China’s Competitiveness
 Myth, Reality, and Lessons for the United States and Japan

CASE STUDY: Lenovo

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By Nathaniel Ahrens and Yu Zhou

Case Study Introduction

The growth of the Chinese economy, particularly in the last 20 years, has been staggering. Until recently, most of this growth had come from producing labor-intensive, low-value-added goods. Today, however, Chinese competitiveness is no longer confined to lower-end production. In fact, Chinese policymakers are laser focused on helping Chinese firms move up the industrial value chain. Moreover, policymakers have made explicit the goal of assisting the international expansion of Chinese firms in a desire to “go global” and have made efforts to build internationally recognizable brands commensurate with China’s growing global clout. These policy goals have at times struck decidedly nationalistic and protectionist tones, raising concerns globally in both corporate and government sectors. Government encouragement of international expansion is also driven by the desire to reduce China’s foreign exchange reserves, which have become a subject of heated domestic and international criticism.

Now, a number of Chinese companies have emerged to challenge traditionally dominant international firms. This overall study looks at the cases of five such firms, examining the factors that led to their rise, their current state of competitiveness in relation to their international peers, and the policy implications. It is not meant to be an academic discussion of the nature of competitiveness, nor an investment analysis with latest-quarter data—all these companies are growing rapidly and present moving targets. We take a relatively straightforward approach to what it means to be competitive, looking at traditional metrics of corporate performance such as sales growth, profitability, and market share trends and comparisons over the last few years. We acknowledge that individual companies may determine competitive success differently and over varying periods of time; some are more market driven and concerned with quarterly results, while others may be less concerned with the short-term traditional indicators of success.

Market involvement by the Chinese government may also result in misleading competitiveness indicators. Firms may be more concerned with initial market share gain than with near-term profitability. While this is not an atypical strategy for new market entrants, government policies can play an outsized role in encouraging this type of strategy when viewed as part of the competitive landscape. Since long-term success is a flexible concept that is difficult to measure, we are focusing on the current competitiveness of these firms. But in doing so we are also investigating the factors that led to the rise of these companies and
the likely sustainability of these competitive advantages. We also examine the influence of government policies on competitiveness and their longer-term implications. Finally, we look at the relationships these companies have with the United States and Japan to give an indication of the interconnected nature of their operations and history.

About Lenovo

Lenovo Group Ltd. is a $21 billion personal technology company serving customers in more than 160 countries. It is the largest personal computer (PC) vendor in China and the second-largest in the world, having recently surpassed Dell. Some recent data has Lenovo already taking the top spot from HP, which it will likely do in definitive manner by the release of its next annual report. Formed by Lenovo Group’s acquisition of the former IBM personal computing division, the company develops, manufactures, and markets technology products and services. Lenovo’s business as a producer of PCs, mobile Internet devices, and mobile phones is built on product innovation, a high degree of localization and customization in each country, a highly efficient global supply chain largely based in China, and strong strategic execution. Its product lines include Think-branded commercial PCs and Idea-branded consumer PCs, as well as servers, workstations, and a family of mobile Internet devices, including tablets and smart phones. Lenovo has research centers in Yamato, Japan; Beijing, Shanghai, Shenzhen, Xiamen, and Chengdu, China; and Raleigh, North Carolina. Its strong showing internationally has been made possible by its dominant market position in China. It also benefited tremendously from its legendary and charismatic founder, Liu Chuanzhi, known as the “Godfather” of China’s information technology (IT) industry.

Lenovo’s Rise

Lenovo got its start in Beijing in 1984 as the New Technology Development Company (NTD Co.) of the Institute of Computing Technology (ICT) of the Chinese Academy of Sciences (CAS).\(^1\) The company is considered a pioneer of Chinese market reform in the science and technological sectors. It was founded in 1984, initially not so much to create an internationally competitive high-technology enterprise but to generate income from the IT market to ease the major shortfall of government budget allocations, which had been the sole of funding for ICT and CAS. This was the time when many research institutes and universities in Beijing were setting up institute-sponsored companies. They were designated as “guoyou

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\(^1\) Much of this historical background relies on the excellent and comprehensive study of Lenovo’s early years presented by Qiwen Lu, *China’s Leap into the Information Age: Innovation and Organization in the Computer Industry* (Oxford: Oxford University Press, 2000), 63–103; and Yu Zhou, *Inside Stories of China’s High-Tech Industry: Making Silicon Valley in Beijing* (Lanham, Md.: Rowman & Littlefield, 2008). Lu includes fascinating details such as NTD Co.’s attempts to sell roller skates as an initial source of revenue. Zhou (pp. 33–62) has a more updated analysis including new material from Chinese sources and analysis about Lenovo’s commercial success in the IT international contexts.
minying" companies, literately translated to “state-owned, people-managed” companies. They were “state-owned” in that the majority or sole ownership of their state-owned mother institutes, and “people-managed” since they had full autonomy in management and personnel decisions, given that the mother institutes only provided limited start-up capital. Guoyou minying companies were very different from the typical state-owned enterprises, which had no such autonomy but expected the state to cover their losses. In English, they are often referred simply as nongovernmental companies. NTD Co. and its 11 founders were loaned RMB 200,000 as start-up capital, with the knowledge that further funding would not come from ICT or CAS, but that the company could use ICT’s name and its resources, both “tangible and intangible,” while retaining operational independence. ICT also continued to pay meager base salaries to its employees, which amounted to less than RMB 200 a month at the time (less than $30 at then-prevailing exchange rate), and allowed the employees from ICT continue to have access to ICT housing and health benefits. Together, the arrangement reduced the risk inherent in the startup. In a sense, these research institutions became an alternative form of venture capital investors for newly founded enterprises.

