

THE METRICS

“With MachineMetrics, we have nearly doubled machine utilization with a lower headcount between Q1 to Q2 and are steadily increasing our shop OEE by three percent month-to-month with a goal of eight percent by Q2 of 2019. Those are some powerful numbers.”

—JORDON SCHAEFER, Manager, Advanced Manufacturing Engineering, SilencerCo

In 2019 alone, SilencerCo was able to realize remarkable improvements in both the efficiency and profitability of their production leveraging MachineMetrics including:

5%

INCREASE
IN OEE

11.5K

HOURS OF UNPLANNED
DOWNTIME ELIMINATED

200%

IMPROVEMENT IN
GOOD PART PRODUCTION

8%

INCREASE IN
MACHINE UTILIZATION

50%

DECREASE IN SHOP FLOOR
STAFFING REQUIREMENTS

100%

INCREASE IN
DATA VISIBILITY

ABOUT MACHINEMETRICS

MachineMetrics is manufacturing's first Industrial IoT Platform for Machines. We transform analytics into action through universal machine connectivity, cloud data Infrastructure, and communication workflows that optimize machine operation. Right now, hundreds of manufacturers have connected thousands of machines to MachineMetrics across global factories. Our platform is enabling these companies to deliver the right information to the right person at the right time to improve their machine performance and productivity, increase their capacity utilization and ultimately win more business to remain globally competitive.



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REAL-TIME VISIBILITY— A COMPETITIVE EDGE FOR SILENCERCO

A Case Study Interview with SilencerCo

CLIENT



TYPE OF COMPANY

Suppressor, Firearm and Accessory Manufacturing

INTERVIEWEES

Jordon Schaefer, Manager, Advanced Manufacturing Engineering
Gianni Donati, Director of Product Management

PRIMARY INDUSTRIES SERVED

Firearm, Hunting

PRIMARY EQUIPMENT

 CNC Swiss Lathes

 CNC Mills

The Goal

The number of setups and changeovers was significant. We weren't able to capture the number of changeovers that were very frequent or not on ideal machines, and the set up times were significantly higher than we believed they should be. It was obvious in the time and the quantity that we had significant room for improvement.

The work we have to do at the machine is far greater than any other improvements we have to make. We knew that just increasing our utilization with certain machines by five to seven percent could translate into not necessarily having to buy new equipment to increase our capacity.

Was there a specific goal you hoped to achieve with this implementation?

Our goal was to capture real-time manufacturing data for our business systems in an effort to improve decision making and set realistic benchmarks for future improvement. Ideally we wanted to integrate an interface directly into the information coming from our machine tools (real, untampered data) that would allow us to keep our operators focused on producing quality parts, while simultaneously displaying live metrics, which would allow the management team to adjust and problem solve in real time. (The simpler this process was, the better).

Everything was planned off an average daily rate that was based on an idealized world: that is, using our machines all the time. The reality is that we weren't hitting those idealized numbers. We knew this was the case but had no way to prove it.

What challenges were you trying to solve by implementing a machine monitoring system?

Setting realistic expectations for manufacturing in a volatile market with a large product mix. Our ability to see OEE and actual production rates consisted of patchworked spreadsheets referencing outdated and inaccurate information. Communication in the best of scenarios still allowed misses and quality issues to surface after they were correctable in process. Without this critical data we were unable to identify our shortcomings or the impact of our improvement efforts on the bottom line. We had no data to tie back to problems that were being elevated from the machine shop; without data there was no way of knowing where to focus our efforts for the best returns. We needed the machine shop floor to see their metrics and understand their impact on the company's health.

The Solution



MachineMetrics monitors forty-two workcenters on SilencerCo's shop floor.

Why did you choose MachineMetrics over the competition?

We currently have forty-two workcenters being monitored by MachineMetrics; each machine has a tablet mounted to it, and we have five large dashboard monitors displaying performance metrics around the shop.

What it came down to was finding a system that was easy for everyone, not just engineers, to understand and utilize. MachineMetrics was the simplest and most intuitive solution that we found.

