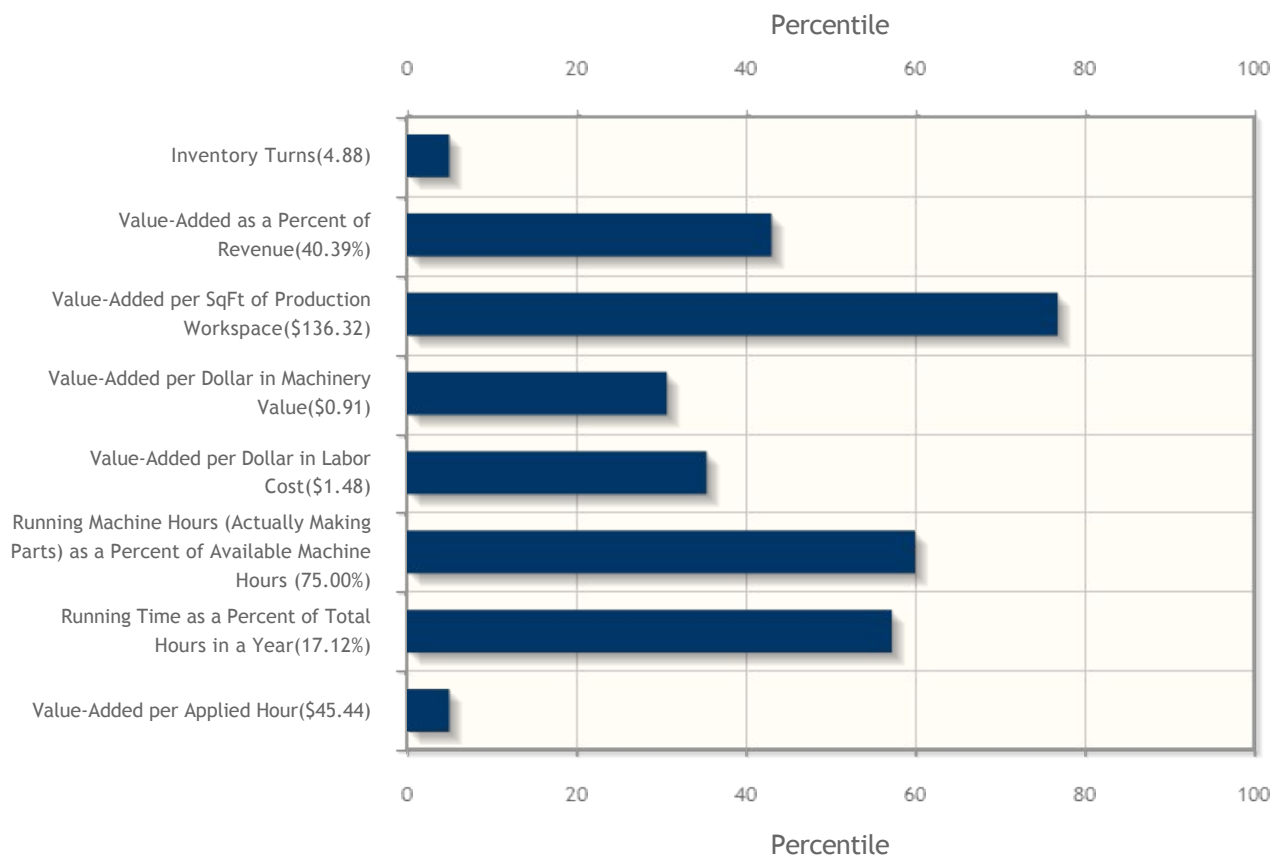
Transformation Drivers on this report require the completion of the [Resource Utilization Survey](#). If you haven't done so already, please complete this Survey. Once completed, please return to view the results.

Resource Utilization

The three main resources a manufacturer uses to produce its products are people, plant (facility) and equipment. How effectively a manufacturer uses these resources relative to a peer group can be a very good indicator of production flexibility, customer responsiveness and overall profitability.

Value-added revenue is the lifeblood of a manufacturer and the key to managing profitability. Value-added revenue is defined as revenue less direct material and outside processing costs. In essence, assuming the customer could supply direct materials or outside processing, what is the manufacturer being paid to convert those materials into a finished product?

Average to below average manufacturers may excel in one or two value-added metrics relative to a peer group. However, the top performing manufacturers generally will excel across all value-added metrics and enjoy higher levels of profitability, production flexibility and an overall lower operating risk as a result.



