



Lessons from a New Industry Cluster in India

By [Vivek Wadhwa](#) on December 30, 2009

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For government officials and planning consultants looking to create regional economic growth and drive innovation, industry clusters are the Holy Grail. Popularized by Harvard professor Michael Porter in the early 1990s, cluster theory holds that a government or economic development body can create a viable hub of economic activity in a specific industrial sector by bringing in businesses, suppliers, researchers, and additional related people or entities. In other words, a focused governmental effort can create something from nothing, turning, for example, a fallow field into a tech park bursting with highly competitive, innovative companies. Governments all over the world have invested millions—sometimes billions—of dollars to attract industries they consider strategic. The trouble is that clusters engineered from the top down don't usually work. I am hard-pressed to find a single example that has proven an unqualified success because of government intervention or the advice provided by economic development experts. They all talk about how great things will be, one day in the future, when they succeed in attracting venture capitalists to the area. But central planning rarely spawns innovation in free economies. Even in China, where the government has been able to transform slums into economic marvels, regional governments that spent billions on building semiconductor technology clusters have ended up with outdated fabrication facilities and massive oversupply. Not that regional innovation-based economic development is impossible. It's just that government officials and consultants put the cart before the horse. The best example I've seen of a region that has successfully pursued cluster development is the unlikely locale of the Thar Desert in Rajasthan, India. It wasn't the government that made the magic happen, but the region's ambitious entrepreneurs who prodded officials to follow their lead and team up with them. In a few short years, that group has turned the sun-blasted state once known for backwardness and poverty into an up-and-coming destination for top technology companies around the world. **Bakshi: Jaipur meets Silicon Valley**The largest state in India, Rajasthan came late to the technology revolution that has swept the country. In 2002, the Rajasthan state government banned the purchase of computers for personal use because, confusingly, it considered them "luxury items" and the state was experiencing a drought. That's right. Banned. Women were not allowed to work after sunset in any industry. The state's capital, Jaipur, had only 10 small technology businesses. Most of the state's businesses had little or no automation and made limited use of computers. Enter Naren Bakshi. A Silicon Valley entrepreneur, Bakshi grew up in Jaipur. He earned graduate degrees in engineering and business at University of California-Berkeley, worked for a number of multinationals, and then launched two technology companies in the U.S. before retiring to mentor entrepreneurs in both Silicon Valley and his native state. Bakshi believed that he could make a big difference by bringing modern management practices and technology to Rajasthan's entrepreneurs. To get the ball rolling, he arranged a meeting in 2001 between budding technology entrepreneurs and those from traditional industries as diverse as carpet manufacturing, jewelry production,

and mining. He encouraged them to work together to boost technology and entrepreneurship in the region. Bakshi laid out no priorities other than making smarter use of technology to drive innovation. There was no planning for a semiconductor or a biotech cluster. Rather, Bakshi hoped that by simply building a network of entrepreneurs and enhancing their global connections, good things would result. Excited by Bakshi's vision, the entrepreneurs banded together to educate the state government about technology and help craft more tech-friendly policies. In 2002, they started a chapter of an international networking group for entrepreneurs called TiE to expand their networks in India and abroad. Rajasthan's entrepreneurship boom

The results of this bottom-up economic development strategy have been impressive. Over a short period of time, Jaipur rose from nowhere to contend for technology companies looking for a home in India. Top Indian executives such as Anand Mahindra (vice chairman of Mahindra & Mahindra (MAHDY)) and Narayan Murthy (co-founder of Infosys (INFY)) got involved and helped educate the state government on how to make itself friendlier to technology companies and to technology in general. Officials, eager to improve the economic lot of Rajasthan, listened closely and made changes quickly. The state sent delegations to Silicon Valley to learn from the "gurus" of technology. The law I mentioned earlier forbidding women to work after sunset was altered at the request of Genpact (G), a business-process outsourcer that needed its employees to work 24/7 to service a global clientele. Rajasthan's government also started a campaign to train its senior bureaucrats on the use of technology. On a recent trip to Rajasthan I witnessed an entrepreneurship boom. At a TiE-Rajasthan networking conference this December, attendance topped 750, including more than 100 tech companies—many of which employed hundreds of workers. Over 200 college students skipped classes to attend. All the students I spoke with wanted to become entrepreneurs. They talked about tech companies they wanted to start, solving problems of infrastructure, developing new methods for agriculture, renewable energy, and so on. Everyone wanted to change the world. It wasn't just tech entrepreneurs and students who shared the dream. Many traditional industries are now employing modern IT practices in their operations. This has allowed them not only to compete globally, but to create innovative new business models. Consider Jaipur Rugs. In 2008, the company had annual revenues of \$21 million and became one of the largest handmade rug fabrication companies in India. Jaipur Rugs comprises six business units serviced by a huge workforce of 40,000 independent contractors who weave rugs in their homes but tap into the company's supply chain networks for wool, as well as quality-control methodologies. The company achieved compound annual growth rates in the mid-double digits over five years when it implemented ERP systems to manage all its complex operations. These systems are equivalent to the best used by mid-sized Western companies. Jaipur Rug's use of technology has not only meant more profits, but more work for contractors, many of whom are women or heads of families that previously languished in poverty.

big government support, too

Some of India's largest technology companies, including Infosys, Wipro (WIT), Genpact, and Tech Mahindra (TECHM), and financial institutions such as Deutsche Bank (DB) have since located operation hubs in Rajasthan. The region is home to a massive new economic development zone called Mahindra World City that includes companies from an array of industries, including technology, automotive, financial services, and light manufacturing. Mahindra World City opened in 2006, the result of a \$2 billion investment by Mahindra & Mahindra and the Rajasthan government. When fully functional in eight years, the investors expect that 100,000 people will be employed and companies housed there will create roughly \$3 billion in annual exports. Of course, to say that all this development was driven entirely bottom-up is not entirely fair. The government is in the process of building a 100-kilometer ring road that will make it much easier to move around Jaipur, and a rail line is in the planning stages. State and national governments have financed big upgrades to the electrical grid, as well as big buildouts of bandwidth infrastructure. But none of this would have been possible without the push from the bottom showing the way. A regional economic planner would likely have decided Jaipur should specialize in one sector, tried to create an ecosystem to support that sector, and watched the attempt fall flat when central planning methodology failed to keep up with rapid changes in the markets. Great regional development acts like water. It finds its own path. But it requires people with the insight to tap the right well. That's where entrepreneurs who know the scene come in. They can usher in innovation that can even make a desert dinosaur like Rajasthan flourish.

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