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The Rebirth of U.S. Manufacturing: Myth or Reality?

In an exclusive survey, L.E.K. Consulting looks beyond the hype to provide a more nuanced picture of the purported renaissance in U.S. manufacturing.

The media has been full of reports lately about a renaissance in U.S. manufacturing. The cheerleaders cite an array of heartening examples, including a $4 billion investment by Dow Chemical to boost its ethylene and propylene capacity on the U.S. Gulf Coast; an announcement by Flextronics of its plans to create a $32 million product innovation center in Silicon Valley; and a decision by Airbus to build a $600-million assembly line in Alabama for its jetliners.

These stories have prompted much talk about the "reshoring" of manufacturing jobs to the U.S. from China and elsewhere. Indeed, in his 2014 State of the Union address, President Barack Obama hailed "a manufacturing sector that's adding jobs for the first time since the 1990s."

But is this revival for real? A lack of detailed data has made it difficult to assess what's really going on within the U.S. manufacturing sector — or to predict where it's headed in the foreseeable future. To help remedy this, L.E.K. Consulting conducted a major survey of decision makers in 10 U.S. manufacturing industries, including aerospace and defense equipment, chemicals, industrial components, automotive equipment and electronics. The survey, which focused on large companies with more than $500 million in revenues, also involved in-depth interviews with high-level executives about the factors driving their decisions on where to locate their manufacturing.

> ***As manufacturers continue to seek growth opportunities, they are finding it more important than ever to be closer to their customer base, whether they are OEMs or the end customers themselves.***

The picture that emerges from this research is less black and white than either the cheerleaders or the naysayers would suggest. Overall, we see a modest improvement in U.S. manufacturing, but not a dramatic wave of reshoring. More companies are investing in the U.S. or considering it as a location for their new manufacturing facilities. But this is essentially a rebalancing after many years in which manufacturing shifted overwhelmingly to lower-cost nations such as China.

The Rebirth of U.S. Manufacturing: Myth or Reality? was written by **Michael Connerty**, a managing director in L.E.K. Consulting's Chicago office and **Carol Wingard**, a managing director in L.E.K. Consulting's Boston office. Research support was provided by **Maria Gacek**, a Chicago-based Industrials Specialist. For more information, contact industrials@lek.com.