The company’s first technological innovation was derived from ICT researcher Ni Guangnan, who developed a Chinese-language add-on card. The company soon gained a 50 percent market share in this technology, and followed up with the commercialization of other ICT-developed technologies. The name of the add-on card—Lianxiang—remains the Chinese name of Lenovo to this day. In 1988 the company took on a small manufacturing firm, DAW, as a joint-venture partner, and subsequently added China Technology as a financial partner, due to China Technology’s powerful shareholders: Bank of China, China Everbright, China Resources, and China Patent Agent HK (where NTD Co.’s general manager, Liu Chuanzhi’s, father was chairman and general manager). The expansion to Hong Kong was a crucial step. It allowed NTD Co. to raise capital in Hong Kong and overcome Lenovo’s early inexperience in the global IT industry with a more international partner. In 1988 the company was reorganized into Legend Computer Group Co. Now acting in the name of its Hong Kong headquarters, Legend built a motherboard factory on the Mainland. As a foreign (Hong Kong) investor, Legend benefited from China’s favorable policies for attracting foreign investment, and avoided the regulations of PC production, a not-so-unusual “curveball” method used by many Chinese firms.

In the early 1990s, Legend was the largest among several domestic PC makers, but all the domestic companies trailed substantially behind AST and Compaq in China. In 1992 tariffs on imported PCs into

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2 Lu, China’s Leap, 65.
3 See Zhou, Inside Stories, 37–43.
4 Lu, China’s Leap, 77.
5 Zhou, Inside Stories, 51. Liu called the merger “the cripple carried the blind.” Legend is the blind person who was ignorant about international industry, and DAW is the “cripple” because it did not technical resources.
6 Zhou, Inside Stories, 52.
7 Lu, China’s Leap, 69.
China were reduced and import quotas were eliminated. At this point, foreign PC makers had a distinct price advantage over Legend, as foreign firms typically produced over 1 million units a year, allowing reduced input prices and the spreading of labor costs across a large number of products. As a result, there had been a considerable setback for the market shares of Chinese domestic PC makers. Many minying (people-managed) companies, Legend included, became sales and distributive representatives of American and Japanese computer companies in China. But this period was very beneficial for Legend as it acquired both technical and management expertise from its Hong Kong operation and from its foreign partners such as HP. Much of this success can be attributed to the unique mix of operational autonomy and state intellectual property resources, yet Legend’s strategic management choices in the early days also turned out to be effective. Lu Qiwen quotes Liu Chuanzhi as saying:

We found that the computer market was visibly divided into high-end and low-end products. The high-end products were mainly made by large US corporations. . . . The low-end product market was basically taken by Taiwanese companies. . . . We felt that the technological capability at ICT was strong. . . . However, were we able to compete directly with the world’s best in areas such as super-computers or mini-computers? Definitely not. But with our best Chinese team, we could compete in the low-end of the high-tech products. ⁸

This is what Lu calls the “horse race” strategy, referring to a Chinese parable that demonstrates the benefits of putting one’s best horse to race against the second-best of the opponent, the second-best against the opponent’s third-best horse, and one’s worst horse against the opponent’s best, resulting in two wins out of three. ⁹

While this strategy changed as the company grew, it was an effective way for it (and other similar firms) to enter a developing market. Legend started to build its advantage over foreign companies as it developed domestic Chinese sales, distribution, and service networks for Apple, Toshiba, Canon, Sun, and IBM, among others. During the 1980s and 1990s, the Chinese government restricted foreign companies from establishing distribution and retail operations in China so that foreign companies had to use Chinese firms to sell and service their computers. This was advantageous for Chinese companies such as Legend as they started to build extensive distribution channels as the Chinese PC market began to grow rapidly in the 1990s. Legend also introduced its self-branded PC in China in an effort to move up the value chain into systems integration. In a few short years, Legend overtook the state-owned Greatwall as the largest PC brand in China. ¹⁰ Legend’s advantages over Greatwall became apparent right after the Chinese government started to reduce trade barriers. Greatwall produced its own computer system, and since it was sheltered by protectionist policies prior to 1992, it had a near monopoly in the Chinese market. When

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⁸ Ibid., 79.
⁹ Ibid.
¹⁰ Ibid., 88.
the tariff was lowered, Greatwall’s PC products were more expensive, less reliable, and less user-friendly than those of foreign brands, and quickly lost market share. Most of Legend’s profits at that time came from selling foreign brands, with a smaller portion originating from the sales of its own brand of PCs. Compared with other minying computer companies such as Founder and Stone Inc., Legend put the most effort into building a nationwide distribution network. Founder’s main business was in laser publishing, which earned it handsome profits from state publishing houses, so investment in PCs had a lower priority. Stone Inc. was hit both by the strategic error of failing to shift quickly from electronic typewriters to PCs and by political trouble caused by its founder, Wan Runnan’s, vocal support for the student movement in 1989.11 Over the next few years, Legend’s PC marketing business gradually overtook its add-on card business. However, its own brand still trailed foreign brands until 1996. It was listed in Hong Kong in 1994, with CAS still holding a large percentage of ownership.

