

Spring 2011

Made in America—A case for U.S. manufacturing

Myth vs. reality

Many people believe that the United States has lost its longtime global edge in manufacturing. They lament that U.S. manufacturing jobs have been outsourced in recent decades to countries such as China, India, Mexico and Vietnam, to name a few. Many believe that most everything is now made overseas (or soon will be) due to lower labor costs. The perception is that the United States' manufacturing superiority is forever shattered.

Part of the assumption is true: The fact is that the number of manufacturing jobs in the United States has been steadily declining over the past 40 years. Manufacturing employment in the United States, as a percentage of total payrolls, has decreased from 25 percent in 1970 to just 8 percent today. One in six United States factory jobs has disappeared since the start of 2000.

However, it is insufficient to judge manufacturing strength solely by job count. By many other measures that mean more to long-term operational and financial success, the United States is leading the pack. The United States has not lost its manufacturing edge; the advent of global competition and emerging market competitors has merely *sharpened* it.

The conclusion—to paraphrase Mark Twain—is that reports of the death of U.S. manufacturing are greatly exaggerated. This paper examines several examples and key success factors as well as the trade-offs to consider when making manufacturing/sourcing site selection decisions.



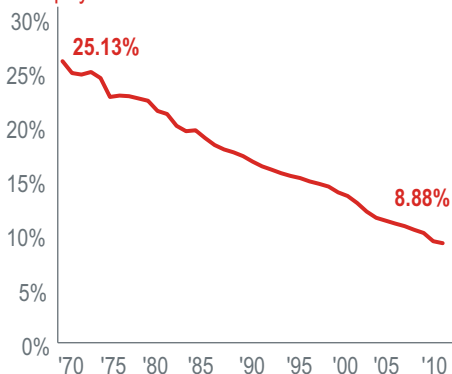
Less is more

Although manufacturing employment in the United States has trended down for the past 40 years, the achievement which often goes untold is that manufacturing output—as measured per employee—has increased steadily during the same time frame. It is up 70 percent since 1977.¹

One reason unemployment remains high while corporate profitability improves is that U.S. manufacturing businesses have learned to do more with less. *Productivity is at an all-time peak.* According to William Strauss, senior economist at the Federal Reserve Bank of Chicago, it took 1,000 workers to do in 1960 what 184 workers can do now. In the case of U.S. Steel, the company can do the same work now with one-tenth the work force it once had.²

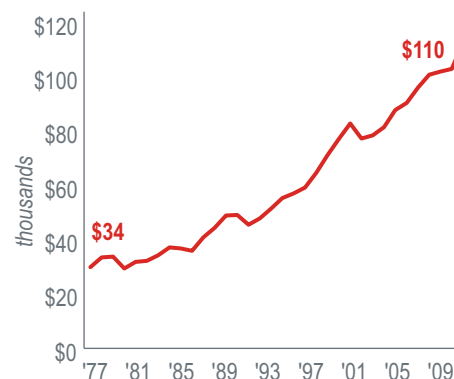
1. "The Centrality of Manufacturing to America's Future Prosperity," New America Foundation, February 14, 2011.
2. "The Future of Manufacturing," The Midwesterner: Blogging the Global Midwest, July 26, 2010

Manufacturing employment as a portion of total payrolls

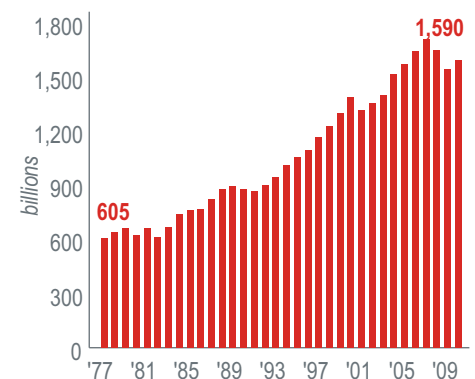


Source: Jones Lang LaSalle Research

Real manufacturing output per employee



Real manufacturing output



Hytrol stays American—and competitive

In order to stay competitive as a U.S. manufacturer, Hytrol, a leading manufacturer of conveyor equipment, has implemented lean principles in its manufacturing operations. These practices have boosted productivity by eliminating wasted effort, streamlining processes and increasing workflow velocity. Hytrol has eliminated more than 80 percent of work-in-process inventory and reduced scrap and rework by more than 30 percent, enabling it to compete with lower cost global competitors.