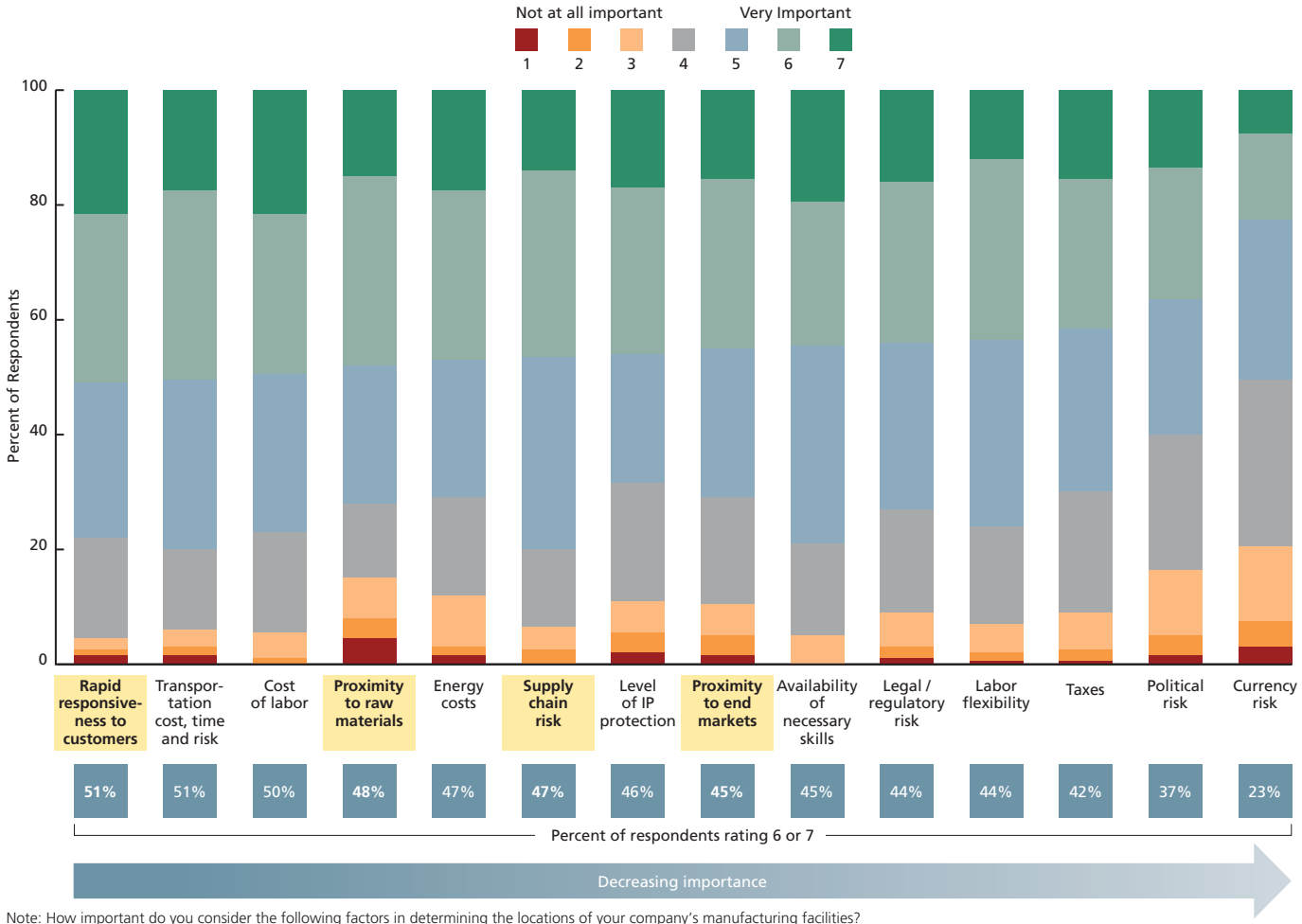
Our research shows there are five critical themes that are playing out across a number of manufacturing industries:

1. Strong end-market demand is driving companies to produce closer to their customer base
2. Low risk of supply chain disruption outweighs short-term cost savings
3. Narrowing differences in energy and labor costs are shifting regional priorities
4. Capabilities that foster innovation, differentiation and speed to market increase regional competitiveness
5. Business environment factors, such as taxes and regulation, impact a region's long-term attractiveness

Strong End-Market Demand

As manufacturers continue to seek growth opportunities, they are finding it more important than ever to be closer to their customer base, whether they are OEMs or the end customers themselves. Proximity matters greatly for market positioning and customer service levels; and cost is no longer the dominant factor in determining where companies base their manufacturing.

