



## Manufacturing in a Two-speed World

Published in [Knowledge@Wharton](#)

With a sticker price of up to \$1.6 million, MRI machines were not affordable across much of the developing world in 2007. After all, household incomes are considerably lower than in developed countries, and in India, for example, there is no formal health insurance system to compensate providers for MRI exams. Indian physicians charge about \$150 for an MRI procedure, compared to \$1,000 and up in the United States.



This is a single/personal use copy of Knowledge@Wharton. For multiple copies, custom reprints, e-prints, posters or plaques, please contact PARS International: [reprints@parsintl.com](mailto:reprints@parsintl.com) P. (212) 221-9595 x407.

Yet, the Indian market (and others throughout the developing world) is enormous -- and the demand is real. But a scaled-down, low-quality MRI unit was out of the question for GE Healthcare. For one thing, Indian physicians know the state of the art of western technology. "They attend conferences here, they have family here," says Jim Davis, vice president and general manager of GE Healthcare's Magnetic Resonance business, who is based in the United States. "Some of them trained here." Besides, he says, "We are on a mission to provide quality care in all markets. A human being is a human being. We don't want to discriminate. We want to bring the same diagnostic tools to India as the U.S."

So GE Healthcare began development of the Brivo 355 and its sister product, the Opimta 360, MRI machines for technicians using the technology for the first time. Designed, developed, and built in India and China, the machines don't compromise quality but do have an easier-to-read user interface and are easy to operate by technicians who may lack the degree of training they would receive in the developed world. Davis calls them "the right machines for emerging markets." And at \$700,000 to \$900,000, they are the right price.

GE Healthcare is currently selling its budget-priced MRI machines in India. Since the company began taking orders in January 2010, according to Davis, "sales have surpassed our expectations by at least 50%."

Interestingly, the units -- designed and built lean -- are awaiting FDA approval for sale in the U.S. "We'll maintain our manufacturing footprint in China and India," says Davis, "and sell it in the U.S. as well" After all, the U.S. has pockets of underserved populations that can benefit from the budget-priced devices that were manufactured in the developing world, where labor and development costs are lower than in the U.S. GE Healthcare's strategy is a departure from the traditional model where no-frills products that were built for the developing world stayed in the developing world.

Lower cost, stripped-down products that can be sold both in high-growth and slow-growth markets are one example of how companies are addressing "the new normal" -- a two-speed world with two types of markets, each with different characteristics. On the one hand are the high-growth economies such as China, India, and Brazil. With growth rates of 8% to 12% and some 2.6 billion people, these markets are hard to ignore, despite their low average household incomes. On the other hand are the slow-growth economies --the U.S. and Western Europe, for example -- with growth rates ranging from 1% to 4%, but relatively high average household incomes.

In this article, experts from Wharton and The Boston Consulting Group (BCG) consider some of the key challenges that global manufacturers face as they attempt to synchronize their worldwide operations to meet the needs of these two very different markets.

## The Need to Be Lean

To grow, multinationals from the slow-speed, developed economies must target fast-growing, emerging markets. But to compete against local companies, they need to drive out costs, sharply improve quality -- or both. In these high-growth markets, the challenge for manufacturers is to maintain flexibility and responsiveness while keeping costs down.

Whether competing in high-growth or slow-growth markets, companies [need lean products and systems](#), contends BCG partner and managing director Hal Sirkin. "In the slow-growth world, you need low costs and the ability to respond quickly to customer needs," he says. "And in the high-speed world, you need to be lean to lower your costs, customize products for emerging segments and create the capacity to grow." Companies that cut out waste through lean products and systems have lower costs and are more responsive, with shorter cycle times and higher quality.

## Rethinking Manufacturing

Benjamin Pinney, a principal in BCG's Shanghai office, says that some manufacturers from the slow-growth world are responding to market demand in emerging economies by defining a shared platform for production of high-end and low-end products, often at the same facility. Typically, the high end gets shipped to slow-growth Western markets and the low end to high-growth, emerging markets. But production can start at the same factory -- even on the same assembly line -- with components common to both models. The specifics change by industry and market, says Pinney. "With automobiles, the common components can be subassemblies or the partly completed chassis. In pharma, it's the intermediate chemicals. With assembled goods like mobile phones, it can be partially kitted parts. With electrical equipment, it can be mechanical components for switchgears."