MachineMetrics has the easiest interface we've seen; everyone can get the information they need without having to dig around or interpret it in some way.

The Operator View allows our operators to give us unbiased information right from the tablets we installed at the machine tool without adding time to their schedule. This is the only way to really capture that type of feedback. It truly gives the operators a voice in the process by tying their feedback directly to the data at hand. Before using MachineMetrics, problems were just hearsay or based on an assumption that would fizzle out over time and was never quantifiable. Now that it's visible, we can



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try to solve it. Once the operators understood why we were implementing the system—that we were using the data to help them, to get them more resources, to help them make their jobs easier—everyone started buying in.

Visibility; MachineMetrics gives all stakeholders visibility into how our shop is running. This visibility leads to questions: “Is the data correct?” “Does it really take that long?” “Why is our utilization so low?” “How can we have that much downtime?” “What is OEE?” Questions drive teams in the machine shop to help identify root causes, and start to implement solutions. With the data being captured by MachineMetrics we are gaining the ability to see if our solutions have actually solved our problems or positively affected OEE.

At a minimum, MachineMetrics has replaced one employee, if not more, just from a data collection

perspective. The administrative time to collect all the data from department to department was significant and costly, but the inaccuracy of the manual tracking was essentially making the data unactionable. It was impossible for us to identify problems before the problem existed, but that’s all changed now using the system.

“The data doesn’t lie; it tells us what’s really happening, whether it’s using the real-time dashboards or the historical reporting. In the beginning, it wasn’t always what we wanted to see, but those hard truths are what have given us a baseline for improvement, and drive us to do better each day.”

JORDON SCHAEFER
Manager, Advanced Manufacturing
Engineering, SilencerCo

The Results

What Qualitative and Quantitative impact has MachineMetrics had on your company? How has MachineMetrics changed your day to day operations? For operators? For managers? For upper management?

Immediately, the system started giving us visibility into the questions we needed to answer. The data doesn’t lie; it tells us what’s really happening, whether it’s using the real-time dashboards or the historical reporting. In the beginning, it wasn’t always what we wanted to see, but those hard truths are what have given us a baseline for improvement, and drive us to do better each day.

Before MachineMetrics, we had always based our costing of products on previous conceptions of what it took to make a part. But the truth is, the majority of those product costs were based on assumptions and estimates, and we’d never had a truly accurate way to cost out products. Using MachineMetrics, going off median cycle times, we were able to see how the utilization of those machines applied to our cost. We’re now able to actually understand what it costs to make a part.

From an employee standpoint, we’ve seen a fundamental change in communication. MachineMetrics has brought up conversations

that break down the walls and the silos between invested parties. There’s no more finger pointing. Now, problems can be discussed instead of reacted to. Morning meetings have changed from guessing what we think went wrong the day before to fact-driven reviews of MachineMetrics reports. As a team, we’ve started working together to figure out why we did something well and then how we can do it again tomorrow.

Within the first few weeks of implementation on our swiss machines one of the operators came up to me and he was all excited. He pointed toward the dashboard monitor mounted to the wall to show me that all the machines were “Green.” At that moment, I realized that MachineMetrics would improve more than just our numbers, but change the way we go about our business.

However, the biggest impact we have seen from MachineMetrics is our ability to take corrective actions to adapt to a tough market climate. We have nearly doubled machine utilization with a lower head count between Q1 to Q2 and are steadily increasing our shop OEE by three percent month-to-month with a goal of eighty percent by Q2 of 2019. Those are some powerful numbers.