Hytrol's President Gregg Goodner reports that, *"Despite pressures to outsource manufacturing operations offshore, Hytrol has been able to transform a company with more than 55 years of history, make it the leader within our industry, increase market share, reduce costs and develop a world-class operation—all from Jonesboro, Arkansas."*



America's manufacturing output hits a new high almost every year and has grown steadily over the past 30 years. Americans manufactured more goods in 2009 than the Japanese, Germans, British and Italians combined.³ The bottom line: The United States remains the world's mightiest manufacturing economy producing 21 percent of all goods globally.⁴

Part of the myth that America doesn't "make" anything anymore is fueled by consumers reading labels in personal items they purchase such as clothing, shoes, toys and mass-produced electronics. Chances are the goods were made in China or an emerging market. This should not be surprising; lower cost labor in these countries is an undeniable advantage in producing low-value, labor-intensive products. However, when it comes to more sophisticated products, such as automobiles, aircraft/aerospace vehicles and components, pharmaceuticals or semiconductors, don't be surprised to find that they continue to be "Made in America."

The realities of globalization

The world has gotten a lot "smaller" over the past 50 years. Back in the 1960s, what was produced in the United States was primarily consumed in the United States. The same was true in other parts of the world. With the advent of ocean containerization and international shipping in the 1970s, that scenario began to change. The emergence of the Internet and other computer-based technologies in the 1990s was another great leap forward, sparking global supply chain management as we know it today.

Globalization has created both challenges and opportunities for manufacturers. Companies now produce and ship products from all over the world and must manage very complex supply chain networks to service their customers the most efficiently and effectively. It has pressured U.S. companies to become leaner, smarter, faster and more innovative to compete with lower cost countries.

Although China is still the #1 country of choice for outsourcing, their once-formidable edge in manufacturing is eroding. The consulting firm AlixPartners reported that in 2005, Chinese-produced parts arrived at U.S. destination ports an average of 22 percent cheaper than comparable products domestically. By the end of 2008, the average price gap had dropped to 5.5 percent, a dubious advantage to justify the risk and complexity of producing halfway around the world.⁵

The recent Japanese earthquake and tsunami underlined how unforeseen events can wreak havoc upon the supply chain. Among other challenges, it created an unexpected disruption in the supply of parts from Japanese sources required for the production of automobiles and other products manufactured in the United States and other nations. From Somali pirates to Mexican drug lords, there are plenty of manmade global hazards as well. As with a financial portfolio, it is wise to diversify sourcing and manufacturing investments to help mitigate risk. Having all of your manufacturing "eggs in one basket" is not always the most prudent manufacturing/sourcing strategy.

Dollars and sense

Warren Buffett—Chairman of Berkshire Hathaway and one of the world's most highly respected investment gurus—has observed that, *"Money will always flow toward opportunity, and there is an abundance of that in America."* Despite economic gains by other countries, the United States has been the world's largest national economy since 1890. The United States has the world's largest stock exchange and deepest gold reserves. America is home to 40 percent of the world's billionaires and to 139 of the world's 500 largest companies—twice that of any other nation.

3. "Made in the USA: US Manufacturing Still Tops China's by Nearly 46 Percent" *The Boston Globe*, February 14, 2011

4. "The Centrality of Manufacturing to America's Future Prosperity"

5. "So Much for the Cheap China Price," *Bloomberg Businessweek*, June 4, 2009

A solid economic foundation is an important strength, but manufacturing site selection decisions all come down to return on investment. Supply chain/operations executives must take a fact-based approach when evaluating their supply chain networks and making decisions on manufacturing and sourcing site selection decisions. There are numerous trade-offs to consider.

