American Built, Building America

Michelle Avila

How one American manufacturing company is succeeding.

More than a quarter century after hitting its peak, U.S. manufacturing appears to be back. More and more companies from Apple to General Electric, Ford and Caterpillar, are deciding to make their products here. But what is behind this manufacturing renaissance? Why are companies bringing back jobs and what makes those companies think they can succeed?

The story of U.S. manufacturing's decline began in 1977 when about 19.5 million people were employed in the manufacturing sector. Shortly thereafter, the number of manufacturing jobs began to bounce around with slight ups and not so slight downs until 2001, when the United States entered into a recession and manufacturing jobs dramatically declined to a little less than 12 million jobs by 2010.

Several factors, including a strengthening of the U.S. dollar during the 1980's, the entry of China and India into the global workforce in the 1990's, and later the wide spread adoption of the Internet are thought to have contributed to this 40 percent decline.

Beginning in 2010 and continuing through today, a new trend began to emerge. Instead of manufacturing jobs dropping, the numbers began to rise for the first time since 1997. Last year, after four quarters of steady increases, the Boston Consulting Group published a report outlining why it believed manufacturing would return to the U.S.

Reasons in the BCG report include a shrinking wage gap between the U.S. and China. The BCG points out China's wages are increasing because of a desire to improve the living standards of Chinese workers and a tightening of the skilled labor force in China. At the same time, U.S. labor costs have flattened and are even declining as workers have lost bargaining power in a weaker, more global economy. This increase in Chinese wages from 60 cents an hour a decade ago to $6 today is now only four times less than a U.S. worker whose fully weighted cost (wages + benefits) is somewhere between $24 and $26 dollars per hour.

Is that a narrow enough gap to bring jobs back to the U.S? Probably not; however, wages are only part of the equation. To get the full picture, one also needs to look at worker productivity. As manufacturing employment was declining, the amount of product coming out of U.S. factories was increasing. Between 1977 and 2010, manufacturing output more than doubled. U.S. workers became more productive.

The rise in productivity is not attributed to U.S. workers working harder, but to investments in training, equipment, and technology. Automated products, smart

phones, video conferencing equipment have helped U.S. workers become three times more productive than their Asian counterparts; a trend that continues to this day. Bottom line, companies manufacturing in the United States need fewer workers to produce the same amount of work.

Another factor impacting the economics of manufacturing here versus China has to do with the Chinese Yuan, which is at its highest level in nearly two decades so Chinese products cost more.

A shrinking wage gap, productivity differences, and stronger Chinese currency mean that, while it is still less expensive to manufacture products in China, the savings aren't as great as they used be. Instead of costing a quarter or a third of what it costs here, the BCG projects that by 2015, manufacturing in China will only be 10 to 15 percent cheaper than in the U.S, and this is before "soft" costs are even considered.

When you look at these softer costs—things like the cost of managing the supply chain and transporting product from half a world away, along with the intellectual property risks inherent in manufacturing overseas—the case for U.S. manufacturing looks pretty strong. Add in "hidden" costs like the cost of negative image over the treatment of workers overseas, and the case looks stronger still.

Making the picture even rosier, are energy prices. The emergence of shale gas on our shores is helping to lower energy costs. Obviously, this offers a great advantage to industries with a high energy component in their product costs, steel and petrochemical producers for example. However, it also has the benefit of lowering energy bills for all companies, which when combined, equals a $1 billion per day advantage.

So what does this mean? Does it mean "Made in the USA" will soon be as ubiquitous as the "Made in China" stickers currently decorating product at the Dollar Store? The answer from the Boston Consulting Group is actually, no. Despite a more favorable manufacturing environment, some categories are likely gone for good. This includes high volume, mostly low value products—apparel, shoes and accessories, textiles and fabrics, which require a high amount of labor to produce.

The categories which BCG says have the greatest chance of returning to the United States are average volume, mid value products that require a moderate amount of labor to produce. This would include things like appliances and electronics, fabricated metals, transportation goods, and machinery.

The BCG estimates the re-shoring of these categories could result in up to 3 million new jobs by 2020. And it's probably worth noting that those jobs, like most manufacturing jobs, fill an important pay grade between low paying service jobs and high paying professional jobs. In short, they enable a strong and healthy middle class.

