



Modern
Machine
Shop

TOP SHOPS

2018

CUSTOM SHOP REPORT

Benchmarking your
data to improve shop
performance

PREPARED FOR



THE 2018 MODERN MACHINE SHOP TOP SHOPS BENCHMARKING SURVEY

Thank you for participating in *Modern Machine Shop's* eighth annual Top Shops benchmarking survey, which enables shops of all types and sizes to see how they compare against leading U.S. machining businesses.

In working with our company's Gardner Intelligence group (gardnerintelligence.com) to provide additional value to our readers, we've developed this custom report that ranks your responses to the survey's quantitative questions against other survey participants. The goal in developing this report is not just to offer a baseline performance "report card" of sorts, but to help eliminate the need to rely on gut feelings as a method of identifying and prioritizing your shop's improvement efforts.

The initial pages of this report describe how to read the data plots for the various survey questions and provide a general performance summary for your company. That summary includes your overall survey rank (among the 471 usable surveys received this year) and lists key metrics for which your company is particularly strong, is on par with others or perhaps should be targeted for improvement.

An explanation of survey methodology and how we determine our Top Shops benchmarking group is found on page 23, as is a general overview of the types of shops that participated in this year's survey, industries those shops serve and a breakdown of common business attributes. Starting on page 24, you will find comparisons of the type of equipment, processes and practices Top Shops leverage compared to the other shops that participated in the survey.

Each Top Shops survey opens in January and runs through February. We will again provide free custom reports like this one to survey participants as we work to improve our reporting efforts, so I hope you'll continue to participate in our annual survey. In addition, please consider attending the Top Shops Workshop that will be held September 13 at this year's International Manufacturing Technology Show (IMTS) at McCormick Place in Chicago, Illinois. This workshop will include multiple presentations from industry leaders including your peers who will describe various strategies, technologies and processes they've implemented to enable their shops to grow and become more profitable. Visit topshopsevent.com for more information.

Derek Korn
Executive Editor
Modern Machine Shop
dkorn@mmsonline.com





A Few Survey Takeaways

The Top Shops survey is divided into four categories: machining technology, shopfloor practices, business strategies and human resources. This shines light on a range of processes applied and key metrics attained from both the shop floor and front office. Here are just a few takeaways from this year's survey for each of those categories.

- **Machining technology.** Various trends related to the types of machines used in past surveys hold true for this year's survey. For example, a higher percentage of Top Shops use horizontal machining centers (64 to 51 percent), which can offer higher spindle uptime than vertical machining centers thanks to their dual-pallet design that enables a new job to be set up on one pallet while machining is performed on the other pallet. Top Shops also perform four- and five-axis machining more often, which can minimize the number of setups a job requires or enable more complex, contoured geometries to be machined.

Top Shops also tend to adopt more sophisticated tooling technology and strategies compared to other shops. A higher percentage use custom/specialty tools, balanced tool assemblies and tools with internal coolant delivery. They also are more likely to use workholding equipment such as quick-change devices, vacuum chucks and tombstones to maximize spindle utilization.

The use of additive manufacturing and 3D printing equipment is still relatively low for all shops. However, it is seeing increased use not only for creating prototypes, but also for quickly and sometimes less expensively creating jigs, fixtures and related workholding components as opposed to machining them.

- **Shopfloor practices.** A rather low percentage of Top Shops use machine-tending robots (23 percent compared to 17 for others). However, 59 percent of Top Shops (compared to 42 percent of others) still realize the advantages of unattended machining, which is possible even without a robot. This is accomplished by using equipment such as bar pullers and bar feeders on turning centers, parts collection devices, fixturing to accommodate multiple workpieces and HMCs with pallet pools.

Similarly, there are various other ways shops achieve automation. Five-axis machining, which provides access to five sides of a part, is itself a form of automation. It can minimize the number of setups or the number of machines that a part might otherwise have to run across, thus, the number of times a part is "touched" during production (i.e., its "automation"). On-machine touch probes can identify the location of several points on a part or workholding device to establish the part's exact location on the machine. The machine's CNC then automatically adjusts the native work coordinate system to match it. In addition, on-machine tool measuring probes can automatically determine tool offsets and check for tool breakage.