Figure 1
Criteria in Determining Location of Manufacturing Facilities



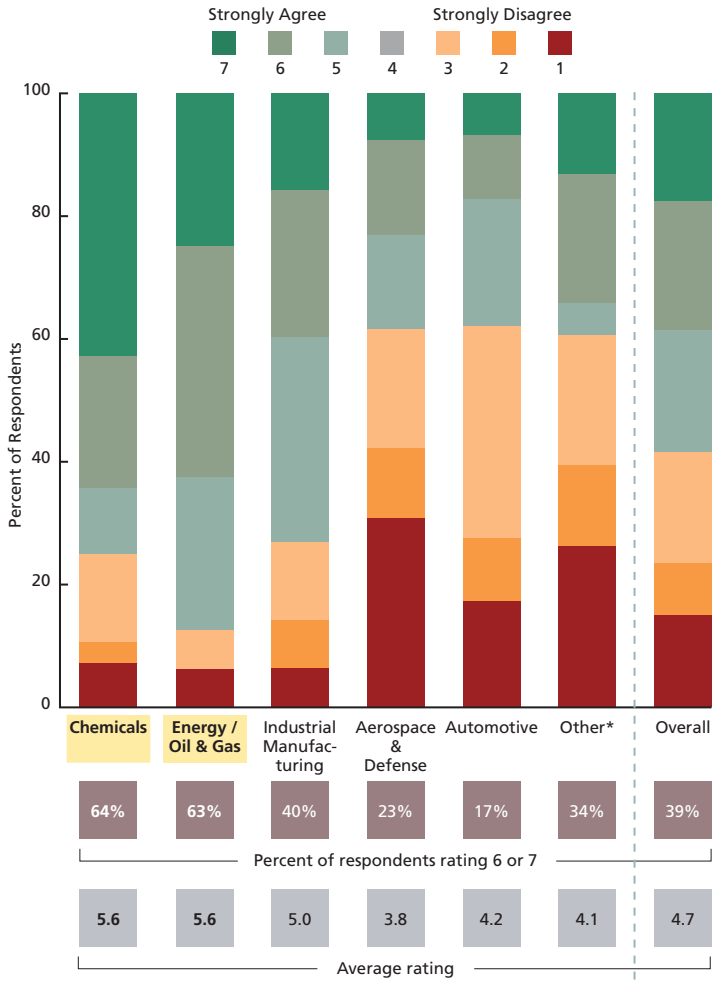
Note: How important do you consider the following factors in determining the locations of your company's manufacturing facilities?
Source: L.E.K. survey (n=205)

Many companies are continuing to invest in manufacturing outside the U.S. — particularly in emerging countries — because they need to be close to their customers in these important growth markets. For example, we expect more companies to manufacture in China as a way to meet burgeoning demand from Chinese consumers — a trend that could be described as "in China, for China." One manufacturing executive in our survey stated: "Though we started manufacturing in China and India as low-cost alternatives and sold those products to U.S. customers, we've now adopted the policy that if you don't have local markets in China or India, then you don't move it there — you keep production near where the demand is."

At the same time, we are also seeing a rise in the trend of "near-shoring." For example, many manufacturers are basing their production in Mexico as a low-cost means of capturing the growth in U.S. demand. So the overall picture is truly nuanced.

According to our survey findings, industrial manufacturing, chemicals and automotive companies were most likely to project U.S. manufacturing growth for their industries due to their high value for greater responsiveness to their customer base, including OEMs (see Figure 1).

Figure 2
Importance of Shale Gas by Industry



Note: Measures the impact of the discovery of shale gas on U.S. manufacturing competitiveness, by industry; *Other industries consists of packaging, construction equipment, electronics manufacturing, electrical equipment & components, and metals & mining
Source: L.E.K. survey (N=205)

One executive from an electrical equipment and components manufacturer stated: "Our goal is to produce in or near the countries where we sell the bulk of our core products. This is more for market positioning rather than for cost reasons." Many executives voiced similar reasoning in their company's decisions as a number of common benefits were cited:

- Proximity to the customer base allows for better positioning in the markets being served, including access to premium segments that demand shorter lead times
- Demand forecasts can be more accurate and done for a shorter horizon
- Closer alignment between R&D and production can foster rapid innovation
- Domestic assembly (or supply chain postponement) could allow for end-market customization

Executives were also quick to note that having an in-depth understanding of demand drivers is critical to making manufacturing and supply chain location and sourcing decisions.

Managing Supply Chain Risk

Executives often cited the twin themes of customer proximity and supply chain risk in the survey. While proximity to end markets is an important means of improving customer responsiveness and boosting revenue growth, it also enables OEMs to reduce the risk of the supply-chain disruptions that often occur when manufacturing overseas (see Figure 1). A group vice president and general manager for a leading manufacturer of precision machine tools stated: "We don't have the ability to get a lot of visibility and long lead times, and it is risky to make long-term bets on inventory; so trying to minimize those risks and manage our inventory costs also is a really big deal (with a long supply chain)."

