PRODUCT ENGINEERING DESIGN CAN BRING MANUFACTURING BACK HOME

LITTLE-BY-LITTLE, "MADE IN THE U.S.A." IS BETTER FOR BUSINESS

By Chris Massot: Chief Market Officer at Synapse Product Development

No matter how much attention you've paid to the U.S. Presidential campaign, you know that job creation is a hot issue. As I hear each candidate talk about their plan to bring jobs back to America, I'm reminded of my experience at the Clinton Global Initiative conference in Chicago (CGI America), which I had the good fortune of attending a few months ago.*

The event consisted of an interesting cross-section of business and government leaders, discuss solutions that promote US economic recovery. Since I indicated I have a background in technology, engineering design, and manufacturing, I was asked to participate in a session on how to bring manufacturing back to America. After all, Synapse works every day with clients making decisions about where to manufacture their products.

Before I knew what hit me, the discussion turned political, with talk of how American manufacturing is at a crippling disadvantage to Asia due to taxes, infrastructure, lack of government subsidization, and investment.

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Considering the majority of the participants were either politicians or somehow involved in shaping government policy, I was easily outnumbered and relegated to being a quiet bystander. I felt like I showed up to a machete flight with a plastic butter knife.

However, I couldn't help but feeling that part of the argument had nothing to do with politics but more to do with good old American ingenuity and ambition. From my perspective, better engineering design has the potential to make American manufacturing relevant and competitive again—and in some cases, it already is.

Let's start with the trend toward producing higher value consumer products that deliver a better customer experience. Apple is the obvious leader in this movement; but there are others, such as Sonos, Nest, Dyson, and Nikon. These companies may predominantly manufacture in Asia, but if you consider that better design leads to higher quality, better manufacturability, smart sourcing, and automation, you could see where the American manufacturing sector would be competitive, even at high volume.

Thanks to automation, companies that manufacture consumer products have been able to reduce the labor component to a very small part of the cost of ownership. Because of offshore manufacturing, American companies have had the perceived luxury of relying on their manufacturers' inexpensive labor to complete straightforward—albeit important—parts of the engineering design. However, the back-and-forth involved in perfecting the

* CGI America: http://www.cgiamerica.org/2012/agenda

design, coupled with the commodity-oriented mindset typical of high-volume contract manufacturers, could potentially make the cost of ownership much less attractive than expected.

Let's consider the back-and-forth involved in taking a design the last mile to being manufacture-ready. North American manufacturing has the huge advantage of allowing easier communication between designers and the factory. Between language barriers and time zones, communicating with offshore manufacturers is at best challenging and at worst almost impossible. Enabling easier communication between designers and manufacturers can help companies shorten design cycles, reduce the number of iterations required to get to production, and therefore accelerate the time to market, which is increasingly important in today's hyper-competitive consumer climate.

As we've seen in the headlines, some companies are already seeing the benefits of making products in the U.S.A. Among the most visible are General Electric, Caterpillar, and Google. While there is no single reason for the shift, industry analysts largely agree that it has to do with the demand for better quality and shorter

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lead-times. At Synapse, we've seen direct benefits from having manufacturing partners in our own Washington State. For low-volume prototyping, partnering with local manufacturers makes the most sense for lead-time,

cost, and ease-of-use reasons. As Synapse's VP of Engineering, Redwood Stephens, says, "it's a lot easier to drive to southern Washington to be press-side than getting on a plane to South Korea."

Considering the increase in demand for high-quality consumer electronics, its easy to see how this trend could continue. Local shops will become more aggressive, engineers will produce designs that require less hand-work and are better suited for automation, people will burnout on crazy travel schedules and difficult communication gaps, wages in Asia will continue to rise, and consumers will demand higher quality and be willing (within reason) to pay a premium for it.

DISTANCE **MATTERS**

SEATTLE TO SOUTH KOREA
5,191 miles   12 hour flight

SEATTLE TO SOUTHERN WA
145 miles   2.5 hour drive
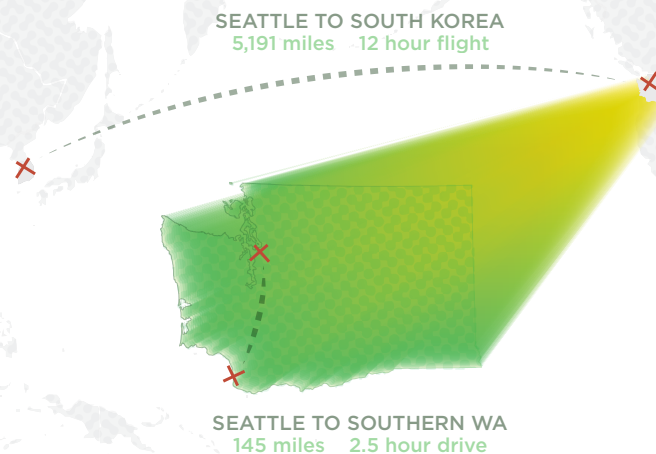
This is not to say there is not a place for offshore manufacturing. In fact, partnering with manufacturing companies in other locations is a good solution in certain situations, such as manufacturing for those domestic, overseas markets. But, as China and other regions get more expensive, as labor costs increase and working conditions demand improvement (a major cost), we have an excellent opportunity today to re-balance the manufacturing landscape in a way that can help the American economy.

I know what you're thinking: Do automated factories really help boost manufacturing jobs in America? It's true that it wouldn't create as many of the traditional line-worker jobs as labor-heavy factories would, but automated manufacturing facilities require management, facilities, administration, and other technical support and logistical staff, thereby creating direct and indirect jobs that improve local economies. In fact, Intel has proven this to be the case—since 2010, the tech giant has created more than 20,000 jobs in Arizona as a result of its "insourcing" efforts. Even Google's secretive low-volume manufacturing facility in Silicon Valley is employing hundreds of people according to a June 27, 2012 *New York Times* article.

There is a piece of this that will require a commitment from onshore manufacturing companies and, potentially, even the government. The willingness to take risks by building infrastructure to seize opportunities would be a huge push to start the domino effect that could bring manufacturing back onshore. American companies have become very conservative with infrastructure investment, which has resulted in leading-edge opportunities going offshore in order to fulfill needs.

There is no magic pill that will allow America to again be a competitive leader in consumer electronics manufacturing, and there are certainly many issues that need to be resolved on a governmental policy level. But better design is helping to solve part of the problem, and could potentially play a big role in making *"Designed and Manufactured in the U.S.A."* an easier and more realistic proposition.

U.S. RESHORING **OUTLOOK**

33-37% of American manufacturing companies plan on bringing production back to the US in the next couple of years.*

US MANUFACTURING COMPANIES
WORTH OVER $1 BILLION DOLLARS

33-37%
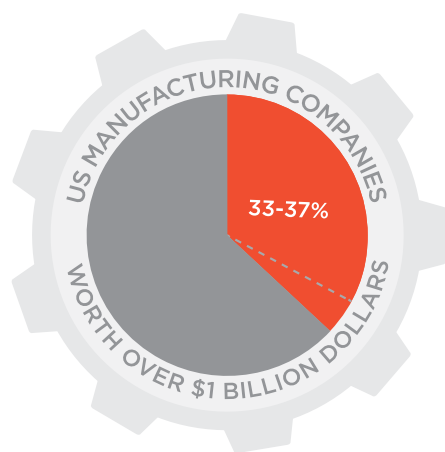
WHY?

Time to Market
Better Quality
Ease of Doing Business
Hidden Cost of Offshoring