Remaining Competitive

Don't Let Technology Pass You By

Joe Arvin

In manufacturing, there are many aspects of a company that contribute to success. However, there is one characteristic that rises to the very top of the prioritized list. This is the ability to be competitive.

While the importance of being competitive is as old as commercial transactions, the dynamic of remaining competitive in the manufacturing industry has experienced profound changes in the past decades. Fifty years ago, most manufacturers could get by with investing in new capital equipment every twenty years or so. Later, approximately twenty-five years ago, new equipment was required every twelve years. Today, the necessity of purchasing new equipment for remaining competitive is closer to every three to five years.

Advances in technology have washed over the landscape of manufacturing in past years like a tsunami. The ability to produce products faster and with higher levels of quality is the direct result. And if you can produce more accurate and less costly parts than the other guy, you win the competition game.

Now you might be thinking, "What are you telling me, Joe? Are you saying that I have to replace all my equipment every three years or go out of business?" The short answer is both yes and no. Let me explain.

In reality, most companies are in the same boat when it comes to adding the latest technology. It can be an overwhelming expense, so your competitors probably won't be refitting their entire operation every few years, either. So, in this regard, you have some time to implement new equipment. However, it is essential to keep your eye on the ball. You need a carefully crafted and cost-justifiable plan on replacing equipment. In other words, you need to add new equipment and technology that will have the best bang for your buck in terms of improvements in quality, cycle times, opportunities for automation, and ultimately, your bottom line.

Don't start sweating just yet, as there are other considerations to take into account as you evaluate new technology. For example, you may not have to keep up with the latest tech if you have a product line that has minimal competition. In this case, new acquisitions can be made when it is most comfortable in order to improve when there is the opportunity to increase profitability or when something is simply worn out.

Still, the ongoing need for reinvestment to remain competitive in the future cannot be ignored for long. Here are a couple of stories highlighting why CapEx is so important to staying competitive.

After World War II, the U.S. auto and machine tool Industries were kings of the world. But as we all know, that did not last forever. With the early post-war reconstruction assistance from the U.S., there were billions of dollars

channeled to rebuilding the industrial bases in war-torn Japan and Germany. At first, the industrial capacities of these countries were no match for the might of American manufacturing. In fact, for many years, products from Japan were laughed at. But within a couple of decades, these industrial bases began to mature as heavy investment in new capital equipment took place, in many cases facilitated by their governments. In addition, innovative concepts such as continuous improvement, Quality Circles, and Just-In-Time (JIT) were being adapted, particularly by Japan. Speaking of JIT, I have some interesting stories behind JIT, but I'll save that for another time.

Nevertheless, by the late 1970s Japan was emerging as a strong competitor and I had begun feeling the pinch from my vantage point at Arrow Gear Company. Wishing to get a first-hand look at this transformation, I set up a two-week tour of the Japanese auto and machine tool industries in 1980. Joining me were twenty-four executives who were my fellow members of the American Gear Manufacturers Association. All of us were very curious about what we would find.

To our surprise, the auto assembly plants were completely automated, using hundreds of robots with only a few people in view. The finely choreographed union of subassemblies being dropped into place looked nothing like the plants we had back in Detroit.

What we witnessed from the Japanese machine tool industry was a very similar scenario. We saw new and modern facilities fully equipped with the latest technology. Thinking about our plant back at Arrow Gear, we only had a few CNC machines. Obviously, this gave me a very uneasy feeling—not just for my company, but for all of the others in the United States that would need to compete with this streamlined and well-equipped industrial base in Japan.

Not long after my return to the states, Jack, an executive from Warner & Swasey (W&S), had heard of my tour and asked if I would meet with him at their headquarters in Cleveland.

I'm sure all of us in the power transmission industry have heard of W&S. The fact is they were one of the world's largest machine tool builders in the post-war era.

My visit with Jack at W&S began with a tour. What I witnessed was quite disturbing. There were only a few CNC machines and NC SC Chuckers, but there was an overwhelming amount of manual machine tools, even a line of lathes powered by an overhead belt drive. This was very depressing due to what I saw in Japan.

After our tour, Jack and I went back to his office. As I sat down, he asked, "So what do you think of our operation?"

Without hesitating, I said, "I'm afraid that you're going out of business." I continued by pointing out that they were making CNC machine tools with mostly manual machines. In contrast, their Japanese competitors were making their machines with all CNC machines. Needless to say, the Japanese productivity and quality would be extremely difficult to compete with head-to-head, not to mention their lower labor costs.

My comments and candor obviously ruffled Jack. In response he said, "Well, Joe, maybe you can tell me where in the world I'm going to get the $100 million plus, to replace all our manual machines?"

"Unfortunately," I replied, "I'm afraid that is an answer that I don't have."

That meeting took place in 1981. By 1988, W&S had closed their main factory doors.

There are many reasons why some companies fail, but it is clear to me that the root cause of their decline involved the inability to adapt to the changes in technology. This is a story I have never forgotten about the direct connection between reinvestment of the latest technology and the ability to compete.

So, right now you might be thinking, "Joe, how do I reinvest without overleveraging?" That's the million dollar question. Let me share some ideas on ways to save considerable money while purchasing new equipment.

Obviously, there are several machine tool OEMs with similar quality, cycle times, and competitive pricing. However, actual list prices can vary. Here are some points to keep in mind that I have found to be helpful. Also, thank you to Ron Kauzlarich, Arrow Gear Director of Facilities (retired) for his contributions to this list.

