



Increase Manufacturing Revenues with this Three-Pronged Approach

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Originally published in Quality Digest on 5/4/2018



Vantage^S



Quantum^S Arm

How the Use of Laser Trackers Can Improve the Bottom Line of Your Business

You run a manufacturing business, so you know how it goes. The cost of doing business and manufacturing product never decreases. You know that your revenue must increase just to keep up. You also know that merely maintaining your revenue status quo will only ensure you get your lunch eaten by inflation. Or by your competition. If you aren't growing your profits, you aren't just standing still—you're going backward. There is no such thing as "flat growth." If your company's revenue is not increasing year after year; it's dying a slow death. Here are three ways that investing in technology can help your business grow and increase your profit margins.

Minimize Inspection Time

Although QC and QA are indispensable, outdated measurement tools can create a bottleneck in production. Minimizing inspection time is crucial to improving your value chain. Because inspection has such great potential to play a pivotal role in value chain improvement, manufacturing organizations cannot afford to overlook the low-hanging opportunity that technology represents.

"When a client is working on an outage, whatever task they have to wait on before doing the next task is called the 'critical path.' Before using (a laser) tracker system, outage tasks would stop, and the crew would have to wait on us to take our readings before anything else could be done. That made us the critical path! Using the tracker changed all that. What used to take anywhere from 12 to 24 hours is now done in three to five."

— **Damian Josefsberg**, founder of ACQUIP

Talk to your QC/QA techs. More than likely, they can tell you the shortcomings of your existing equipment, and how much time savings might be possible with upgrades.

"We had one of our sales associates show (the FARO[®] Vantage^S) to a customer who was using a competitor's product," says Jim Cassidy, factory metrology product marketing manager at FARO. "The customer is a major user of a competitor's laser tracker. They tried out a FARO Vantage^S with ActiveSeek and compared it to the competitor's laser tracker in a 'bake-off.' They were measuring a large, complicated assembly. With the competitor's laser tracker, it took seven hours to do the measurements, plus another four hours to create the inspection report with the competitor's software for a total of 11 hours. Using a Vantage^S with ActiveSeek, the measurements were completed in five hours, and, using FARO software, the report was generated in just two hours. Total effort with FARO/Vantage was seven hours versus 11 hours using the competitor's product."

Decreasing inspection time can increase production which can lead to increased revenue.

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Damian Josefsberg
Founder of ACQUIP

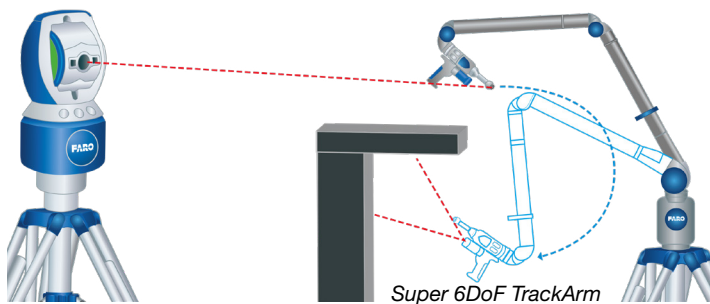
Maximize Throughput

Manufacturers must proactively seek opportunities to maximize throughput in their current value chain. Within the production phase, one way to increase throughput is

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to enhance the inspection processes. Improved inspection efficiency has a high probability of translating to an increase of throughput.

“We use the Super 6DoF setup about 75 percent of the time the trackers are out on the floor because we manufacture a lot of tools that are so big,” explains Woodland Trade Company’s QA manager **William Shanks**. “That directly translates into cost savings because now, not only do we get the tool inspected faster, but we also get the tool off the CNC machine quicker, so our guys can start cutting the next tool. Keeping the CNC spindles running is a powerful driving force. And every time QA is out there inspecting something, that’s what stops our spindles. We’ve cut down on trim time, costs, and all of the things associated with (our inspection processes).”



Employee turnover is another aspect of manufacturing that has a great impact on day-in day-out throughput. Onboarding experienced craftsmen or bringing existing personnel up to speed on inspection equipment can put a serious crimp in production numbers.

Datum Metrology discovered investing in the appropriate technology could cut training time significantly.

“The operation checks and calibration process were a complex and timely daily routine that required vast training to learn how to perform properly,” recalls Jason Sobieck, owner of **Datum Metrology**. “The FARO Vantage laser tracker is an extremely user-friendly device that has made it possible for a novice user to operate effectively without months of training.”

The impact on maintaining acceptable throughput during hiring churn or expansion is compelling.