Almost all the automotive manufacturers are doing this, notes Pinney. In med-tech, many companies are leveraging "split models" for sales aimed at both worlds. Bicycle manufacturers are doing it too, and in the appliance sector, LG is producing frost-free and non-frost-free refrigerators -- the former for low-speed countries, the latter for high-speed.

## A New Level of Complexity

The growing consumer market across the high-speed world is hard to ignore. For instance, analysts say that some 70% of future business for big pharma over the next few years will be in developing countries, says BCG partner and managing director Adam Farber. But it's not simply a matter of making more or different drugs in their current plants for shipment to these emerging economies. Instead, global pharma companies are searching for new ways to organize their go-to-market model in the new, two-speed world.

One challenge is [how to reconstruct their networks to serve the local markets](#). "Brazil and Russia require that pharma companies have local manufacturing operations to access the market," says Farber. "In several countries, governments say it is critical to the public's health and wellness or to create jobs." So, in addition to knowledge of local customs and culture, drug makers and other manufacturers need to steep themselves in the relevant laws. In some countries, a global producer is not allowed to manufacture unless it brings on a local partner. "The global model," says Farber, "means more languages, more rules, and different duty, tax and patent issues -- a new level of complexity that has to be managed."

Considering the degree of localization required, bringing a local partner on board might be a good idea even if the law didn't require it. The local companies know the market and know their way around. And some are ripe for acquisition. "It's a 'think local, act global' thing," notes Farber. "There are regulatory, packaging, and cultural differences. You need to understand local markets and how distribution works." Of course, this has been true all along for multinationals seeking to capitalize on low labor costs by manufacturing in developing nations. But it's even more important now that these emerging economies are not just manufacturing hubs but real growth markets -- and now that there's a greater number of small, local companies to compete against.

[Marshall L. Fisher](#), a Wharton professor of operations and information management, agrees that what's new is that these emerging economies are becoming attractive markets, not just manufacturing bases. "The emergence of consumer markets is interesting," says Fisher, noting that one of the missions of the Communist Party in China is to develop the country's internal economy. "They think people are saving

too much money. Whatever problems the U.S. has, China has the reverse." The Chinese government's desire to grow the internal economy and increase the percentage of income that people spend in China creates opportunities for non-Chinese companies to make inroads there. "That's heightening the interest," says Fisher, who adds that the megabrands in the U.S. such as Nike, Wal-Mart, and Amazon are not the top brands in China. "Maybe it suggests that you don't need to be #1" to be big enough there. China, according to Fisher, tends to be a more fragmented market. In the U.S., only the top firms have global share. But China's potential market is so big, there is room to be #10 -- and still make money.

But China also has huge companies with very little global name recognition -- yet. Fisher points to Foxconn, a \$40 billion company with 300,000 employees and a 10-square-mile campus. The company makes products for Apple and Motorola, largely for export. "They'd be *Fortune* 25 in the U.S. but no one has heard of them." Fisher is interested to see what happens to Foxconn as the internal Chinese economy develops. "They could use the emerging home market to develop new skills," he says, or to begin developing more affordable products for local consumers -- and for global export. Clearly, this is a company to keep on the radar screen.

### More Than Just Low Labor Costs

Companies face a range of challenges as they formulate a two-speed strategy for manufacturing, says Michael Zinser, BCG partner and global co-leader of the firm's manufacturing group. "Yes, labor costs are lower in developing economies. But companies need to balance the low cost of labor with the added logistical costs and the risks inherent in lengthier supply chains," he notes. Add to that the rising expectations of buyers. "Customers don't just want the lowest cost, they want to get their products quickly too!" The best solution may be for companies in slow-growth, developed markets to manufacture in low-cost, high-growth markets and sell to local consumers as well as to Western buyers. That way, the slower sales growth in the developed markets and the higher logistics costs would be offset by the robust local sales. But it's easier said than done.

"When companies first started manufacturing in Asia there were tax incentives, labor rates that were among the lowest in the world, and excess capacity," says Zinser. But some of those incentives have gone away, labor rates are rising (as they are at Foxconn), and logistics costs are higher. "That said, the cost savings are still there," he notes, "but you need to be clear about what your objectives are." For instance, if a company is based in North America and just wants to cut its production costs, it might be better off going to Mexico or to some parts of the U.S. "But if you want to tap into the fast-growing markets of the developing economies, you might want to set up manufacturing operations there -- and local sales channels too," he adds.