Six key factors:

1. Total delivered costs
2. Supply chain infrastructure
3. Work force profile, availability and wage rates
4. Proximity to customers and suppliers
5. Business, tax and economic incentives
6. Risk mitigation

1. Total delivered costs

This includes the cost to source materials and components, the expense of direct labor and overhead, and the freight cost to ship. Labor rates are certainly an important factor, though as previously noted, the gap between the United States and foreign powerhouses such as China is narrowing.

But wages are only part of the overall picture. Freight costs, driven in large part by oil prices, are increasingly offsetting, even eclipsing, any savings from cheaper labor. Oil prices have been on a steady increase and are expected by many analysts to continue upward. Offshoring manufacturing/sourcing which might have appeared attractive when oil was \$70 a barrel might be dramatically different if the price rises—as it has in the recent past—to \$140 a barrel. The higher the cost of transportation, the more significant the freight “penalty” becomes to ship over greater distances.



Decisions



Different Decisions?

In forecasting long-term manufacturing costs, executives must balance higher labor rates in the United States against uncertain fuel prices and the potential of future spikes in transportation costs from an offshore location. In a recent survey by consulting firm Accenture, 61 percent of manufacturing executives indicated that they were considering relocating factories back to the United States or Mexico from lower wage rate Asian countries due to rising logistics and transportation costs.⁶

2. Supply chain infrastructure

According to the World Bank, the United States has one of the top 10 infrastructures in the world. No other economic “tigers,” such as China, India, Mexico or Brazil, rank in the top 25.⁷ Ocean accessibility on three sides with many large and expanding seaports, interior lakes and navigable rivers, an extensive rail and highway network, and many of the world’s busiest airports, result in the United States being one of the best networks for moving goods anywhere in the world.

The United States now faces an aging supply chain infrastructure which requires needed improvements, but investments are forthcoming in both the public and private sectors. President Obama has proposed creating an infrastructure bank in his 2012 budget as a centerpiece of a 10-year, \$640 billion plan for upgrading and rebuilding 150,000 miles of roads, bridges, transit systems, reconstructing 150 miles of runways, and constructing and maintaining 4,000 miles of rail lines.⁸ The BNSF, one of the largest U.S. railroads, plans to invest \$3.5 billion in 2011 in infrastructure improvements including network upgrades and locomotives.⁹

U.S. ports are also investing heavily in anticipation of Panama Canal expansion expected to be completed in 2014. The expanded canal will accommodate mega-container ships capable of carrying up to 12,600 twenty-foot equivalent unit (TEU) containers—approximately 50 percent more capacity than the typical container ship of today. This will increase economies of scale in reaching the east coast of the United States—where two-thirds of the population lives.

3. Work force profile, availability and wage rates

Although lower wage rate countries are more attractive, situations can change. The United States-China wage gap has lessened significantly due in part to availability and labor disputes. From 2002 to 2006, total manufacturing wages in China rose nearly 70 percent.¹⁰

The United States has a well educated and motivated workforce. Unions represent just 12 percent of the total workforce and are generally limited to certain states or areas. And in the wake of the economic downturn, many unions have taken a more conciliatory approach to help retain American jobs for their members.

4. Proximity to customers and suppliers

Generally, the closer you are to manufacturing for your customers and suppliers, the better. It improves speed to market, reduces complexity and risk, shrinks inventory levels and freight costs, and improves service levels. The United States has the largest consumption base in the world, strong justification alone for domestic manufacturing.