We recently had a large improvement project take place. Using MachineMetrics we were able to see that the machine making our highest running part wasn’t hitting our utilization goal. We dug into the

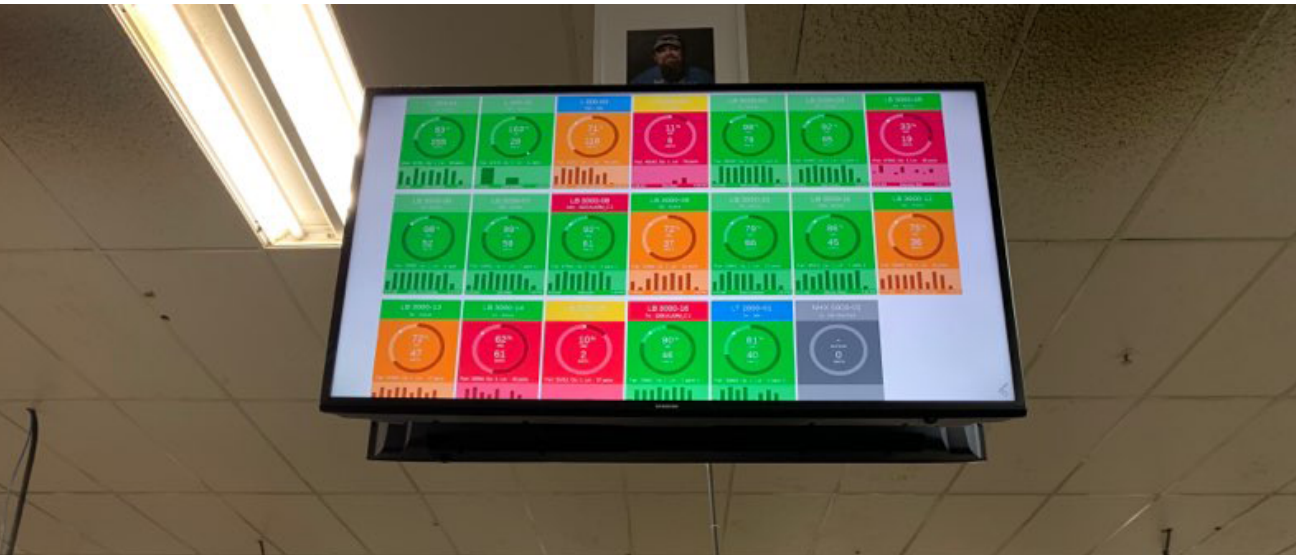


The MachineMetrics Operator View helps easily identify the root causes of downtime events.

data and found that it had frequent, short, downtime events that added up to significant loss in utilization over time. We drilled deeper into the data captured by our operators through the MachineMetrics tablet interface and were easily able to identify the two root causes for the downtime events. First, chips having to be manually cleared in the machine as they built up. Second, parts not getting caught by the parts catcher and jamming in the conveyor. Leveraging programming and engineering resources we were

able to work with the machine operator to solve these two problems. With these problems solved, we have not only increased utilization on that machine by fifteen percent, but using MachineMetrics, we were able to understand the frequency of chip build up and solve these problems in a manner that allows the machine to now run completely lights out. This has given us huge gains by freeing up manpower from that machine and allowing us to run that machine lights out.

The Future



Five large dashboard monitors display performance metrics around the shop.

What are your plans for expansion?
Is there anything you are excited about working with MachineMetrics on in the upcoming year?

With over one year of solid cleaned data in our system now, we are planning on a shop-wide machine tool standardization focused on decreasing our set up times by a third and reducing our monthly setups by half. In addition to the tooling standardization we will also focus our programming/tooling efforts to reduce the most common downtime causes on a part, workcenter, and machine group basis.

MachineMetrics has helped us make a case for hiring. Using downtime tracking reports, we found that a lot of our downtime was caused by a lack of operator availability. So, if we can increase our headcount, we can increase our utilization. It's that simple.

One exciting future event is our upcoming ERP implementation. We had always wanted to implement an ERP system, but we did not feel comfortable moving to an ERP without having reliable data. Thanks to MachineMetrics, we now have the data necessary to implement ERP and MRP systems.

With the success we've seen from MachineMetrics on our CNC machines, we are planning to implement it in other areas of our manufacturing facility. Up next, we will be integrating our CNC welders; after that, we are looking to integrate with our deburr process. We eventually plan to have our entire facility running on MachineMetrics, and we anticipate that this will give us clean data for all of our processes, and allow us to make real-time unbiased decisions to improve our processes.