

Six Keys to a Winning Manufacturing Strategy
by William J. Holstein

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How John Deere bucked industrial trends to become an international growth star.

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With so many sectors of the U.S. economy suffering, it may come as a surprise that old-line manufacturers are emerging as growth stars on the international stage. Deere & Company, Caterpillar, Honeywell, and United Technologies are just some of the companies that have defied long-held nostrums about the death of American manufacturing by achieving double-digit sales increases. They are also staking out dominant global positions, particularly in emerging markets.

Based in Moline, Ill., Deere has major plants in Brazil, India, and China, as well as in Mexico, France, and Germany. With 50,000 employees, nearly half located outside the United States, Deere manufactures its John Deere agricultural and construction equipment in 15 countries. The company is enjoying notable sales success in Brazil, Russia, India, and China, where its revenues doubled in 2007. Its total sales in 2007 were US\$24 billion, with net income of \$1.8 billion, far higher than that of the Detroit auto manufacturers.

Robert Lane, chief executive officer of the 171-year-old company, says its current success is the product of its manufacturing strategy. In his view, that strategy has six main components.

1. Strong links with the market. Raw manufacturing prowess alone does not create business success. “It

has to start with the customer,” says Lane. “Whatever you manufacture has to be something that customers really want to buy. You have to design it right. We’re really focused on being connected to the customer.” To that end, Deere’s factories maintain a robust feedback loop with the design, engineering, and research and development functions. Nurturing market sensitivity can be a problem for manufacturers that shift production offshore in pursuit of cost savings.

2. Rigorous financial discipline. Deere has embraced a system called shareholder value added (SVA) that, simply put, measures the difference between operating profit and the company’s cost of capital. “We estimate productivity and cost, and go through a basic analysis and determine if we can compete,” says Lane. Every factory and every product gets graded. And compensation for everyone from top management to unionized labor is based in some respect on SVA. “Nobody gets paid at Deere for just making money,” Lane explains. “Everything is a ratio of what we earn over what we invest.” That gives the whole organization an incentive to drive down costs. “For 30 consecutive quarters, we have reduced inventory and the ratio of receivables to sales,” Lane says. “That is a huge reduction in the amount of capital that had to be deployed. In the process, we are getting faster and faster at providing the

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right products to the right customers at the right time.”

3. Balanced investment approach. Many American manufacturers have closed U.S. factories and shifted production offshore or simply decided to source from other offshore companies. For these manufacturers, it has been a largely one-way flow. But, says Lane, Deere uses “a balanced investment approach that includes a substantial reinvestment in the United States.” For example, Deere used to build diesel engines in Dubuque, Iowa, but has shifted that production to Waterloo, Iowa, and to Mexico in order to improve SVA and boost efficiency. Says Lane, “We’ve been investing heavily in bringing the most modern, advanced productivity tools to factories” such as the one in Waterloo, where the investment amounts to \$140 million over the past seven years. By moving engines to existing plants in Waterloo and Mexico, the company improved the economies of scale of those operations. Meanwhile, it filled the space vacated in Dubuque with other product lines such as skid steer loaders and forestry equipment.

That Deere also manufactures diesel engines in France suggests that the company is not interested only in low-cost locations. Its European factories are important launch pads for the emerging markets of Eastern Europe and central Asia. Western European nations are seen as “home” markets, whereas the emerging markets in Eastern Europe and central Asia have not yet demonstrated their size and staying power.

4. Multiple “home markets” plus export strategy. Some companies may locate manufacturing in a particular country to satisfy demand there, but Deere embraces a dual approach, considering the demand in major markets, which it calls “home markets,” and also factoring in possible exports from those markets. “We

build diesel engines, transmissions, and tractors in India. We aim to be able to serve the Indian market and at the same time we export from there to 52 countries, including the United States. But we probably wouldn’t be doing that if we didn’t have the Indian market,” says Lane. “In Brazil, we just opened a brand new tractor factory, and we export from there to Latin America and Europe.”

Deere facilities in China are exporting to a limited number of countries, but the prospect that they will one day engage in more extensive exports is baked into the equation. “Right now, what we build in China primarily stays in China,” Lane says. “Certainly, there will be a growing amount of exports as we develop.” Most of Deere’s tractors built in China have fewer features and meet lower specifications than farmers in many other markets are demanding. Those products are right for China because its level of mechanization of agriculture is lower. As the company can identify other markets that have similar needs, it will begin to export Chinese-made tractors.

5. Labor flexibility. Until very recently, U.S. auto manufacturers hadn’t done much to modernize their manufacturing techniques because of resistance from the United Auto Workers (UAW). Deere has a different sort of relationship with the union. In exchange for greater flexibility in work practices, Deere offers its UAW employees profit-sharing schemes based on SVA and productivity. That kind of collegiality has built a relationship that can handle even tough calls, like closing down production, as the company did with engines in Dubuque. “When we can’t compete, we lay it out,” Lane explains. “We showed them that we wouldn’t be able to build these diesel engines, and we closed down

our engine manufacturing in Dubuque. But in other places, we've reinvested in our UAW factories. We work very cooperatively with them."

6. Lean production. The company has embraced lean production with the Deere Production System (DPS), which is adapted to its unique needs. "We are not an auto company with huge volumes," Lane says. "What you have is lots of different products — planters, sprayers, combines, tractors — all of them quite different. So our Deere Production System is tailored to low-volume, high-quality production." The system has been implemented at virtually all of Deere's factories over the past four years.

One critical element of DPS is its "pull system." In the old days, Deere aimed for a steady, even pace of production. But now Deere bases its manufacturing on customer demand, and products are made only after a customer has ordered them. This approach lets Deere adapt to cyclical and seasonal factors much better than in the past.

Another element of DPS is a constant push to update machine tools, eliminate waste, and enhance flow-through. The advances have been dramatic. "We're ending up with significant productivity gains — close to double digits every year," Lane says. In any form of manufacturing, productivity gains of 8 to 9 percent a year are huge.

Deere's rigorously analytical approach has given it the market muscle to discourage the emergence of a competitor that can challenge Deere's agricultural products on a global basis. Even in India, where a giant like Mahindra & Mahindra is posing a challenge to so many automotive and related companies, Deere has prospered. Thus far, at least, Deere's strategy has yielded

global dominance and stands as an example of how U.S. manufacturing is proving remarkably resilient in an increasingly competitive global economy. +

Resources

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