In the aforementioned Accenture study, a majority of U.S. manufacturing executives said they were considering better matching supply and demand locations by either repatriating manufacturing back to the United States or “nearshoring” (e.g., Mexico) over the next few years. “Now that oil and transportation prices have gone up, productivity gains are not as big as they were, and there are issues around risk in supply chains, companies are starting to go where the customers are,” says Accenture Managing Director Matt Riley.¹¹

6. “US Groups Weigh Asia Exit as Costs Rise,” *Financial Times*, March 20, 2011

7. Logistics Performance Index, <http://info.worldbank.org>

8. “Group Wants New Bank to Finance Infrastructure,” *The New York Times*, March 15, 2011, author Michael Cooper

9. “BNSF Railway Announces \$3.5B Capital Investment,” Associated Press, February 7, 2011

10. Name of study? I can not locate name of the study referenced., IHS Global Insight

11. “US Groups Weigh Asia Exit as Costs Rise,” *Financial Times*, March 20, 2011

Volkswagen re-enters the United States

In 2008, Volkswagen surprised many by announcing its decision to build a new \$1 billion auto manufacturing plant, not in Germany, but in Chattanooga, TN.

Key factors in the decision included:

- Proximity to a large U.S. consumer base for their cars and expectations that a U.S. manufacturing presence would provide an uplift in sales
- German buying power relative to the weaker U.S. dollar
- Alleviating exchange rate fluctuations
- Positive attributes of the Tennessee workforce
- Supply chain and logistics advantages
- Significant federal/state/local tax and economic incentives

The manufacturing plant features a full body production division, paint shop and automated assembly line, and will employ approximately 2,000 American workers. The plant will build the all-new 2012 Passat Sedan, specifically designed for the North America market.