TOP SHOPS BENCHMARK RESULTS

BUILD YOUR MACHINING BUSINESS

• **Business strategies.** Adding engineering staff is becoming more important for Top Shops as more OEMs outsource their machining work. Shops that can offer design for manufacturability (DFM) advice can suggest design changes to simplify machining work and reduce production costs. This year, more than half of Top Shops said they offer DFM services to customers compared to only a third of other shops.

The top five sales and marketing initiatives cited by Top Shops were company websites, facility tours, sales people, brochures and trade shows. That said, an increasing number of leading shops say social media is an effective sales and marketing tool, too. This year, 40 percent of Top Shops affirm this compared to 26 percent of other shops. The most common platforms used include Facebook, LinkedIn and Twitter, with growing interest being shown in Instagram.

• **Human resources.** Approximately 55 percent of Top Shops have developed some style of formal, in-house training program compared to 40 percent of other shops. In some cases, a general shop training curriculum is adequate, but sometimes customization is necessary for shops having specialized machining and manufacturing processes. This type of training also leads to standardized processes, eliminating any person-to-person variation from the way the tasks are supposed to be performed.

In addition, Top Shops do a better job of preparing their future leaders, given that 47 percent of them have a supervisor development program compared to 38 percent of other shops. The percentage of Top Shops using team building practices is also higher at 45 percent compared to 30 percent of other shops. Team building can help break down barriers and improve working relationships and, as a result, improve an organization's efficiency and productivity.



Each year, four Top Shops are chosen to be Honors Program winners in each of the survey's four categories. These shops are highlighted in an issue of *Modern Machine Shop*.



TOP SHOPS BENCHMARK RESULTS

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IMTS2018

REGISTER TODAY!

2018 TOP SHOPS WORKSHOP

SEPTEMBER 13, 2018 | IMTS
McCORMICK PLACE | CHICAGO, IL

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The *Modern Machine Shop* Top Shops Workshop is the place to build your business. The event will connect the leaders in machining and metalworking – the top shops, the top suppliers, the top innovators.

Gardner Business Media Metalworking Group



TopShopsEvent.com

IN PARTNERSHIP WITH:





Performance Summary

Your Overall Percentile:

Your Overall Rank:

Strengths	Your response for this metric is in the top 25% of all responses. Your company is a leader in this metric.
On Track	Your response for this metric is a typical response, between the 25th and 75th percentiles . Your company is comparable to the industry standard.
Opportunities	Your response for this metric is in the bottom 25% of all responses. Consider what can be done in this area to improve performance.

Strengths

On Track

Opportunities

HOW TO READ YOUR ..



TOP SHOPS BENCHMARK RESULTS

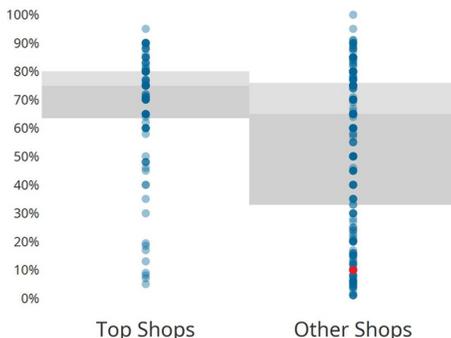
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Spindle Utilization

Spindle in-cut as a percentage (%) of machine uptime

Your Shop's Value: **10.0**
Your Overall Percentile: **9%**

Why this is important: Machine tools only make money when they're making chips. Shops typically work to maximize spindle utilization by minimizing downtime associated with new job setups, commonly using technology such as quick-change fixturing, on-machine probing, etc.



RED

The red dot and number indicate your response, and the percentile where it falls.

BLUE

Blue dots represent the responses of other shops - the darker the blue, the more responses that were close to that value.

GRAY

The shaded area marks the 75th and 25th percentiles, where higher numbers are better. The break in the shading represents the median.

Missing a red dot or number?

There are two possible reasons:

1. You did not provide an answer to this question.
2. You provided an answer, but it was an outlier.

Capacity Utilization

Capacity being used as a percentage (%) of total plant capacity

Your Shop's Value: **65.0**
Your Overall Percentile: **38%**

Why this is important: Capacity utilization quantifies how much of a shop's total available capacity is being used. Low capacity utilization indicates the investment in some equipment isn't generating income, which can lead to reduced profits.

