

## INSIGHT

## Manufacturing

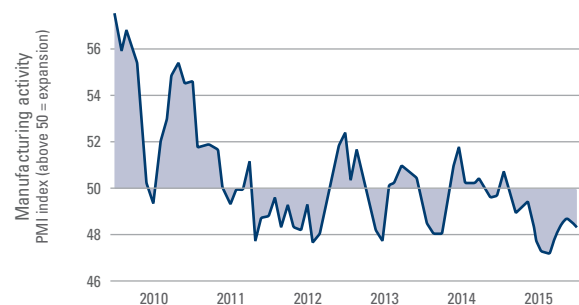
# China's Manufacturing Challenge: Going Lean

Recent data on Chinese manufacturing show an economy in transition. The Chinese manufacturing sector must adjust to global shifts; otherwise it risks being held back by its earlier success.

A recent review of Purchasing Managers Indexes (PMIs) from the Chinese government shows a slight pickup among large manufacturers, off a three-year low reached in August 2015, but a six-and-a-half-year low when smaller manufacturers are included (figure 1).

Minor differences aside, China is experiencing its weakest growth in decades,<sup>1</sup> underscoring Chinese companies' urgent need to evolve from low-cost models into models that meet a more global standard.

FIGURE 1: China's manufacturing output, 2012-15



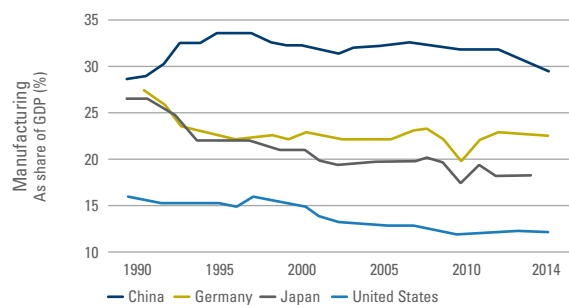
Source: [www.tradingeconomics.com](http://www.tradingeconomics.com), Markit Economics

## A number below 50 indicates a period of contraction

The December 2015 PMI dropped to 48.2 from 48.6 in November, falling below market expectations.

In late 2014, China's economy reached the US economy in terms of size on a purchasing-power-parity basis (figure 2). However, the GDP growth rate has come down steadily since 2010. Even China's current officially published rate of 6.9% is questionable.

FIGURE 2: China's economic growth story: the old normal



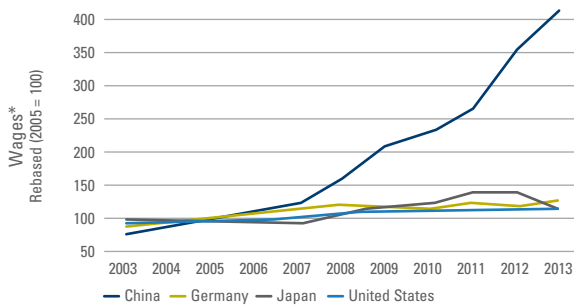
Source: Haver Analytics

China's longstanding advantage as a hub of low-cost manufacturing with cheap labor, cheap materials, and low equipment costs is eroding fast (figure 3). Competing nations are trying to outdo China by using its own model, with even lower prices and lower wages. In addition, China's own subsidy and predatory pricing practices pose increasingly serious problems for exports. The country also faces rising domestic energy costs: in the past decade, industrial electricity prices rose 66% and natural gas costs climbed 138%.<sup>2</sup>

<sup>1</sup> Mark Magnier, Lingling Wei, and Ian Talley, "China Economic Growth Is Slowest in Decades," Wall Street Journal, January 19, 2015, accessed December 28, 2015, <http://www.wsj.com/articles/china-gdp-growth-is-slowest-in-24-years-1421719453>.

<sup>2</sup> Ana Swanson, "30 Charts and Maps That Explain China Today," Washington Post, September 24, 2015, <http://www.washingtonpost.com/news/wonkblog/wp/2015/09/24/china-explained-simply-with-charts>.

FIGURE 3: Wage growth blunts China's labor cost edge



\*Average hourly compensation  
Source: Bureau of Labor Statistics, Citi Research

Factor in growing concerns about pollution and environmental degradation, inflationary pressures on the renminbi, and lower domestic demand, and certain profound changes are called for.

To remain competitive, Chinese manufacturing companies will likely have to transition from the low-cost-country model to a more global standard of operational excellence. It may not be easy. In general, attempts to implement lean manufacturing techniques in low-cost countries usually fail because foundational processes were not in place, leaving companies unable to meet such a challenging adjustment.