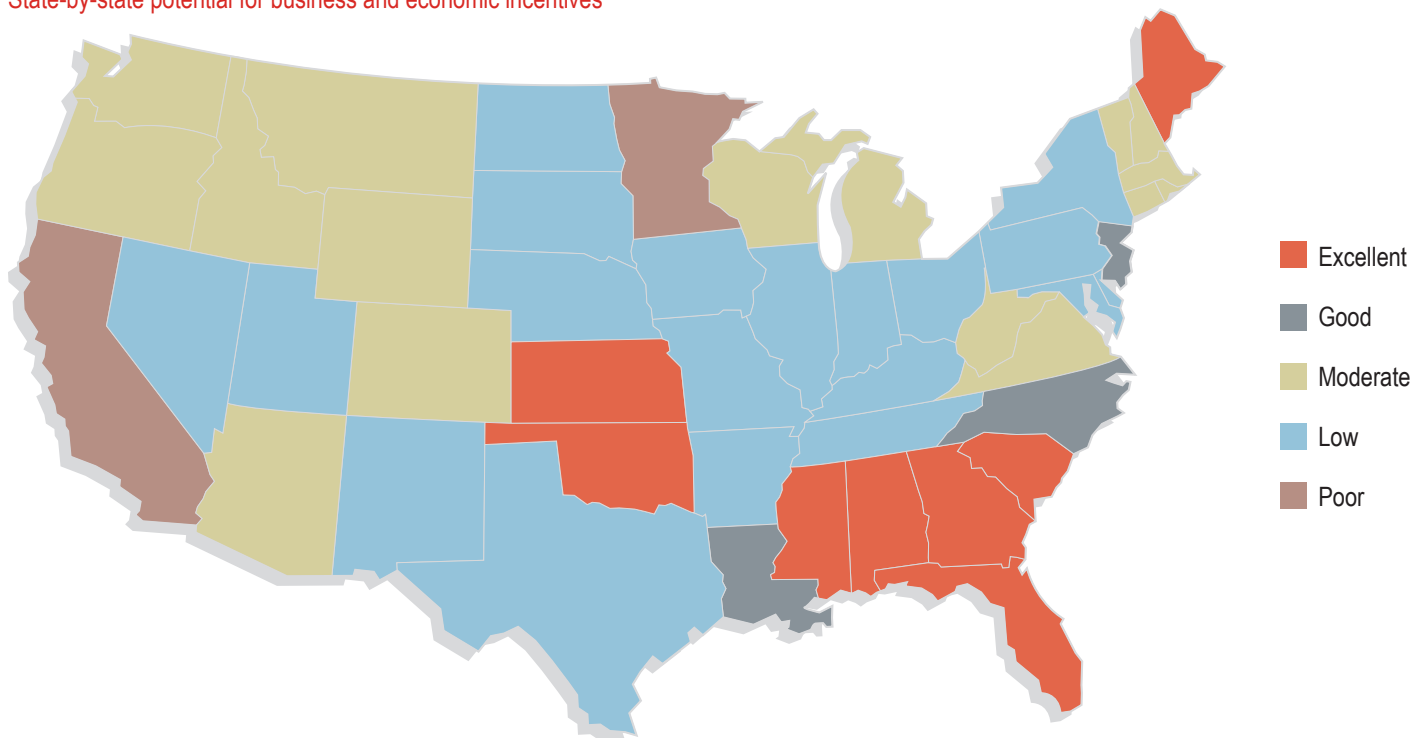


5. Business, tax and economic incentives

American corporate taxes can be complex and frequently misunderstood. While the United States has the second highest tax rate among developed countries—Japan is first—potentially significant incentives are available to manufacturing businesses at the federal, state and county levels. Incentives can come in many different forms, from cash grants to tax credits to training incentives. Relatively high unemployment in much of the United States has given many localities an incentive of their own to increase allurements to job-providing manufacturers.

The following map provides a general, state-by-state overview relative to the potential of obtaining tax breaks, favorable loans and other economic incentives. Although business, tax and economic incentives are typically negotiated on a case-by-case basis, this can be a significant cost factor or “needle swinger” in the overall site selection decision.

State-by-state potential for business and economic incentives



6. Risk mitigation

Five or 10 years ago, risk mitigation was not always a frequent topic of discussion in the supply chain/operations suite. Risk management considerations are becoming increasingly more important and are critical in assessing and making location decisions on new manufacturing facilities with typical 20–30 year time horizons. Some of the key issues to consider include:

Intellectual property: In developing countries, challenges to protecting products and information can arise due to lack of regulation and inconsistent application of intellectual property laws. China has been the origin for as much as 80 percent of counterfeit and pirated products seized by U.S. Customs, with confiscated goods valued at \$158 billion.¹² Given the significant investments that companies make in proprietary R&D and manufacturing techniques to gain competitive advantage, nobody wants to lose their “secret sauce” to theft or reverse engineering.

Political/legal/currency: Though the U.S. dollar is currently relatively weak, American currency has a long, stable track record. If anything, the dollar’s present off-peak status creates more incentive for foreign investment dollars in American factories. A U.S. manufacturing presence can help alleviate currency fluctuations for foreign-owned companies.

Environmental/human rights: As demonstrated by recent upheavals in the Arab world, assuring human rights can be important to the survival of a nation’s businesses. The protection of fundamental human rights was the foundation of our Declaration of Independence and is guaranteed in the U.S. Constitution. Despite our critics, the U.S. is regarded by most—especially in the business world—as the strongest, most transparent global democracy.

Quality/safety/natural disaster: While tight U.S. environmental and safety regulations may occasionally irk manufacturers, they help prevent the serious brand damage and potential liability generated by hazardous products from countries with less stringent laws. The highly-publicized use of cadmium—a known carcinogen—in the production of Chinese toys is a recent example. In January 2010, amidst unfavorable publicity, McDonald’s was forced to recall 12 million cadmium-tainted Shrek drinking glasses made in China.¹³