“FARO has effectively taken the [learning hardware] process out of the equation, giving new users one less thing to worry about when being introduced to portable metrology,” says Sobieck. “New users can now focus on software, applications, accuracy, and all the other skills a metrologist acquires through experience.”

Increasing throughput increases production which can lead to increased revenue.

“We’ve cut down on trim time, costs, and all of the things associated with (our inspection processes).”

William Shanks
QA Manager, Woodland Trade Co.

Fill in the Niches

Every manufacturing organization has a core value proposition for its customers, such as:

- Specializing in large-volume production
- International distribution
- Rapid prototyping and small-run manufacturing
- Reverse engineering and refurbishing

Whatever your core value, look for small overlaps into other value streams where it isn’t an unimaginable stretch to serve a slightly different clientele with your existing experience and talent pool.

For instance:

- If rapid prototyping is your specialty, could you serve OEMs or their Tier 1 and 2 suppliers when they have unexpected gaps in part quotas?
- Are there units similar to what you manufacture already in service that have long lifespans? If so, can you expand into refurbishment as a new value stream?

For instance, **Colonna’s Shipyard Inc.** recognized market demands for industrial plant expansions and other onshore fabrication projects and spun off an entirely new division called Steel America to meet those needs.

“Steel America has three basic components: fabrication, in-shop machining, and onsite machining,” explains Chris Hartwig, SA operations manager. “We fulfill lots of custom, high-tolerance jobs.”

The iconic shipbuilder recognized there was a need in non-shipbuilding enterprises it could fulfill with the capabilities it already possessed. Innovation is a wonderful and potentially profitable thing, but innovation doesn’t necessarily mean inventing the next “Big Thing.” Instead, be on the lookout for problem areas in the games of others, then help provide a solution.

Canyon Hydro did just that when it segued from designing and manufacturing hydroelectric systems, to rebuilding older systems which they did not manufacture.

“There are lots of giant turbines in operation all over the world that are, say, 50 years old and ready for refurbishment,” says Simon Graves, design engineer at Canyon Hydro. “The market for rebuilding and refurbishment of existing turbines is a growing one for us. There’s a whole generation of aging turbines that are ready for service. So, in addition

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to building new turbines from scratch, we also manufacture replacement parts for existing turbines and do overhaul services rebuilding powerhouse equipment.”

Filling niches creates more business which can lead to increased revenue.

Tools and Technology That Enable Growth

All three prongs of this approach depend on investing in the tools and technology that help make growth a possibility. If your current measurement solutions already contribute to a bottleneck in throughput, it’s going to be pretty tough to increase revenue without making a change.

“Traditionally, the way that we gathered [inspection data] was with a leveling laser, a two-dimensional laser, inside micrometers, and even a tape measure,” explains **Damian Josefsberg, founder of ACQUIP**. “That’s four tools, each with its own error margin and deviations between operators.



“With the FARO laser tracker, once we set it up, we are able to measure the horizontal joint and all the internal components with one tool and all at the same time – and we get it in 3D: horizontal, vertical, and axial. With the form data that comes from that, we get the out-of-roundness data.”

Expanding your customer base will require that your design and metrology tools are able to integrate digitally with other organizations. That means having CAD and model-based tools.

“The use of FARO arms is a major contributor to minimizing inspection time because of their accuracy, ability to create inspection data, and their portability/maneuverability to access parts – and also to have the inspection equipment moved to the part on occasion.”

–**Angelina Zagorov, Propulsion design engineer, Blue Origin, LLC**



Critical advantages of advanced inspection technology include:

- Time savings
- Ease of use
- Shorter learning curve
- Enhanced repeatability with multiple operators
- Repeatability in field operations
- Provides real-time measurements
- Ability to measure moving parts
- Ability to ascertain multiple parts’ position relative to each other
- Ability to gather and store large amounts of data quickly
- Enhances status with external customers
- Ability to provide industry-standard reportage
- Ability to sync with industry-standard software
- Provable ROI

“The more we use this and the more we expose the usage with customers, the more we’re experiencing an increased demand for it,” says **Bill Dodd, ASNA tech and veteran 3D scanning technician**. “People are looking to reinvest in their businesses. Currently, we’re looking at expanding and maybe opening an office out West to meet that demand.

Even though we’re a smaller company, we’ve always prided ourselves on delivering highly accurate surveys and customer satisfaction. I know it sounds like a commercial, but we thrive on customer satisfaction, and we’re not going to leave a machine or a mill or anyplace unless they’re happy. The Vantage tracker and BuildIT software help us to be more effective in doing that. We are not only retaining customers – we’re gaining new ones specifically because of this technology. Our customer base is growing because of our FARO tracker and software.”

View more of FARO’s case studies at www.faro.com