Typical obstacles to the transition in plants that still operate based on the classic, low-cost-country model are:

- ▶ Unstructured management processes that create complex organizational structures, resulting in unclear expectations and poor accountability, which can lead to slow reactions to problems.
- ▶ Lack of process discipline, meaning that success gets measured by getting things done by whatever means necessary, which can lead to inconsistent standards.
- ▶ Weak problem-solving skills on the parts of top-down managers who make all the decisions and who typically address symptoms rather than the root causes of serious issues.
- ▶ Weak and reactive quality systems that lead to heavy reliance on layers of manual inspection and sorting and on redoing work. It is better to improve process capabilities and get it right the first time.

The low-cost model had a legacy of poor trade-offs on many capital investments. Plants often leave people performing tasks manually when simple automation would have paid for itself quickly or improved quality. The low-cost model also had a strong tendency to try to get by with substandard tools and equipment so as to save on expenses. The results, all too often, were reduced productivity and poor-quality goods that come at a higher total cost than improved equipment does.

Although it is easier said than done, making the transition from the low-cost country model to the global standard of excellence is possible: Recently, a global electrical-components company found itself in a typical bind for manufacturers in China. Despite its best efforts to reduce the cost of goods and services by 8% to 10% annually, the company saw no net effect on earnings.

Its China plant, which accounted for 40% of the company's production, was still using the typical low-cost approach; many of the manufacturing processes were still manual; and there were frequent quality inspections but few standardized management approaches to production problems. Plus, turnover among both rank-and-file workers and managers was high.

By establishing the needed foundation for effective lean manufacturing, the company was able to boost earnings before interest, taxes, depreciation, and amortization by almost 10% of cost of goods sold. And the company achieved higher-quality production with less labor, material, energy, and manufacturing overhead.

That was done by:

- ▶ simplifying the organizational structure, clarifying the most important performance objectives, and strengthening management processes to define responsibilities;
- ▶ improving stamping productivity by improving batch size planning and substantially reducing the number of changeovers;
- ▶ reducing manning levels in molding and quality by replacing large parts of the previous regime with mechanical process control; and
- ▶ improving assembly productivity by rebalancing lines and introducing selective automation.

On a longer-term basis, they improved automation and instilled a quality management approach that emphasizes process control and gets production right on the first attempt rather than using an inefficient inspection process to evaluate output.

Chinese companies, like any organizations facing big changes, require a careful balance between multiple and oftentimes competing factors as they shift to the principles of manufacturing used in more-developed markets.

Although shareholder value is more important than a good lean scorecard, a few practical core principles can contribute to the beginning of a successful process whose steps are as follows.

- ▶ Use available data, and prioritize opportunities based on the level of effort required and financial and operational impacts.
- ▶ Make sure line management drives priority, accountability, and cadence by setting aggressive but achievable targets.
- ▶ Because plants follow budgets, include expenses for planned improvements into budgets.
- ▶ Understand the full-potential productivity and utilization of current equipment before buying new.
- ▶ Because success begins with the organization, set forth clear expectations and accountability parameters.
- ▶ Exercise disciplined daily management, create clear meeting agendas, include active use of metrics, and follow up on action items to make change happen.
- ▶ Remember that change is inevitable: it probably won't allow the maintenance of fixed costs but deserves monitoring of how fast costs change.

## Conclusion

China is often viewed as the undisputed global leader in manufacturing, but it will likely have to align far better with the norms of developed markets to prevent being left behind as a failed low-cost-country-model economy. The basic principles of a transition to lean manufacturing may face challenges with Chinese characteristics, but based on organizational stability and commitment, every company will likely start with plant improvements that focus on disciplined management and consistent, continuously improving methods. Plans for plant improvement at a pilot site often start with easily identified cost-savings opportunities and then grow to include longer-term plans for greater automation and process controls.

Training and working with production line employees to generate bottom-up initiatives will reinforce ongoing improvements and create a team that can help replicate those improvements throughout an entire production network. And successive assessments of recent performance can shape plans that continue reducing the costs of materials, labor, and production.

As the rest of the world reacts to China's economic rumblings and as it views China's heavy industry and commodities sectors' recession with varying degrees of alarm, companies in China that are ready to change and adapt are already shedding their low-cost-country heritages.

Even though the inevitable turmoil of a national economy continues, manufacturers that successfully adapt to the production norms of other, developed markets will become vital parts of China's economic maturation and therefore able to take well-earned places in the ranks of globally competitive companies, as "Made in China" takes on a different meaning.

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