Lenovo’s strategy was firmly rooted in the belief that “two things are fundamental for an enterprise. One is a manufacturing base, the second is a distribution channel. The president explained: ‘No matter how low the profit margin would be, manufacturing was indispensable for any product.’”12 In fact, Legend reduced the prices of its PCs in 1995 by 30 percent to just above cost.

Lenovo’s PC strategy also focused firmly on localization and on the consumer market.13 While many foreign PC firms were used to having users customize their own PCs, Lenovo brought localized solutions to end users, in terms of local software and assistance with Internet connectivity. IBM and Compaq were focusing more on the traditionally more profitable and less customization-focused business segment.14

The decisive change happened in 1996–97. At the time, China’s PC market was still small compared with those in more developed countries. In 1995 China’s PC shipment was 1.2 million units, compared with 21.3 million units in the United States and 5.5 million in Japan.15 American and Japanese companies did not bother to bring the most up-to-date line of PCs into China given the low incomes of Chinese consumers. At that time the most prevalent PC in China was always one generation behind the global market. Since operations in China ranked low in the hierarchy of priorities for foreign companies, most companies did not pay close attention to China, even as the market was on the verge of major changes. This provided an opening for Legend. In 1996 Legend slashed its prices four times to just above cost while introducing the latest central processing unit in its model. Legend was the first Chinese company to dare to order from Intel, so it was able to negotiate a good price. It was, however, essentially a gamble on

11 Wan went to exile after June 4 1989, and Stone managed to survive.
12 Lu, China’s Leap, 96.
15 Zhou, Inside Stories, 53.
Legend’s part. In the end, this gave Lenovo a dramatic market gain and propelled the company to a position as the top PC seller in China, a distinction it has maintained to this day.

Legend’s competitiveness in China in the mid-1990s had to do with its better understanding of and faster response to the local market, as well as a system of distribution channels more comprehensive than its foreign rivals. It also benefited from the maturing of supply networks in China’s coastal provinces in the 1990s. As foreign entrants moved manufacturing to China, this lowered the cost for component parts for Legend. Legend was cost-competitive with the larger companies, and was willing to pursue a low-margin and low-cost approach to target the “bottom of the pyramid” in the market. During this period, Lenovo also developed innovations in more customized solutions for end users, which further solidified its position over its Chinese rivals.

In 1998 Legend produced its 1 millionth PC, which Intel chairman Andy Grove actually brought from Beijing to Intel’s PC museum. By the end of 1998, Legend had a China market share of 17.9 percent, and ranked third in the Asia-Pacific region, excluding Japan. At the end of the next year, Legend’s market share had vaulted to 27.3 percent in China and to first place in the Asia-Pacific region, with 9.1 percent, ahead of former leaders IBM and Compaq. Legend still had its domestic rivals such as Founder, but none of these had as extensive distribution channels, nor were they as focused on the PC market as Legend.

The story of Lenovo’s early history as Legend illustrates how the Chinese efforts to reform the state system unlocked the potential of the significant scientific resources that were in the state research institutions and connected them to the market. It also represents the rapid learning of Chinese companies, which emerged during the 1980s but had grown out of a centrally planned and internationally isolated China. Over the short span of a decade, they managed to acquire considerable expertise in the manufacturing, management, and marketing of high-technology products and thus to become competitive with international rivals in a relatively open market.

The Chinese government offered tangible and intangible support for these start-ups by reducing their risk and encouraging Chinese institutions and consumers to purchase high-technology products. Prior to 1992, there were also early benefits provided by the Chinese government in the form of distribution and

16 Author interviews, Beijing, August 2012. Former employees who were present at the time of this deal stressed that this was truly a gamble.
18 Rukstad, Technology Legend, 7.
20 Yigang Pan, Lenovo: Countering the Dell Challenge, Asia Case Research Centre, Case HKU35 (Hong Kong: University of Hong Kong, 2005), 7.
21 Ibid., 8.
ownership restrictions, quotas and tariffs on imports, and other related trade restrictions designed to encourage the development of a domestic industry. The effects of such restrictions, however, were controversial, as they benefited state-owned companies such as Greatwall for some time, but this protection ultimately undermined the competitiveness of the state-owned enterprises. Once the tariff was reduced, their market share evaporated. For minying companies, the incentive to compete combined with flexibility and independence allowed them to respond rapidly to state policy changes and look for the best opportunities. It is also important to acknowledge that in the 1980s and 1990s, China’s underdeveloped commercial environment, vast and complicated geography, and stark cultural, social and political differences from major developed markets also created formidable penetration barriers for newly arriving foreign companies. The aggressive domestic companies proved far more able to adapt to the situation, bringing to mind a Chinese proverb: “A powerful dragon would have a hard time defeating a local snake.”

