MANAGEMENT

Navigating the Challenges of the Americas Market: The Evolving U.S. Role in Global Manufacturing

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Although the U.S. still ranks first in gross domestic product (GDP), manufacturing's contribution to GDP has declined considerably, from 24.3 percent in 1970 to 12 percent in 2015. As U.S. consumers coveted inexpensive products and U.S. corporations focused on short-term profits, the economy saw a massive shift of high-volume manufacturing to low cost regions. U.S. consumers' desire for less expensive electronics, automobiles and other technologies first led to a surge of imports from Japan and outsourcing to Mexico, but the transfer of high-volume manufacturing later expanded to China, India, Vietnam, and elsewhere in Southeast Asia.

In 2011, China overtook the U.S. to become the world's largest producer of manufactured goods. According to the United Nations Conference on Trade and Development 2015 report, China's manufacturing as a percent of national output stood at 27 percent — more than double the U.S. manufacturing contribution.

Still, recent efforts to "reshore" manufacturing and embrace new advanced manufacturing technologies have emphasized the need to maintain U.S. technological leadership and to protect intellectual property. Companies are learning to preserve low-volume, high-mix production of these emerging technologies in North America, while shifting more mature, high-volume/low-mix production to low cost regions.

Low-Volume, High-Mix Production

The shift of high-volume, low-mix production to low cost regions is perhaps most recognizable in the textile industry. According to the U.S. Department of Agriculture, the U.S. lost more than 900,000 textile and apparel jobs to offshoring between 1994 and 2005. Lower wages and new industrial production capacity in low cost regions drove many U.S. manufacturers to relocate or discontinue generations of textile production.

A similar scenario transpired in the PCB manufacturing industry, where a massive shift of high-volume, low-mix production of bare PCBs shifted to low cost regions. The Asia-Pacific region now accounts for 77 percent of global PCB production and dominates this nearly $80 billion manufacturing market. Several years later, the semiconductor manufacturing equipment market followed a similar path, with 70 percent of the global equipment now being produced in Asia.

Still, U.S.-based manufacturers can benefit from the relentless trend toward new technologies, manufacturing techniques, and quality controls. According to SelectUSA, the U.S. employed 227,000 textile workers in 2017. The country has seen a recent resurgence of capital investment and a 39 percent increase in exports from 2009 to 2015, partly due to cultural trends toward sustainable manufacturing and Made in America products.

The U.S. PCB and semiconductor manufacturing industries have also maintained a strong position in low-volume, high-mix production, with strong demand from the military and aerospace industries, and an increasing trend toward smaller feature sizes, higher layer counts, and more complex manufacturing techniques.

U.S. R&D and Engineering

Innovation is a cornerstone of America's reputation across a variety of markets, from semiconductors to medical device and diagnostic imaging equipment. Even for industries where the vast majority of manufacturing has been shifted to low cost regions, leading U.S. companies maintain substantial R&D and engineering resources in North America.

It is essential for the U.S. offices of European manufacturers to stay in constant communication with these R&D and NPI teams as they concentrate on next-generation designs and select vendors.

As such, it is vital for international management teams to recognize the key role that U.S. sales teams perform in securing design wins and selection to approved vendor lists (AVLs) that may result in volume production orders from manufacturing locations outside of the Americas. International communication, account management and compensation schemes should be structured to reflect and reward these efforts.

Design Wins Versus Sales Volume

One of the most common areas of misunderstanding between European management and their respective U.S. teams is the perceived mismatch between the enormous influence of U.S. engineers and supply chain managers of leading multinational OEMs, and the comparatively low sales volume from the American operation for these same customers. How can it be that the world's largest economy is not also the largest manufacturer and sales region?

The answer again lies with the shift in global manufacturing to low cost regions. Companies like Apple maintain a philosophy of "Designed by Apple in California, Assembled in China" for the vast majority of products, with much of the research, development and intellectual property remaining in the U.S.

Data from research groups Counterpoint and IHS Markit report that Apple shipped 61 million iPhones to the U.S. in 2017, and the Foxconn factories that assemble most of the iPhones employ 230,000 workers. For a company manufacturing microprocessors, for instance, a design win by the U.S. sales team would yield virtually zero sales commission, without a close coordination and compensation scheme that shares the rewards for massive purchase orders from Foxconn.

A similar story can be told for large multinational industrial manufacturers like Caterpillar. While the world-leading producer of heavy equipment and related products once employed over 30,000 workers at its central Illinois manufacturing plants, Caterpillar now has more factories overseas, 76, than in the U.S., 62, with 25 plants in mainland China alone. This is partly due to a more decentralized approach to serve local markets. Still, many of the core design decisions remain in the U.S.

This imbalance of design influence versus sales volume varies by industry, and advanced manufacturers seeking to accelerate growth in America should carefully analyze target markets and align expectations. While the U.S. represents nearly 50 percent of the global medical device manufacturing market, most European manufacturers would be shocked to learn that U.S. manufacturers only account for approximately five percent of global CNC machinery production.

Each company must carefully tailor its strategy, based on company size, industry, product portfolio, and technical complexity to best address the challenges and opportunities of the U.S. market. Alliance Technologies is able to provide actionable steps to help companies overcome these challenges.

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