Though these categories are at a tipping point—there's a good chance they could come back, but an equally good chance these "middle class" jobs will remain

offshore—U.S. manufacturers need to work through some issues if these categories are to “tip” in our favor.

The first, and some say the biggest issue, has nothing to do with the economics of manufacturing here or there, but with people. When recently asked by NBC how U.S. manufacturing would affect the price tag of its products, Apple CEO Tim Cook responded by saying, “It’s not so much about price. It’s about the skills.” In the 25 years since manufacturing began moving offshore, the people with the skills to do the jobs once done at home have moved on. Many are retired, and those young enough to still be in the workforce have been retrained to do something else.

Hypertherm Heater Road FacilityA good example of this is seen at Hypertherm, a New Hampshire based manufacturer of advanced metal cutting systems. The company was once able to find a healthy supply of printed circuit board and component producers for its plasma arc metal cutting systems among fellow New England companies. Today, however, those companies—and people—are no longer there. This means instead of sourcing those products locally, the company is forced to either bring the production of those products in-house or go farther afield.

The people gap is apparent in other areas as well, as was prominently highlighted in a joint study by Deloitte Consulting and the Manufacturing Institute. In the study, two-thirds of participating companies reported a serious shortage of qualified workers. They have jobs and want to hire people, but can’t find the skilled workers they need. The study found that even with high unemployment, 600,000 skilled positions are going unfilled because companies can’t find the machinists, operators, and technicians to fill them.

That was most definitely the case at Hypertherm. Despite consistently being named one of the best employers in the state, with a less than five percent voluntary turnover rate, the company simply could not find the CNC operators it needed to produce its small consumable parts. The problem reached a critical point in 2006, when Hypertherm projected it would need to add more than 180 new operators during the next three years if it was to have any hope of meeting demand for its product. At the time, the company had a total of 120 operators on its team. This meant the company was faced with having more than double the number of operators in its machine shop; a daunting prospect for any company. For Hypertherm, which is located in a largely rural area of Northern New England, the prospect of finding that many operators was not only daunting, but seemingly impossible.

Hypertherm could have simply packed up and moved overseas, but the company’s commitment to American manufacturing led it to explore other options. Hypertherm’s solution was to open its own school to train the workers it desperately needed but couldn’t find. The company partnered with the states of New Hampshire and Vermont, along with Vermont HITEC, a nonprofit organization that had successfully run training programs, to develop an immersion-style education program. The program, in operation for five years now, takes people with a good attitude and aptitude to learn, but not necessarily machining experience, and turns them into the skilled machinists in just nine weeks.

Hypertherm Heater Road FacilityThe Hypertherm model will need to become the rule rather than the exception for any company seriously considering re-shoring their manufacturing operations, as the skills shortage isn't expected to get better any time soon. On the contrary, more than half of the companies surveyed in the joint Deloitte / Manufacturing Institute study believe the aging work force will cause the problem to grow worse over the next two to four years.

The other issue facing all companies is an environment of increased uncertainty and global economic volatility. Europe is grappling with the Euro-zone debt crisis. The United States is facing its own mounting debt and stubbornly high unemployment rates. China and other emerging markets are trying to maintain growth in the face of weak demand from their traditional export markets.

When you combine the shortage in skilled labor with weak confidence about the future, the result is a natural aversion to hiring, and instead a focus on automation. This is evident by looking at government reports which show twelve straight quarters of increased spending on equipment and software, while private sector hiring remains flat.

What does this mean to U.S. manufacturers? The economics for successful American manufacturing appear to be swinging in the right direction, but a skilled labor shortage and economic uncertainty are clouding the view. It may be that there is no one answer. The strategy for success may vary among companies and manufacturers, with some looking abroad and others choosing to invest their dollars here.

Hypertherm has chosen the latter. Besides its public / private partnership and investment in job training, the company is investing in its U.S. infrastructure. It recently completed a new 160,000 square foot manufacturing facility to support the company's current and future growth, and continues to devote a significant amount of money to research and development.

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