Minying companies such as Legend also took on considerable political, not just commercial, risks in the 1980s. As China only emerged from Mao Zedong’s regime in the 1980s, there was a deep suspicion among both those in the government and the public about private businesses and the economic climate was highly uncertain. In addition, the 1989 student movement and the subsequent crackdown also took heavy toll on many minying companies in Beijing. Legend was a survivor of this political turmoil thanks in no small part to Liu’s astute leadership. A good example is Legend’s shareholding structure. Despite the fact that ICT provided only RMB 200,000 for seed capital, which was soon lost in Legend’s early stumbles, and the fact ICT or CAS were hardly involved in Legend’s operations, Liu designated a large majority (65 percent) of Legend’s shares to CAS in 1994, while retaining 35 percent for the employees and 3 percent for himself. At the time, shareholding companies were unheard of in China and bonuses for shareholders were nonexistent. Yet, this arrangement and Liu’s moderate personal share in particular pleased CAS so much that it backed Legend in its subsequent expansion into Hong Kong. It took another seven years for Liu to formalize this shareholding structure. The clarification of ownership facilitated Legend’s later restructuring and smoothed its way to become a full-fledged public firm. In contrast, almost all other Chinese minying companies were later embroiled in bitter struggles over shares between the founders and respective mother institutions. The shareholding wars became so vicious and intractable that the Chinese government soon lost interest in encouraging the conversion of state-owned companies into private companies and even banned the practice later. Legend remained almost singular in China’s IT industry in adeptly handling the thorny issue of conversion, which had torn many others apart. Even more

22 Stone, a leading PC company in Beijing, which has long been a peer of Legend, suffered almost fatally due to its open support for students.
23 At the time, the concept of shareholding did not exist in China, so Liu called it bonus share, meaning that CAS has the right to allocate 65 percent of profit from Legend. It was only until 2000, this designation was converted to formal shares.
miraculously, it managed to privatize the company without offending CAS and thus continued to stay in the good graces of the Chinese government. Those who claim that the share structure of Legend Holdings makes the company appear to be state-owned need to be aware of the unique origin of Lenovo’s shareholding structure and of Liu’s foresight, skills, and patience in navigating a very difficult political transition.

After the accession of China to the World Trade Organization (WTO) in 2001, however, Legend was thrust into a much more competitive environment. Despite the lifting of quotas and easing of tariffs, the main advantage that the government conferred upon Legend at the exclusion of its international rivals was the right to run distribution and service networks. This would end with WTO accession. Faced with this critical juncture, Legend had a choice to either go global or stick with the domestic market. Liu was initially highly reluctant to go global, as he had been deeply influenced by the failures of the internationalization of some major Taiwan PC makers such as Acer. Reflecting on their history and examining their core competencies, Legend decided to stick with the local Chinese market for the near term to midterm.25 This helped solidify its status as the clear leader in China, so as it later started to focus more on international markets, the domestic market served as a solid financial foundation and launching pad.

When Legend’s domestic market share reached about 30 percent in the early 2000s, it realized that further expansion would be very difficult given the stiff competition. Legend started to look more to international markets. In 2003, the company realized that the Legend brand name was already taken internationally, so it rebranded itself as Lenovo. Lenovo made its first big splash internationally as a global Olympic sponsor, and then truly made its presence known on the world stage in 2004 with its $1.75 billion purchase of IBM’s ThinkPad PC business.26 For Legend, this was an exciting step. In 20 years, Lenovo had gone from 11 former state researchers trying to find a product to sell to the owner of the business division that invented the PC, becoming the world’s third-largest PC company. More than status, the acquisition allowed Lenovo to globalize with a well-established brand that it had permission to use for five years, and with established global market channels and corporate contracts. In addition, its purchase of IBM came with leading international PC research-and-development (R&D) operations as well as globally experienced managers and employees (see below for more details).

However, the risk was also very high. If IBM’s PC business failed to become profitable, and worse, if Lenovo was not able to uphold the prestige, quality, and service of the Think brand, that could be devastating to Lenovo. Given that Lenovo was unknown in the United States and that made-in-China products have a dubious reputation, all these negative outcomes were quite possible. Liu was known to confide to his subordinates that if the acquisition turned out to be unsuccessful, it could easily destroy

26 This was Olympic sponsorship announced in 2004 for the 2006 and 2008 Olympics.
Lenovo. One of the chief challenges is that Lenovo had no experience running a transnational company. Yang Yuanqing, Liu’s protégé and the former CEO of Lenovo China, became the chairman of the board of Lenovo global and moved to Westchester County, New York, to assume responsibility for the global operation. Between 2004 and 2008, Lenovo North America made few structural changes to IBM’s existing PC operations and used mostly veteran PC managers, many from Dell, to run its global operation. This was a learning period for Lenovo, as its Chinese personnel became gradually more integrated into the operation. After an initial period of stabilization, Lenovo suffered major losses in market share and profit between 2008 and 2009. But the situation turned around after 2010 (see below). Most recently, through the acquisition of Germany’s Medion AG, Lenovo has overtaken Dell to become the world’s second-largest PC company by market share, just behind HP.

Shareholder Composition

As of March 31, 2012, Lenovo Group Ltd.’s shareholder structure was as follows: 57.81 percent public, 33.58 percent owned by Legend Holdings Limited (Lenovo’s parent company and the asset management unit of the Chinese Academy of Sciences), 8.36 percent owned by Yang Yuanqing, and 0.25 percent owned by the directors.27 CAS held a 65 percent stake in Legend Holdings in 2009, making CAS the largest shareholder of Lenovo, with a 27 percent stake—see above for an explanation—but it sold 29 percent of its Legend holdings to the Beijing private investment firm China Oceanwide Holdings Group. This was part of a plan to bring in an investor with more corporate and market expertise and to shift holdings in Legend from a state-owned structure (i.e., away from CAS) to more market-oriented companies.28 Lenovo was also in need of cash at the time.