12. Information from the International Anti-Counterfeiting Coalition

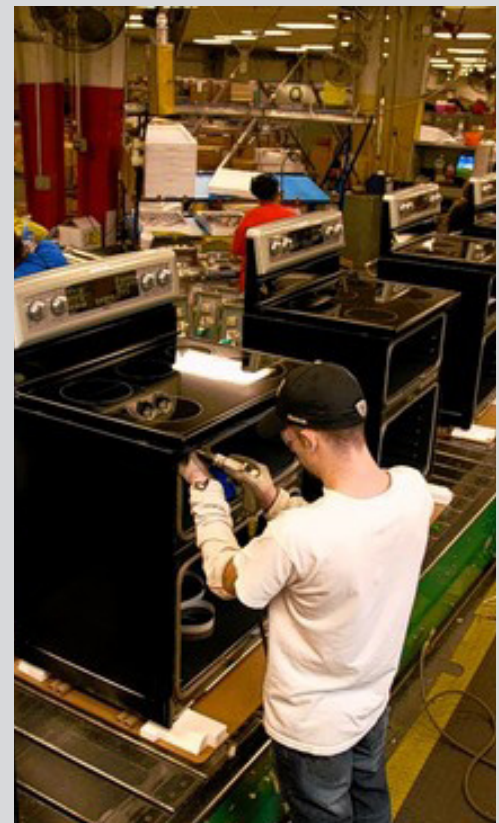
13. “Recall of Cadmium-Tainted Glasses by McDonald’s Sparks Debate Over Toxic Metal,” article appeared in *The New York Times*, June 8, 2010, by Elana Schor

Whirlpool re-tools, stays domestic

With 39 factories worldwide, Whirlpool Corporation had a tough decision to make in 2010. Their manufacturing complex in Cleveland, Tenn. was more than 100 years old. The inefficient layout of the plant, built on a slope and cobbled together over the past century, required a fleet of more than 100 forklifts to shuttle products along ramps connecting 13 different levels. Alan Holaday, head of North American manufacturing for Whirlpool, called the plant “an industrial museum.”

One option was to move production to Mexico, where not only Whirlpool, but its South Korean rivals already have several factories manufacturing cooking products. However, after months of study, Whirlpool decided to spend \$120 million on a new plant in Cleveland, just a few miles from their old one. It will be the company’s first new U.S. factory since the mid-1990s. Whirlpool projects that its workforce in Cleveland will grow to 1,630 within about two years from 1,500 now as production increases.

Although labor costs would be lower in Mexico, Whirlpool found lots of reasons to stay in the United States. It already has a trained work force at Cleveland and wouldn’t need to pay severance costs. Freight costs are lower since most of the plant’s products are sold in the United States. Whirlpool also considers the United States safer than Mexico, which has been beset with drug-related violence. In addition, state and local governments were willing to kick in about \$30 million of incentives, including grants and property tax breaks.



Conclusion

U.S. manufacturing is not a thing of the past, but is a critically important aspect of the nation's future. The benchmark of success in manufacturing is not simply the number of people employed, but the levels of productivity, innovation, new product development, emerging technologies, as well as continued education and training. These are the critical success factors that will enable U.S.-based manufacturing in years to come.

As with any thoughtful business decision, there are many factors to weigh and trade-offs to consider. When evaluating manufacturing/sourcing site selection decisions, supply chain/operations executives must rely on an objective, fact-based approach to ensure they arrive at the most optimal and profitable, long-term solution.

Taking all factors into consideration, it is clear that the United States stacks up well from a manufacturing standpoint. With its skilled labor pool, stable political environment, supply chain infrastructure, business incentives, real estate values, and large consumer base, the United States will increasingly look more attractive from a manufacturing perspective—"Made in America" simply makes good business sense.

Key take-aways

- Although the number of U.S. manufacturing jobs has decreased, real manufacturing *output* has *increased* over the same timeframe
- U.S. manufacturing *productivity is at an all-time high*
- The U.S. remains the #1 manufacturing powerhouse making 21% of all goods globally
- Rising transportation costs will create more significant "freight penalties" for companies considering off-shore manufacturing/sourcing strategies
- The U.S. has a compelling value proposition to manufacturers looking for proximity to a large consumer base, a stable political/economic environment, an established supply chain infrastructure, real estate value, and a highly skilled and available labor pool



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