Industrial automation and nearshoring

The COVID pandemic exposed the risk of supply chain concentration, particularly offshore.

While offshoring has buttressed company profits and shareholder value for more than half a century, many firms are now wondering if there's a better way — one that allows them to shorten supply chains and reduce the potential for major interruptions caused by political strife, global weather events or other exogenous factors.

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The challenge is how to bring manufacturing closer to home while maintaining the profitability that cheaper overseas labor has underpinned for many years. Is industrial automation a realistic solution? Are firms using industrial automation to bring manufacturing nearshore and shorten supply lines while maintaining profitability? In this spotlight, we ask three central questions to explore the topic:

- How much manufacturing still occurs in the US?
- Is there enough affordable labor available locally to bring more manufacturing nearshore?
- In the absence of available labor, how can firms achieve the benefit of nearshoring while hitting productivity and profitability targets?

1. How much manufacturing still occurs in the US?

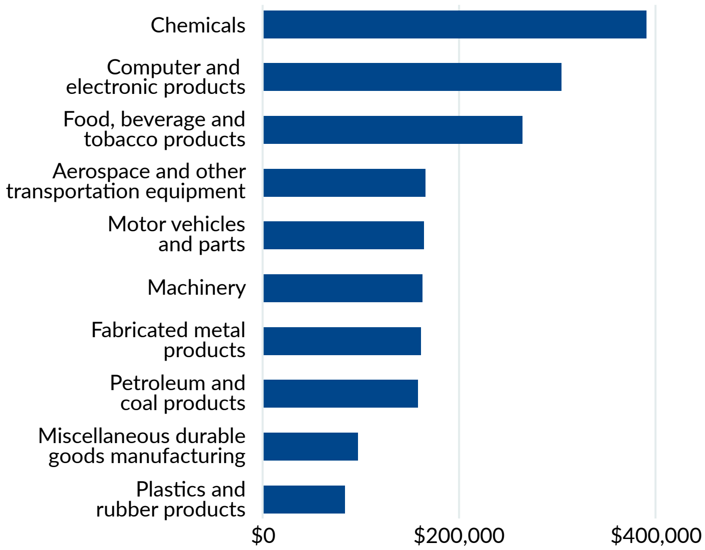
Quite a bit. Although overtaken as the world's most prolific manufacturer by China in 2010, the US remains a global manufacturing powerhouse. It accounts for 16.6% of the global manufacturing economy, more than the next three countries combined:[1]

- China: 28.4%
- United States: 16.6%
- Japan: 7.2%
- Germany: 5.8%
- India: 3.3%

In addition, the US's manufacturing base is extremely diverse:

1. Source: World Population Review.

TOP 10 UNITED STATES MANUFACTURING SECTORS | 2021 **(in millions of dollars)**



Source: National Association of Manufacturers.

The recently passed CHIPS and Science Act (CHIPS Act) signed into law by President Biden last August is set to inject another $52.7 billion in domestic semiconductor manufacturing:

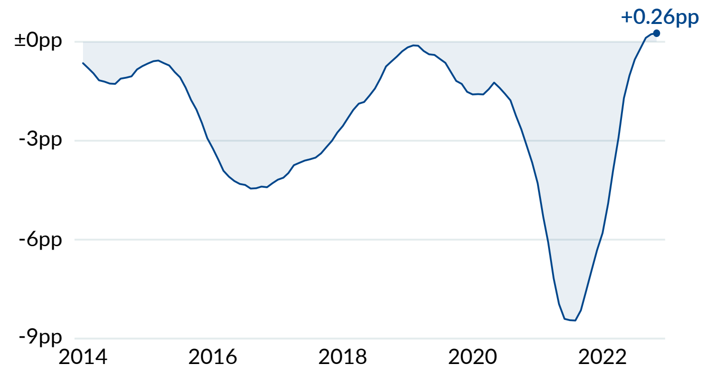
Program	Appropriation[2]
Manufacturing Incentives	$39 billion
R&D	$11 billion
Other	$2.7 billion
Total	$52.7 billion

The total manufacturing output for the US in 2021 was $2.5 trillion,[3] and US manufacturing growth recently outpaced rest of world. Much of the rebound is related to energy and COVID (i.e., production of renewable energy equipment and domestic production of medical supplies and pharmaceuticals). Industries with supply chains stretching to the other side of the world remain vulnerable to global disruption, particularly those importing critical components such as semiconductors. For many, nearshoring may be a necessary alternative assuming they can find a way to do so while maintaining revenue growth and productivity.

DIFFERENCE BETWEEN US AND GLOBAL YOY MANUFACTURING GROWTH

12-month moving average, in percentage points

Monthly | January 2014–November 2022



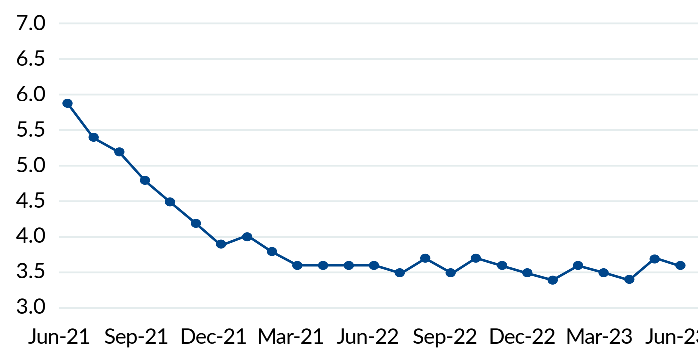
Source: Atlantic Council GeoEconomics Center | Chart: Madison Dong/Axios Visuals.