In 2010, the private equity firms Texas Pacific Group Capital, General Atlantic LLC, and Newbridge Capital LLC together held 2.8 percent of Lenovo’s shares, which they sold. The firms played a significant role in Lenovo’s 2004 acquisition of IBM and its global expansion and were gradually exiting, previously holding 6.6 percent of shares in 2008. After the 2004 acquisition, IBM initially held an 18.9 percent stake, but in 2008 the company sold enough of its shares for its holdings to fall below 5 percent.29

Current Strategy

After its acquisition of IBM’s PC operations, Lenovo’s strategies were largely conservative, with the goal to strengthen the corporate business that IBM’s PC sales relied upon. This strategy helped Lenovo to

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stabilize and gain name recognition in the American mainstream market, but it suffered considerable setback in 2008–9 as corporate purchases retreated. Yang invited Liu Chuanzhi back in 2009 to be the chairman of the board to oversee Lenovo’s global operations (Liu had left the PC operation to concentrate on investment finance at Legend Holdings). Liu turned Lenovo around in two years into a profitable and expanding business. He resigned from the board in 2011 to return the post to Yang. It appears that Lenovo did not adopt any radical new strategies after facing its loss in 2008–9. Instead, it has tried to strengthen the areas in which it has already made significant investment or had success. What seems to have improved is the overall management of the company. There is a growing effort toward emerging markets as detailed later. They also took better advantage of the recovery of the North America corporate PC market than its rivals.

Source: Company documents.

Lenovo adopted a “protect/attack” strategy for 2011–12 (as articulated by corporate documents):

- continue to expand its lead in PC market share in China and grow its share in the commercial sector with servers and workstations; continue with the launch of consumer and commercial tablet computer lines;

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30 Much of the detail on Lenovo’s acquisition of IBM’s PC operations its and postacquisition development is given by Xiaoping Zhang, *Zai Lianxiang: Lianxiang Guojihua Shinian* (The world is thinking Lenovo) (Beijing: Industrial Automation Publishing Company, 2011).
expand share gains in mature markets through the home/SMB (small and medium-sized business) and retail channels;

• grow mobile Internet presence globally;

• drive convergence with cloud devices, attractive apps, aiming for the best user experience; and

• reach 10 percent share benchmark in emerging markets’ key countries, with a focus on SMB/consumers.

For the period 2012–13, Lenovo will retain its “protect/attack” plan and supplement it with a new strategy that company documents call “PC+.” This refers to expanding focus beyond Lenovo’s core business of PCs to other technologies, most notably mobile Internet and digital home.

Competitiveness Indicators

One straightforward way to compare Lenovo’s current competitiveness with that of its peers is to look at its recent performance in terms of market share, sales, and profitability. Lenovo currently has the second-largest global market share of PCs and year-on-year sales growth at 30 percent, but its profit margins lag behind those of its peers.31

Market Share

At the end of 2011, Lenovo ranked as the second-largest PC manufacturer by market share. It jumped ahead of Dell, and new reports claim that its sales have overtaken HP’s. Its global share has been rising while those

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31 The figures used in graphs and tables are based on company documents unless otherwise noted.
of Dell and HP have been shrinking. The research firm Gartner stated in its first-quarter 2011 report that Lenovo showed the strongest growth (16.6 percent) of the top five global PC vendors (HP, Acer, Dell, Lenovo, and Toshiba). Most analysts predict that Lenovo will surpass HP. Some recent estimates place Lenovo at 0.2 percent behind HP in terms of market share for PCs, and according to Lenovo’s most recent figures, it has surpassed HP.

In fiscal year 2011–12, Lenovo recorded a record increase in its market share for mature markets. It managed to secure a market position of 8.7 percent even as the industry as a whole declined in mature markets. In emerging markets, its share is 7.2 percent. Lenovo is surpassed its target benchmark of 10 percent market share in India with a market share of 13.0 percent. Its growth in Russia is especially strong (shipments up 88 percent), India (up 58 percent), the members of the Association of Southeast Asian Nations (up 43 percent), and Latin America (up 15 percent).34

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In China, Lenovo still holds a commanding lead. It is the largest PC vendor in China (1 of every 3 PCs sold in China is a Lenovo, and its market share is more than three times that of its closest competitor). China represents 42 percent of Lenovo’s global revenues.

In Japan and the United States, Lenovo’s market share is relatively small, but its sales growth is increasing and its recent joint venture with Japan’s NEC should help increase its Japanese market penetration, with estimates at 25 percent market share for 2011.

Source: Company documents.

Lenovo’s U.S. market share is at about 6 percent, which it aims to raise to 10 percent in the next few years.\textsuperscript{37}

![United States Market Share (2011)](image)

Source: Company documents.

**Sales**

With Lenovo’s market share rapidly overtaking that of its competitors, its overall revenue and sales growth have also been climbing. In fiscal year 2011, it had sales of $21.6 billion, representing a year-on-year increase of 30 percent:

![Revenue by Product Q4 FY2011](image)

Source: Company documents.