Indeed, shortening the supply chain can reduce risk and have a number of related financial and customer benefits such as shorter lead time, increased flexibility, enhanced efficiency and customer responsiveness (e.g., ensuring on-schedule production, fewer shortages and errors, minimizing obsolescence and inventory, and avoiding delays in reaction time).

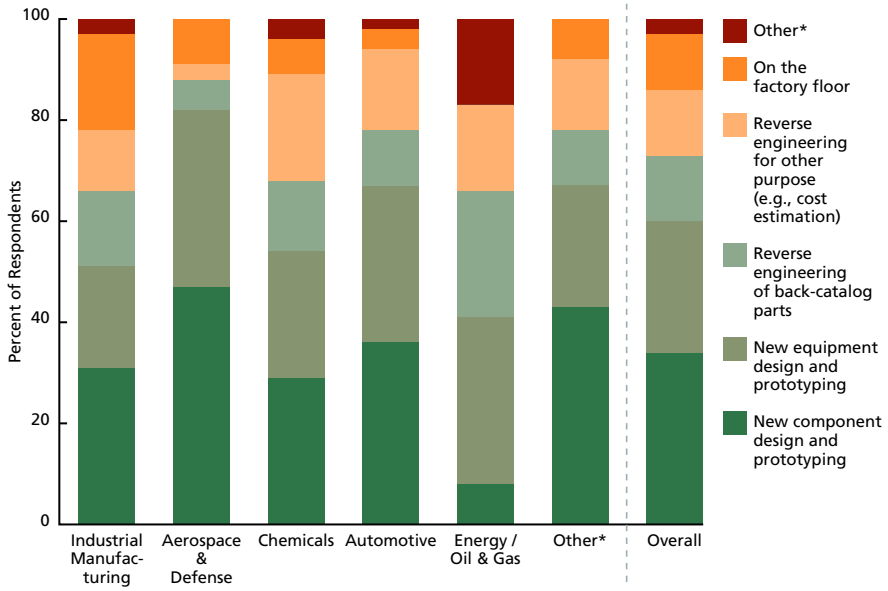
Narrowing Differences in Energy and Labor Costs

Costs are just one component of a more complex equation, but they clearly remain a significant factor. Thanks to the fracking boom that has revolutionized oil and gas production in the U.S., the country now possesses an abundance of inexpensive energy. As a result, the U.S. is an increasingly attractive location for manufacturers that are energy intensive or that can use natural gas as a primary input. Clear winners include chemicals and petrochemicals (such as plastics), and also sectors that serve those industries. In our survey, 64% of the respondents "strongly" agreed that the discovery of shale gas in the U.S. has positively affected the competitiveness of U.S. manufacturing in the chemicals industry (see Figure 2).

An executive at an energy equipment manufacturer told us: "For industries like chemical processing or metals manufacturing, energy costs are a much bigger deal than for machined and electronic goods, and could certainly cause companies to relocate." To cite just one example, the U.S. is now one of the world's lowest-cost producers of plastic resins. By contrast, energy costs are less important in industries like furniture, electronics and textiles, so manufacturers in these areas are less likely to reshore to the U.S.

In the past, a key driver for companies to move their manufacturing out of the U.S. was to save money on labor. The difference in labor costs is still significant, but it's narrowed as wages have risen elsewhere. In the U.S., the average hourly manufacturing wage was $24.40 in 2013. In China, it almost doubled from $1.90 in 2008 to $3.50 in 2013. But the strengthening of China's currency has further eroded this cost advantage, and U.S. manufacturers have also

Figure 3
Uses of Additive Manufacturing (3D Printing) by Industry



Note: *Other industries consists of packaging, construction equipment, electronics manufacturing, electrical equipment & components, and metals & mining
Source: L.E.K. survey (n=143)

closed the gap somewhat by enhancing their productivity and their use of automation. According to the global business director at a welding equipment manufacturer, fierce overseas competition "has forced the evolution of the industrial base in the U.S., where many industrial manufacturers have become lean [and] automated to survive."