Keep in mind, too, that the no-frills products made for emerging markets might also be embraced by consumers in the developed world. Again, this can create more complexity, but more opportunity too. Zinser gives the example of a U.S.-based manufacturer of lawn-care products that competes against domestic companies with high-end products and against companies from India and other emerging economies with low-cost products. "But a segment of U.S. consumers will always want lower-priced products," he says. In order to provide both premium and low-end products to the domestic market, the company has migrated some production to Mexico. But it has also started manufacturing in Southeast Asia to capitalize on the low labor costs and Asia's growing consumer markets.

Many companies set up overseas operations to take advantage of lower labor costs, but don't take the opportunity to rethink their production processes with an eye toward cutting costs and [reducing complexity](#). Others let quality, health or safety standards slip, says Zinser. A hands-off approach in unknown markets can lead to problems. The best way to avoid these problems is to be on site, not on the other side of the world. "There is no alternative to having feet on the ground," he stresses. "You have to be there and see exactly what's going on. Otherwise, you can end up with massive recalls and a PR nightmare," he says. "You have to do your due diligence, and you can't make assumptions. I've seen companies working with contract manufacturers on the other side of the world and forgetting to ask them what their production schedules looks like." But when you're there on the shop floor, you can look around, kick tires, ask questions and learn a lot more than you would in a meeting.

Wharton management professor [Morris A. Cohen](#) was recently in India meeting with Unilever executives. There was some discussion of the difference between selling in India and in the U.S. "There is

not much need for marketing in India," he says. "There is so much demand that companies feel if they can just get their product in front of the customers, they'll buy it. It's not worth spending on marketing." Instead, Unilever in India spends on distribution and consumer education. In some cases, he says, Indian people don't know how to use bottles that contain consumer products. "So Unilever sets up stores run by women in the local villages. It's a combination of technology and outreach that meets the local market's needs." And knowing what the local market needs at a granular level requires a local presence.

Cohen points out that India has significant barriers to entry, such as ownership rules that determine how much of a local company can be owned by a foreign corporation. Other challenges are structural. "India's is an informal economy with lots of little shops by the road, so distribution is an enormous problem," notes Cohen. He recalls meeting with the CEO of a large Indian cell phone company that uses Wal-Mart as a distributor, not a retailer, because the Wal-Mart name isn't well-known in India. The distribution challenges are compounded by the country's substandard roads and infrastructure. "China has done a better job of managing infrastructure than India," he says. "Local markets are more easily penetrated because it is easier to transport goods there."

Much depends on where you are selling, says Sirkin. "You can produce in these markets, sell for less, get your costs down, and take advantage of local market knowledge. Or you can do what Apple does: design in the U.S. and outsource production to companies that are cheaper." Of course, Apple can design its products in the U.S. and make them in China because, unlike GE Healthcare's budget MRI machines, Apple products are the same whether you're buying them in New York, London, Mumbai or Shanghai. There is no budget-priced iPad designed for developing economies. GE Healthcare, though, has gone through the process of customer segmentation -- drilling down, analyzing the market data, and coming to a deeper understanding of its target customers' buying habits, favorite brands, and -- perhaps most important -- their aspirations.

### **Bottom Line on a Two-speed World**

According to Pinney, "Companies that are thriving in this two-speed world are really good at managing both mass production and just-in-time production. They're able to make fast adjustments up and down the value chain in response to changing market dynamics. And they make smart use of subcontracting to manage capital commitments against different production steps."

Manufacturers that want to optimize their operations in the two-speed world can learn from those that faced tough economic restraints in the past. "Necessity is the mother of invention," says Sirkin. "The Japanese had to compete. They had to keep costs down and eliminate all the waste they could." The companies that got lean produced low-cost, high-quality products that changed the rules of competition. Case in point: the U.S. auto industry. When the big three automakers were producing big cars, Toyota came in with a low-end product and tailored it for the U.S. market, and then moved up the value chain to higher-end models.

"Any country or company that is resource-constrained will figure out how to do more with less, as China and India have proven," says Sirkin. "In competitive markets, if your company doesn't come up with a better value proposition, someone else will."

---

This is a single/personal use copy of Knowledge@Wharton. For multiple copies, custom reprints, e-prints, posters or plaques, please contact PARS International: [reprints@parsintl.com](mailto:reprints@parsintl.com) P. (212) 221-9595 x407.