\textsuperscript{37} Cave, "Lenovo."
• Shipment growth of 28.2 percent worldwide;
• In mature markets, increased profitability by $143 million, with year-to-year shipment growth of 27.4 percent;
• China shipment growth of 22.2 percent, driven by performance in emerging cities;

• Biggest growth in shipments coming from emerging market shipments, with a year-on-year growth of 50.1 percent (excluding China);
• Fastest growing of top five PC manufacturers for the sixth quarter in a row;
• Growth outpaced the worldwide PC market for the eighth straight quarter; and
• Year-on-year sales growth of 25 percent for desktops and 24 percent for notebooks.

Source: Company documents.
Profitability

Lenovo’s profits and margins, however, significantly lag behind those of its peers. In the second quarter of 2011, HP reported a profit of around $1.93 billion and Dell $890 million, while Lenovo’s profit was a mere $108 million. The company has stated that it will shift focus from growing market share to increasing profits in mature markets.38

While Dell and HP maintained relatively stable gross margins despite poor economic conditions, Lenovo suffered two consecutive negative shocks in 2009 and 2010, reflecting different corporate priorities. While Lenovo saw a dramatic increase in profits per unit sold in 2008, subsequent years followed the trends of gross margins with negative or diminished results. Its operating margin fell by nearly 150 percent in 2009 but quickly recovered in 2010 with a 200 percent increase, followed by a modest upswing in 2011.

Lenovo’s competitors essentially maintained or improved operating margins, though Dell saw a fall of around 20 percent in 2010.

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Lenovo’s net profit margin fell in line with the operating margin for all companies, with Lenovo suffering significant losses in 2009, followed by notable improvement. Yet Lenovo’s results still lagged those of its international peers. The lower priority on profit margins may in part reflect the overall corporate culture of Lenovo, as the company had its roots in emphasizing market share over profitability during its early stage of growth in China. It is also in part structural, given that Lenovo’s business in mature markets concentrates on PCs while other rivals have more diverse operations with higher profit margins. Since PCs have now become a low-margin business, it is unlikely that this pattern will change substantially for Lenovo.

However, the Chinese experience with a low-price and high-volume approach may position Lenovo better in emerging markets with similar market conditions. Its willingness to accept lower margins made Lenovo vulnerable when its operations in profitable markets suffered. The recovery, however, shows that Lenovo likely streamlined its operations and improved management capacity, both in China and abroad.

**Research and Development**

While Lenovo’s overall R&D budget is dwarfed by those of HP and Dell, as a percentage of revenue, it is quite significant. HP’s budget has been shrinking as a percentage of revenue, while Lenovo’s has been generally steady with a slight increase over the last year.
Competitive Advantages

Based upon the above indicators, clearly Lenovo is performing well. After a major loss in 2008–9, it has recovered with exceptional market share and sales growth. Its profit margin still lags, possibly reflecting its tendency of emphasizing market share and volume over profit margin. There is room for this to improve as its brand becomes more dominant and economies of scale increase along with market share gains. This margin upside may be limited in the near term, however. Its R&D expenditures also seem to point to a commitment to innovation in line with its international peers (as opposed to solely an unsustainable focus on price competition).

These comparisons should not overshadow one of the central achievements of Lenovo in the last decade: It has largely succeeded in internationalizing its operations and has absorbed the IBM Think brands. International acquisition has been a growing trend for Chinese corporations that has been actively supported by the Chinese government, but success in this area has been rare. Such attempts often face painful and prolonged cultural adjustments and end up in failure. The low success rate is hardly surprising given the fact most Chinese companies are young and have little international experience. Also, their Chinese founders and managers came of age under Mao’s internationally isolated regime. Lenovo was no exception. As a result of these disadvantages, Lenovo followed a cautious and conservative approach in absorbing IBM’s PC business. Despite the inevitably bumpy ride, it seemed to gain sufficient expertise and develop a solid management foundation to function smoothly in both mature and emerging markets.

The key advantages Lenovo has going forward are its China market base, its growth potential in the emerging markets in which it has had the most experience, the gradual solidification in mature markets,
and its focus on cost innovation. The restructuring of some of its key rivals also presents opportunities for Lenovo, especially since HP seemed to waver on its commitment to the PC business.\textsuperscript{39} Government support seems to play a negligible role in Lenovo’s ongoing competitiveness, as the PC market has been highly competitive in China since the 1990s. However, Lenovo will likely continue to enjoy favorable treatment from the Chinese government based on its status as one of the few successful cases in the internationalization of Chinese corporations.

\textit{China Market}

An early foothold in the rapidly growing China market has been and continues to be a critical advantage for Lenovo. This is manifested in:

- The leading role Chinese sales have had and should continue to have in Lenovo’s overall sales;
- A low-cost base not only for manufacturing but also for R&D, administration, design, and engineering;
- Proximity to the supply chain and the availability of skilled and mobile labor;
- High volumes and increasing economies of scale; and
- Internationalized R&D in North America and Japan, as well as in China.

The modularization of production has greatly benefited Chinese companies. Being situated in the heart of the “global factory” allows Chinese companies to produce and access parts at extremely high volumes and allows for customization at scale. For companies that also have dominant market share in China, the combination of economies of scale in manufacturing and strong domestic sales result in a firm foundation for attacking the global market. The Chinese PC market represents about 20 percent of global volume.\textsuperscript{40} A Credit Suisse analyst expects Lenovo to continue its domination of the Chinese market through its “strong brand following, product portfolio, and distribution advantages.”\textsuperscript{41} Furthermore, while Lenovo holds 34 percent of the large enterprise market in China, it has only 19 percent of the SMB market, leaving ample room for growth (in a commercial market that expects 13 percent compounded growth through 2015).\textsuperscript{42} The internationalization of R&D helped Lenovo to develop a more varied range of products based on different markets and allowed more sophisticated high-end innovation in developed markets.