ROI Calculations

This is a critical first step in the process of acquiring new equipment. Perform the due diligence up front to justify the purchase. This is not the time for relying on gut feelings.

Your calculations should include the total cost of the purchase, offset by all the anticipated savings in the future, such as reduced setup times, reduced cycle times, less scrap and rework, more up-time, and less maintenance. You will also need to know all installation requirements, such as voltage, pneumatic air, network connections, and foundation requirements, taking these expenses into account.

Negotiation

I've heard it said that everything is negotiable. This is also true with machine tools, which are quite expensive. Negotiations can include pretending to walk away to look at other brands, even if this is the machine you really want. You can also try having them include options at no cost, such as a longer warranty, additional training and support, and free shipping.

Excess Inventory

In some cases, OEMs may have excess inventory just sitting in a warehouse. These machines can typically be had at a reduced price.

Demo Units

It is common for OEMs to have demo units that are no longer needed for demonstration purposes. This is a great opportunity for savings.

Year-End Inventory Sale

The end of the year is a good time to look for discounts from the OEMs, as they may be feeling pressure to hit their quotas for the year, especially when a new model will soon be introduced.

Machines from Trade Shows

When OEMs bring a machine to a trade show, they are motivated to avoid the costs of sending the equipment back to a warehouse. Their desire to avoid the cost of rigging and shipping the machine back to storage can translate into savings. Consider negotiating prior to the show. If an advance sale can be arranged, you can get some free advertising with your name displayed on the machine as the purchaser.

The Retrofit Option

When looking at new equipment, don't forget that the real goal is improved productivity and quality. Sometimes this can be accommodated by retrofitting existing equipment, costing only a small percentage of a new machine's price tag.

Here are some other considerations to keep in mind.

Sample Parts

When purchasing any new equipment, consider it mandatory to have some of your sample parts run in their machine to verify cycle times and quality before signing a firm purchase order.

Verified Performance

Sometimes the rosy projections of a salesperson may not be based in your version of reality. If their representative makes a relevant verbal claim, make sure it is on the purchase order, which avoids the "but you told me," scenario.

Payments

Hold back some money until the machine is on your shop floor and running as expected and being productive. You might consider spelling out in the purchase order that once the machine is on-site, if it does not meet specific requirements, the machine will be returned with full return rights—specifying FOB Destination.

Training

Be sure that sufficient training by the OEM is included in the deal and specified in writing on the purchase order. Remember that a trained operator is an essential part of the machine being productive. Here is another important training consideration: As new capabilities are introduced to your organization, it's a good idea to be sure that more than one person is trained on the equipment. If it is only one and they become out of the picture, you can avoid some real problems, let alone finding yourself having to deal with a prima-donna situation.

Support

If the machine involves a significant new technology, be sure you have the engineering, programming and maintenance resources to make the most of the equipment.

Team Approach

Supervisors and shop floor operators should be involved in the selection process as appropriate. Being involved and having their opinions noted goes far to promote a positive team atmosphere. At the very least, keep them informed of the new addition, emphasizing the importance of the new capabilities as it pertains to being competitive and staying in business. If this results in some operators being moved, the advance notice will make

the transition a little easier for them to adapt.

Here is an example of this concept: Five years ago, there was a company who purchased their first five-axis machining center, which was capable of replacing four different operations. While on-site, the trainer instructed the operator on how to set up and run all four operations in the same machine. One month later, they were only machining two of the operations. The trainer came back and within a few hours all operations were running. Two weeks later, it was back to running only two operations. Can you guess what was wrong? Neither the department supervisor nor the operator(s) were involved or informed of the machine purchase and why it had been added. In addition, this contributed to concerns that someone might get laid off.

The Importance of a Project Leader for Changes

With any new addition or change, it is essential that there is a project leader. Someone must be responsible for keeping the new capability on track and ensuring the equipment functions as anticipated. New technology will often require an operator or others in the organization to work beyond their comfort zone. It should be the role of the project leader to be sure optimal results are achieved and maintained. If not, the barrier, be it specific machine problem, operator training, or tooling, must be identified and addressed immediately.

Conclusion

As long as you are in pursuit of customers and other organizations offer the same product or service, you will need to keep being competitive at the forefront of your focus. And in view of this era of rapidly advancing technology, having the latest equipment will factor into the formula for success. Since the financial resources for getting everything on your wish list will likely not be available, careful planning and innovation will be essential.

In the end, remember that becoming comfortable with the status quo is very risky because when it comes to manufacturing technology, dormancy is death.

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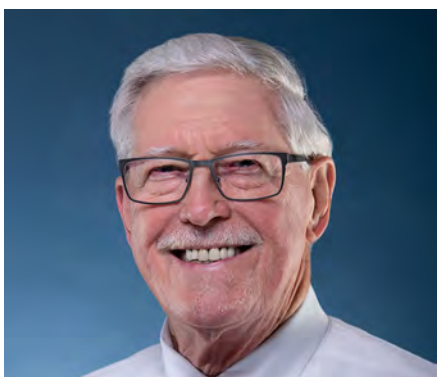

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A Final Word

If you have any questions or comments, I would look forward to hearing from you. Also, if you missed any of my previous articles, below is a list of them by issue number and page. They are also available on the *Gear Technology* website. If you'd like for me to send you a copy, please send me an email or just give me a call.

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