Resource Utilization Distribution

| Resource Utilization Distribution | | | | | |
|---|------------|---------|----------|----------|------------|
| | Percentile | | | | Your value |
| | 25% | 50% | 75% | 90% | |
| Inventory Turns | 5.31 | 6.33 | 9.15 | 12.65 | 4.88 |
| Value-Added as a Percent of Revenue | 32.14% | 36.06% | 44.50% | 51.23% | 40.39% |
| Value-Added per SqFt of Production Workspace | \$53.86 | \$70.04 | \$88.94 | \$133.98 | \$136.32 |
| Value-Added per Dollar in Machinery Value | \$0.51 | \$0.87 | \$1.19 | \$2.29 | \$0.91 |
| Value-Added per Dollar in Labor Cost | \$1.19 | \$1.36 | \$1.55 | \$1.81 | \$1.48 |
| Running Machine Hours (Actually Making Parts) as a Percent of Available Machine Hours | 40.30% | 49.90% | 68.43% | 79.38% | 75.00% |
| Running Time as a Percent of Total Hours in a Year | 5.61% | 9.91% | 15.77% | 25.33% | 17.12% |
| Value-Added per Applied Hour | \$58.02 | \$92.65 | \$145.95 | \$272.75 | \$45.44 |

Metric Description

| | |
|--|---|
| Inventory Turns | <p>Inventory Turns serves as a fundamental measure of lean performance, and ability to convert expense into billings. Companies with high Inventory Turns are able to generate saleable output with little carrying cost, yielding a cost advantage relative to others. A high Inventory Turns value also often signifies a nimble company – one able to respond quickly to changes in demand.</p> <p>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 quantities 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 intermediate products but doing final processing or packaging to order. Finally, high work-in-process (WIP) often reflects bottlenecks that result in long waits between processing or packaging steps. Poor routings, bad line balancing, and frequent but unanticipated equipment 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.</p> |
| Value-Added as a Percent of Revenue | <p>Value-added as a percent of revenue is one indicator of how much additional processing (engineering, fabrication, conversion, etc.) a manufacturer applies to the materials they purchase. On the spectrum, a distributor or light manufacturer would have a relatively low measure (say 25%), while a precision machine shop fabricating very small parts may have a very high measure (say 75%). While value-added as a percent of revenue is not a direct indicator of profitability, it is one of the single most critical (and predictive) measures when evaluating the potential impact on profitability of new business or lost business.</p> |
| Value-Added per SqFt of Production Workspace | <p>Facilities tend to be the most inflexible of all production resources, meaning the ability to flex facility costs with changes in demand is very low. A company's ability to leverage more output within the same square footage will generally have a very positive impact on profitability and over time, indicate increased flexibility in production. Reducing inventories and converting the "liberated" space into production space is one example of a way to improve on this measure.</p> |
| Value-Added per Dollar in Machinery Value | <p>Companies that perform well in this measure are approaching their equipment purchases and the utilization of equipment differently than those companies with lower scores. For example, a company that chooses to operate existing equipment on 2 shifts rather than adding more equipment on 1 shift will tend to score better on this measure. While the goal is to always increase leverage on key production inputs, some companies will use new equipment to leverage additional production capacity within the same square footage or to leverage scarce skilled labor resources. If that is the case, average performance in this measurement should be accompanied by above average performance in value-added per dollar in labor cost or per square foot of production.</p> |
| Value-Added per Dollar in Labor Cost | <p>Finding and developing a skilled labor force is a challenge for most manufacturers. How well a manufacturer leverages their labor base to increase production is key to both customer responsiveness and overall profitability. While it is easy to assume that the higher performance is due to increased automation, it is not necessarily the case. Other factors, such as wage rates and process effectiveness can impact this measure.</p> |
| Running Machine Hours (Actually Making Parts) as a Percent of Available Machine Hours | <p>This metric focuses on how effectively you make use of the hours that you intend to be working with your machines – specifically, those hours when you either have personnel attending a machine OR have scheduled it to run unattended. It compares the hours your equipment is actually making output, vs. non-productive time such as doing setups, maintenance, or when machines are idle while operators gather the material or supplies they need.</p> |
| Running Time as a Percent of Total Hours in a Year | <p>For most manufacturers, the overall cost structure for its investments in people, plant and equipment is relatively fixed. How well a manufacturer can utilize these fixed investments can have a much greater impact on profitability than product pricing. Running Time as a Percent of Total Hours in a Year (or how many hours of all available time (labor or machinery) in a year are you are actually producing product) is a purist's view of utilization. Lower utilization can be considered an opportunity to grow value-added revenue while adding very little incremental cost.</p> |
| Value-Added per Applied Hour | <p>While manufacturers often look at gross margins to evaluate relative profitability on a customer or product basis, the best way to measure what you are actually being paid across various product lines is to look at value-added per direct hour (labor or machinery) applied. This measure indicates the amount that customers are paying you each hour for the service of converting raw material into a finished product. Often this metric operates in a fairly narrow range within an industry (e.g. injection molding or precision machining). A wider variation from the comparison group could indicate differences in asset utilization, operating effectiveness, or significant indirect resources (e.g. engineering) that are components of value-added revenue.</p> |

Comparison Group Price Ranges

Low, average, and high prices per unit for selected comparison group.

