

The Chinese Can INNOVATE-

But China Can't

By Vivek Wadhwa

China produces more than a million engineering graduates a year—seven times as many as America. It is second in academic publications to America and by 2015 will file more patents annually than America. China has already invested tens of billions of dollars in research and has labs and infrastructure on par with the best in the world. Its government is focused on building an innovation economy and will do whatever it takes to leap ahead—even if that means stealing technology from the West.

So you would expect that China is destined to become the innovation capital of the world.

But the innovation is not happening. Governments can build infrastructure and pump money into education and R&D, but they cannot manufacture innovation. Innovation comes from creative people who challenge authority and take risks—who exchange ideas and experiment at the fringe. This is not possible in China. And its government's efforts are hampering innovation rather than fostering it.

The output of its engineering colleges is one example. My research team at Duke University dispelled common myths about China and India's engineering-education advantages in December 2005. The definition of

“engineering” was itself suspect. Some “engineers” were auto mechanics or technicians, for instance. From 1999, China has made a concerted effort to dramatically increase its output of what it calls engineers, but their skills are so poor that the vast majority become bureaucrats or factory workers.

China's patents and publications are equally questionable. Research grants usually go to the most connected professors and to those who can offer kickbacks to mid-level government officials. Chinese patent examiners are paid more if they approve more patents. Consequently, they routinely approve even the most dubious filings. Chinese academics, companies, and

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individuals have strong incentives to patent worthless ideas. With more patent filings, professors gain tenure, workers and students gain residence permits to live in desirable cities, corporate income tax is reduced from 25 percent to 15 percent, and companies win lucrative government contracts. The reward does not come from innovation but from the act of filing a patent application—it's all about increasing the numbers.

As a result, a vast number of China's academic papers and patents are plagiarized or irrelevant. These are nothing more than landmines for foreign corporations—over time, they will be used to extort fees and to lock others out.

Then there is the negative effect of copying and stealing technology. It creates a disincentive to innovate. Why experiment and risk failure when you can duplicate something that works? You see this on a large

scale with Chinese cars, technology companies, and consumer products. They are all knock-offs of Western products. The assistance the government provides with stolen technology only encourages more imitation.

To be fair, China's companies have perfected the art of incremental innovation and localization—they can take Western products, adapt them to local needs and develop nifty new features. Chinese companies also excel at managing supply chains and optimizing manufacturing processes. But none of this is the ground-breaking innovation that creates new industries.

It's not that Chinese people aren't innovative. My research team documented that Chinese immigrants have founded 12 percent of Silicon Valley's start-ups and contributed

to 17 percent of America's global patents. Visit any research lab at top American universities and businesses, and you will find legions of Chinese researchers and scientists in senior positions. These people thrived when they came to the West because of the freedom they gained to take risks and break rules.

The Chinese students I have taught at Tsinghua University and mentored from other schools, like Fudan and Peking universities, are also no different from those I teach at Duke, Stanford, and UC-Berkeley. Whereas the children of the Cultural Revolution—who now work in government research labs and lead the state enterprises that dominate industry—learned not to challenge authority and to play strictly by government rules, the new generation knows no bounds.

The problem for this new generation and the start-ups that emerge from Chinese universities is, however, the same as that faced by foreign companies trying to enter China: a system that is rigged in favor of state corporations and companies connected to government officials. Entrepreneurs live in fear of having their ideas stolen by larger players and the government. They do not readily share ideas or build the networks that foster the type of innovation you see in Silicon Valley. And they have to stay below the radar so as not to attract too much attention and have demands placed on them by corrupt government officials. The system is geared to making favored players successful while ignoring the real innovators.

Yes, there are a few successes emerging from China, such as Xiaomi, a consumer electronics company. But these are the outliers. China is simply not fulfilling its potential as an innovator and will never do so as long as the government remains involved. **N**

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