\textsuperscript{40} Thompson Wu, “Credit Suisse Equity Report,” Lenovo Group Ltd., September 13, 2011, 3.

\textsuperscript{41} Ibid.

\textsuperscript{42} Ibid., 10–11.
Growth Potential in the Asia-Pacific Market and Beyond

Lenovo’s most promising area of growth remains personal computing products. Its growing dominance in the Asia-Pacific market should allow for continued expansion over its rivals. Lenovo can adapt its localized innovation strategy as it expands in other emerging markets, such as India (see the box below). Its joint venture with NEC will also give it economies of scale in Japan, where it claims 25 percent of the market. Credit Suisse estimates that shakeups at Acer and HP put 25 percent and 31 percent of their respective markets at risk to Lenovo. As market share increases in these countries to closer to 10 percent, economies of scale can be achieved.

Competition in India

- HP and Dell are in a close competition for number one spot in the India PC market. HP first entered India in 1989 when its major competitor was IBM. It quickly became the largest player in the market and held onto its lead until 2010 when it was replaced by Dell. Dell still retains the largest market share, although it has recently lost ground to both HP and Lenovo.
- With a falling market share in India in 2009, Lenovo ranked fifth, with 5 percent market share. By the third quarter of fiscal year 2010–11, however, Lenovo reported that its Indian sales had reached double digits for the first time, to 10.3 percent. In the fall of 2011 Lenovo overtook Acer and gained on HP and Dell.

Indian PC Market Share Estimates for First and Third Quarters of 2011 (Percentage of Shipments)

<table>
<thead>
<tr>
<th>Vendors</th>
<th>1Q11 Market Share (%)</th>
<th>Vendors</th>
<th>3Q11 Market Share (%)</th>
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<tr>
<td>1. Dell</td>
<td>16.7</td>
<td>1. Dell</td>
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<td>2. HP</td>
<td>12.1</td>
<td>2. HP</td>
<td>13.3</td>
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<td>3. Acer</td>
<td>11.9</td>
<td>3. Lenovo</td>
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<td>4. Lenovo</td>
<td>9.7</td>
<td>4. Acer</td>
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<td>5. HCL</td>
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<td>6. Others</td>
<td>42.5</td>
<td>6. Others</td>
<td>42.5</td>
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Source: Gartner (May 2011, November 2011).

Lenovo’s recent strategy for growth both at home and overseas has focused heavily on laptops. There are signs, though, that as consumer preference is shifting from laptops to mobile Internet devices, Lenovo is recalibrating its product focus. A clear expression of this is Lenovo’s recent establishment of the Wuhan Industrial base, an $800 million facility dedicated to mobile Internet devices.49

Cost Innovation

Zeng and Williamson use the term “cost innovation” to describe how many Chinese companies harness their competitive advantages.50 This theory seems to hold true for Lenovo. According to Zeng and Williamson, cost innovation refers to high-technology products at a low cost, large variety at a low cost, and specialty products at a low cost.51 The fact that Lenovo got their start in China has strategic significance as this provided a strong foundation from which to go global. Lenovo had low-cost design and R&D programs, low-cost manufacturing through its own and contract manufacturers (whose costs were brought down by foreign customers), and low-cost engineering and administration. Lenovo’s cost innovation and proximity to manufacturing allowed it to then focus on incremental and adaptive innovation, where it could provide highly customized products. Customization and adaptive innovation suits Lenovo well, as a company whose core competence has been on assembly and manufacturing.52 Zeng and Williamson use the example of Maytag’s failures to demonstrate what companies like Lenovo are doing so effectively:

Maytag’s problem was to equate innovation with increased sophistication. This meant Maytag used its R&D dollars to develop new, top-end products for the Chinese market and import a high-technology production line with a capacity of 1.2 million appliances per annum, virtually identical to those in its best US plants. In sharp contrast, its leading Chinese competitors . . . focused on cost innovation. Rejecting the idea that innovation is only about developing more sophisticated products, the dragons focused on using new technology to improve costs and increase variety, while maintaining keen prices.53

Lenovo focused its R&D on China when other companies focused on more developed international markets.54 It also has pushed forward innovations based on Chinese consumer preferences. Lenovo has the capacity for incremental and architectural in-house innovation to cut costs and appeal to specific markets, while building on the trends set by other industry leaders.55 The modularization of the supply

51 Ibid.
52 It is not clear whether this sort of adaptive innovation is a stage in a process of becoming more innovative or is a cul-de-sac where companies can continue to exist, allowing other companies to perform core R&D innovation.
53 Zeng and Williamson, Dragons, 151.
55 For definitions of incremental and architectural innovation, see Dieter Ernst, “Can Chinese IT Firms Develop Innovative Capabilities within Global Knowledge Networks?” East-West Center Working Papers Economics Series 94 (February 2008).
chain makes these innovations cost-effective, and the large size of the domestic market means that these customizations are still scalable. This strategy should continue to serve it well as it expands in the Asia-Pacific region.