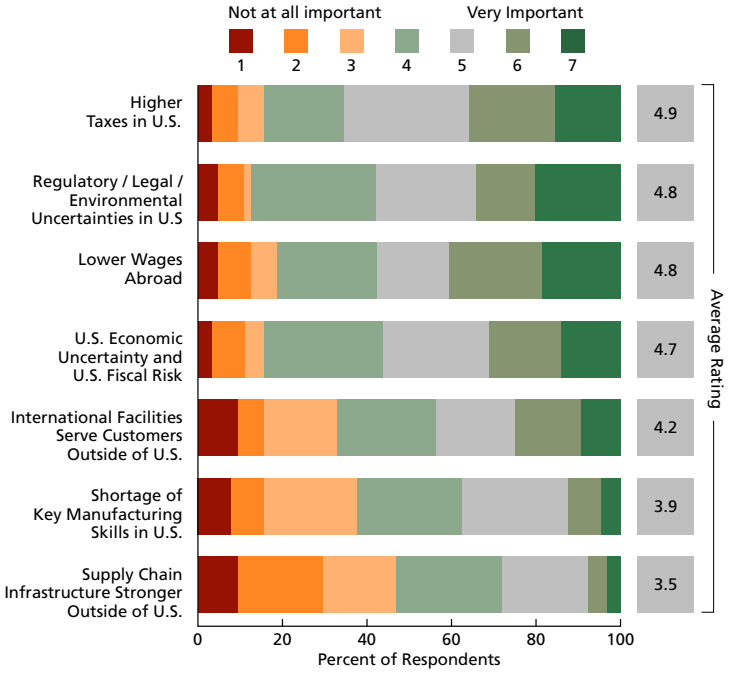
the benefit of outsourcing to lower-cost countries. The ongoing shift into more technology-based manufacturing cuts across segments. A case in point is an electrical equipment and components manufacturer who states: "We are currently investing heavily in U.S. operations, specifically to improve existing tooling to increase output and efficiency."

American companies often have a competitive advantage when it comes to producing technologically advanced, differentiated goods that require precision manufacturing and rigorous quality control.

Technological advances in the manufacturing process have also reduced the importance of labor costs as part of the overall cost structure. For example, in the transportation equipment sector, labor costs represented 31% of manufacturing value in 1991. By 2011, this figure had fallen to 21%. This shift from labor-intensive to technology-intensive manufacturing processes has made the U.S. more competitive and diminished

In the future, many commoditized products will continue to be made offshore. In the U.S., we expect a growing emphasis on more sophisticated manufacturing, including the use of 3D printing to accelerate product development. Currently, adoption for manufacturing processes is low, but is anticipated to grow once capabilities improve for scalable metallic additive manufacturing (e.g. powder metal). This cutting-edge technology holds particular promise for the type of complex, low-volume products developed in industries such as aerospace and defense. However, the pace of continued advances in 3D printing will depend in part on expanded training and development of a skilled workforce (see Figure 3).

Figure 4
Factors Hindering U.S. Manufacturing from Achieving Growth



Note: *No difference means the response was within +/-10% of the overall average response
Source: L.E.K. survey (n=64)

Innovation, Differentiation and Speed to Market

In an acutely competitive environment, capabilities that foster innovation, differentiation and speed to market increase their regional competitiveness. A corporate strategist for one manufacturer told us: "It's tough to get the same quality level and cycle time to serve your customers if your supplier networks are far away." As manufacturers seek growth in local markets, they find that they must tailor some of their products to those markets and become faster at getting products to market in order to thrive. As an energy equipment manufacturing executive stated: "The ability to meet customer demand when they need it is very important. If you don't have that product available quickly, you will lose the sale." The CEO of a manufacturer in the automotive industry added: "We hesitate to put a

component or product that requires high, stringent control in many developing countries."