2. Is there enough labor available locally to bring more manufacturing nearshore?

It seems unlikely. Unemployment in the US has consistently fallen since June 2021. A slow recovery from COVID is only part of the story. Labor force participation has been on a downward trend for decades due to an aging population, among other factors.

UNEMPLOYMENT RATE, SEASONALLY ADJUSTED | JUNE 2021–JUNE 2023

Percent



Source: Bureau of Labor Statistics.

From a purely hourly wage standpoint, Mexican labor could supplant labor from overseas. For example:

- China: US $6.50/hour in 2020, a growth rate of over 12 percent from 2019.
- Mexico: US $4.82/hour, a growth rate of just over 3 percent from a year prior.[4]

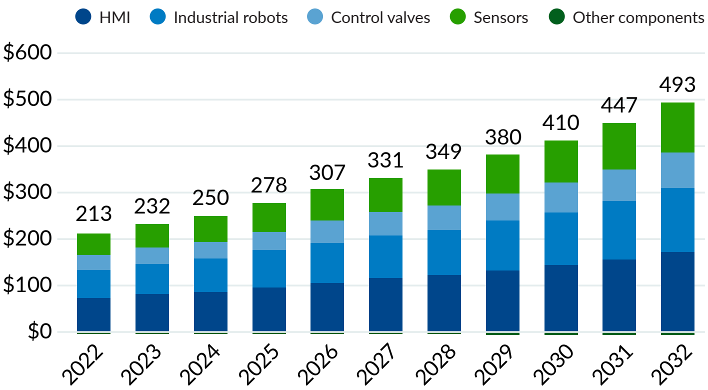
2. Source: Carnegie Endowment for International Peace. | 3. Source: National Association of Manufacturers. | 4. Source: China Briefing, "Reshoring from China to Mexico – How prevalent is it really?"

3. In the absence of available labor, how can firms achieve the benefit of nearshoring while hitting productivity and profitability targets?

Industrial automation appears poised to fill the labor void for US firms that want to bring manufacturing closer to home. Investment continues to be a major contributor to achieving productivity goals and providing greater supply chain resilience. The global industrial automation market was valued at around $212.6 billion in 2022 and is projected to reach approximately $493 billion in 2032, growing at a CAGR of slightly above 9.0% between 2023 and 2032.[5]

GLOBAL INDUSTRIAL AUTOMATION MARKET

Size, by components 2022–2032 (USD billion)



Source: Bureau of Labor Statistics.

The Robotic Process Automation (RPA) market is expected to grow from $3.10B in 2023 to $11.37B by 2028, at a CAGR of 29.7% during the forecast period (2023–2028).[6] RPA adoption is increasing across organizations of all sizes in pursuit of increased ROI and productivity.

Summary: A balance of pitfalls and opportunities

The wakeup call that the pandemic delivered to companies regarding their tenuous global supply chains will certainly cause more businesses to at least consider bringing operations closer to home. By automating processes whenever possible, companies have the opportunity make that happen without sacrificing profitability.

With labor shortages and wage rates increasing, the ROI and payback metrics for automation equipment becomes more compelling. In some cases, available labor is not sufficient to maintain operations and automation is required to support critical functions.

However, dismantling long-standing supply chains and reforming them nearshore is a time- and capital-intensive process that firms will have to carefully plan to avoid disruptions. Most likely, the most efficient business model will be a hybrid of nearshoring and offshoring. That process seems to have already begun.[7]

- Taiwan Semiconductor Manufacturing Co is building two new plants in Phoenix, AZ expected to start production in 2024 and 2026
- Intel has broken ground on a massive new semiconductor facility in Ohio, with production scheduled for 2025
- Samsung is building a new semiconductor plant in Taylor, Texas, the company's largest investment in the US to date

Mexico also has the benefit of proximity to the US. But China offers hard-to-replace advantages, including manufacturing expertise, infrastructure and well-developed upstream and downstream supply chains.

Additionally, a Gartner survey of 300 supply chain SME professionals in the US showed that 88% of small to medium-sized enterprises have switched to suppliers closer to home. "Tech investments are up: 90% report plans to increase or maintain their investment in emerging technologies," says the report.[8]

Over 80% of executives believe emerging technologies — AI, machine learning, system Integration, autonomous robots and the cloud — will transform their business over the next decade.[9]

It may take time, but nearshoring continues to gain momentum, and industrial automation will play a big part in it.

5. Source: Globe Newswire. | 6. Source: Mordor Intelligence. | 7. Source: ManufacturingDive.com. | 8: Source: Supplychaindigital.com, Gartner, Capterra: https://supplychaindigital.com/supply-chain-risk-management/nearshoring-happening-faster-than-expected-says-gartner. | 9. Protiviti, "The Future of Work": https://images.learnmore.protiviti.com/Web/Protiviti/%7B52816f0c-811e-4197-881f-83d52bd94318%7D_VISION_by_Protiviti_Future_of_work_highlights.pdf

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