| | Price Ranges | | | | Your value |
|--------------------|--------------|--------|---------|----------|------------|
| | Percentile | | | | |
| | 25% | 50% | 75% | 90% | |
| Lowest Unit Price | \$0.01 | \$0.02 | \$0.06 | \$0.31 | \$5.00 |
| Average Unit Price | 0.09 | 0.32 | 1.50 | 8.75 | 75.00 |
| High Unit Price | \$1.75 | \$5.04 | \$22.00 | \$265.02 | \$150.00 |

Production Flow Characteristics

Production Flow characteristics of the selected comparison group.

| | Production Flow Types | | | | Your value |
|---|-----------------------|--------|--------|--------|------------|
| | Percentile | | | | |
| | 25% | 50% | 75% | 90% | |
| Engineered to Order Work | .00% | .00% | 2.00% | 10.00% | 75.00% |
| Job Shop Parts and Services | .00% | .00% | 2.50% | 5.00% | 10.00% |
| Make to Order Jobs Run Regularly | 50.00% | 73.75% | 90.00% | 95.00% | 10.00% |
| Make to Stock Work | .00% | .00% | .00% | 10.00% | 5.00% |
| Percent of Shop Labor Time Spent Doing Assembly/Manual Work | 4.00% | 10.00% | 17.50% | 25.00% | .01% |

Percent of Revenue From Customers

Percent of Revenue From Customers' Industries for the selected comparison group.

| | Customer Industries | | | | Your value |
|---|---------------------|------|--------|--------|------------|
| | Percentile | | | | |
| | 25% | 50% | 75% | 90% | |
| Consumers, institutions, wholesalers, or retailers (i.e., NOT to other manufacturers) | .00% | .00% | .00% | 1.75% | 68.00% |
| Defense/military-related? | .00% | .00% | .00% | 5.00% | 32.00% |
| Medical/healthcare-related? | .00% | .00% | .00% | 2.75% | .00% |
| Customers in Automotive | .00% | .75% | 35.00% | 66.25% | .00% |
| Customers in Aircraft/Aerospace | .00% | .00% | .00% | 1.00% | .00% |
| Customers in Computer, Communications, or Electronic Equipment | .00% | .00% | .00% | 10.00% | .00% |

Batch Size

Batch Size distribution for the selected comparison group.

Batch Size

| | |
|--|---------|
| One or Very Few | 0.00 % |
| Dozens to Hundreds | 8.33 % |
| Thousands to Tens of Thousands or More | 58.33 % |
| No "Typical"; Varies from a Few to Thousands | 33.33 % |
| Your Answer: Dozens to Hundreds | |

Comparison Group Demographics

Industry and Geographic details for the selected comparison group.

Industry Breakdown

| | |
|--|---------|
| Aircraft & Aerospace | 0.00 % |
| Apparel & Other Cut-and-Sew | 0.00 % |
| Automotive & Heavy Truck | 2.78 % |
| Casting & Other Primary Metal Processing | 2.78 % |
| Commercial Sheetfed Printing | 0.00 % |
| Computer & Electronics Parts, Assemblies | 0.00 % |
| Consumer & Commercial Products | 0.00 % |
| Discrete Products, Not Included Above | 0.00 % |
| Food Processing | 0.00 % |
| Furniture and Assembled Wood Products | 0.00 % |
| Instruments (incl. Medical Devices) | 0.00 % |
| Large, Powered Industrial Machinery | 0.00 % |
| Metal Forming & Fabrication | 88.89 % |
| Metals Services | 0.00 % |
| Plastic and Rubber Products | 0.00 % |
| Screw Machine Products | 2.78 % |
| Textiles | 0.00 % |
| Tooling & Machined Parts | 0.00 % |
| Other Electrical Assemblies | 0.00 % |
| Other Industrial Machines & Assemblies | 2.78 % |
| Lumber & Wood Products | 0.00 % |
| Paper & Paperboard Products | 0.00 % |
| Chemicals, Resins & Compounds | 0.00 % |
| Pharmaceuticals | 0.00 % |
| Process Industries, Not Included Above | 0.00 % |
| Wholesalers, Retailers and Services | 0.00 % |
| Your Answer: Tooling & Machined Parts | |

Geographic Breakdown

| | |
|--|---------|
| US -Great Lakes | 69.44 % |
| US - Northeast | 13.89 % |
| US - South | 8.33 % |
| US - Plains | 0.00 % |
| US - West | 0.00 % |
| Canada | 8.33 % |
| Mexico, Latin America, or Caribbean | 0.00 % |
| Western Europe | 0.00 % |
| Eastern Europe, Turkey and Caucasus | 0.00 % |
| Australia, Japan, New Zealand | 0.00 % |
| Hong Kong, S. Korea, Singapore, Taiwan | 0.00 % |
| Other Asia and the Pacific | 0.00 % |
| Africa | 0.00 % |
| Your Answer: US -Great Lakes | |

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