Indeed, American companies often have a competitive advantage when it comes to producing technologically advanced, differentiated goods that require precision manufacturing and rigorous quality control. As a corporate strategist at one U.S. manufacturer put it: "Overall, the harder the skill required, the closer to home we keep it." It also helps that the U.S. is known for its strong protection of intellectual property rights.

One message from our survey is clear: optimism about the future of U.S. manufacturing is relatively buoyant.

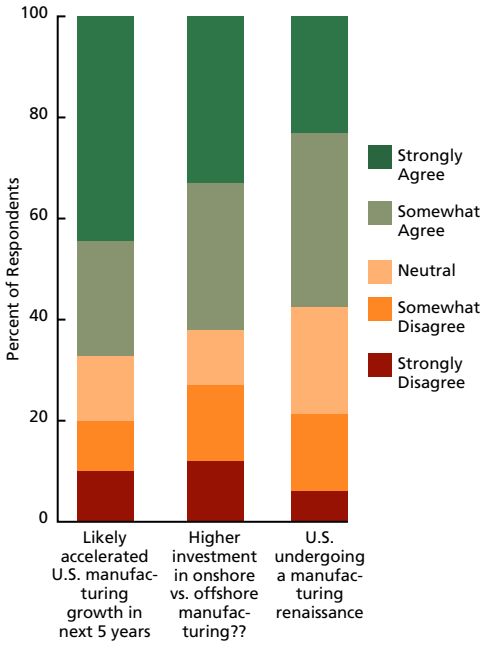
Business Environment and Regional Attractiveness

Executives in our survey were keen to point out the importance of the business environment their companies are operating in as a critical factor affecting long-term regional attractiveness. Companies are continually assessing the tradeoffs between factors such as end-market proximity with exposure to domestic taxes or regulation. On the positive side for the U.S., its stronger laws and institutions relative to developing economies provides companies with greater intellectual property (IP) protection and higher safety standards. IP protection is particularly important for manufacturers where proprietary product designs are critical differentiators to their customers. However, executives cited that high corporate taxes and regulatory uncertainty are the two biggest factors hindering U.S. manufacturing from growing faster. The CEO of an industrial equipment manufacturer told us: "Taxes, regulations, future changes to energy policy, and health costs are strong headwinds to moving back to the U.S." (see Figure 4).

Some executives also raised concerns that the U.S. might not have enough skilled labor to meet demand as manufacturing becomes more sophisticated and technology driven. This is especially true in the automotive sector where one CEO told us: "The U.S. simply lacks well-qualified engineers and the workforce to be competitive in the fields we operate in."

One message from our survey is clear: optimism about the future of U.S. manufacturing is relatively buoyant. When we asked decision makers if they agreed with the statement that "U.S. manufacturing within your industry will experience an accelerated growth rate over the next five years," 68% of the respondents either "strongly" agreed or "somewhat" agreed. By contrast, 20% either "somewhat" disagreed or "strongly" disagreed. Likewise, 33% "strongly" agreed that their industry will see higher investment in onshore manufacturing by U.S. producers than in offshore manufacturing over the next five years, while only 12% "strongly" disagreed. Asked if they believe that the U.S. is "undergoing a manufacturing renaissance," 23% "strongly" agreed and only 6% "strongly" disagreed (see Figure 5).

Figure 5
Expectations of U.S. Manufacturers



Note: Strongly agree = percent of respondents rating 6 or 7 (on a 7 point scale), strongly disagree = percent of respondents rating 1 or 2
Source: L.E.K. survey (N=205)

In general, we don't expect many companies to close their existing facilities in China and to reshore them in the U.S. But we do expect many companies to locate *new* manufacturing facilities

and expand existing ones in the U.S., particularly in sectors such as aerospace and defense, industrial manufacturing, oil and gas, and the automotive industry. The bottom line is that companies will locate close to where their growth is originating. This doesn't amount to a renaissance or a new dawn. But after decades of decline, it's a welcome advance.