Another key factor related to cost innovation is the tendency for international companies to focus on the “sunlit uplands.” As firms shift the focus away from the portions of their businesses with lower margins and less value added, volumes fall, which makes this unsustainable over the long term. R&D expenditures fall as they lose the scale that they once had. Zeng and Williamson explain:

> Chinese competitors, meanwhile, have the opportunity to share the costs of maintaining expensive R&D and development departments with volume segments. Manufacturing infrastructure can also be shared. And with fixed costs covered by mass-market volume, the Chinese can price down to margin cost if they decide to cherry-pick upmarket niches. . . . These dynamics mean that the relative cost disadvantages of retreating incumbents become ever greater as they move to successively smaller, higher-end segments of the market.

Lenovo’s rising R&D expenditures and the falling expenditures at HP (see the indicators given above) may be indicative of this phenomenon.

Although Lenovo continues to innovate while being sensitive to price, its tablets and ultrabooks are likely to continue to bring cutting-edge features at reasonable prices. And while its supercomputers and related R&D are being applied to commercial applications, like its 2007 cooperation with Formula One racing, its real focus is on the relatively low-cost applications of the fruit of this R&D. While Lenovo’s prospects in the PC sector are promising, substantial growth in manufacturing mobile devices is much more difficult, with far steeper competition. As a result, it is less likely that Lenovo will be able to maintain its tenuous lead in China’s mobile computing market.

56 Zeng and Williamson, Dragons, 11.
57 Ibid., 12.
**Lenovo versus Apple**

Apple Inc.’s combined revenues in China, Hong Kong, and Taiwan were $3.8 billion in the second quarter of 2011, beating Lenovo’s total China revenues. Apple’s key advantage came from its iPhone sales, launched just two years ago through a partnership with China Unicom (China’s second-largest mobile carrier).\(^58\) Apple benefits from being seen as a luxury brand in China, and analysts predict further growth for Apple as the company is expected to offer the iPhone 5 through both China Unicom and China Mobile.

Lenovo sees mobile devices as the next growth market, which should not be surprising, considering that China is likely to have the largest smartphone market in the world. Lenovo launched the LePhone in May 2010 in China as a competitor to the iPhone. Use of the Android operating system allows Lenovo to provide a smartphone at a lower cost than the iPhone. The LePhone also included designs made with the Chinese market in mind, such as using Baidu and Lenovo applications in place of Google applications. CEO Yang Yuanqing said Lenovo wanted to use the same strategy from its PC experience and first build market share in China before expanding globally.\(^59\)

The launch of competitors’ tablet computer lines, including Apple’s iPad in September 2010, weakened Lenovo’s sales. LePad launched in China in March 2011. Lenovo launched two new tablets that used Google’s Android technology to compete with Apple in the U.S. market in August 2011, as well as one with Microsoft’s Windows 7 technology in the fourth quarter of 2011.\(^60\)

Lenovo’s mobile devices experienced some initial success and had the largest share among Chinese domestic brands in 2009. Market share, while initially limited (less than 5 percent), is growing very rapidly, as recently Gartner reports that Lenovo’s share shot up to 14.8 percent, past Apple and almost to Samsung.\(^62\) Upstarts in China such as the Xiaomi phone may also continue to challenge or the low end of the market. Xiaomi only launched its phone in 2011, but has already developed a cult following and looked poised to outpace the iPhone in popularity in China in the first year of its existence.\(^62\) Additional major competitors are the Chinese telecommunication giants Huawei and ZTE.

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**Distribution Network**

Lenovo’s early days as a distributor of foreign PCs served it well as it rolled out its own brand. Pre-WTO accession, it was in the special position of being both the manufacturer and the primary distributor for its PC competitors. Lenovo invested heavily in setting up and maintaining its distribution network in China, which still gives it a distinct advantage in the Chinese market. According to Credit Suisse, Lenovo’s distribution channels in China are less fragmented than those in international markets.\(^61\) This creates greater barriers to entry for companies not already on the ground in China. Lenovo has extended its dominance in Chinese distribution, with 25 and 22 percent shares in PC stores and superstores,

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\(^{58}\) Estimates place Mainland China revenue at $3 billion for the quarter ending June 30, 2011. See “Apple Surpasses Lenovo Revenue.”


\(^{60}\) “Apple Surpasses Lenovo Revenue.”


\(^{62}\) See “Xiaomi Phone Almost Passes the iPhone to Become Best-Selling Phone in China This Year,” MIC gadget blog site, http://micgadget.com/19351/xiaomi-phone-almost-passes-the-iphone-to-become-best-selling-phone-in-china-this-year/.

\(^{63}\) Wu, “Credit Suisse,” 20.
respectively (a combined 34 percent of annual volumes), and 31 percent in local dealers (23 percent of
annual volumes).  

**In-House Manufacturing Specialization**

Lenovo focuses on in-house manufacturing specialization to lower its marginal costs, serving as a “one-
stop shop” with product lines covering mid- to high-end products. It has three manufacturing centers in
China, one in Mexico, and one in India.  

This approach to in-house manufacturing specialization brings Lenovo certain advantages. First, the
company’s domestic manufacturing operations have benefited from access to reliable suppliers in China’s
east coast industrial clusters. By 1993, Taiwanese companies that had dominated the global supply chain
of low-cost PC products had moved much of their production capacity to the Mainland, so Chinese PC
makers like Lenovo could set up factories in the same areas and buy components from Taiwanese
suppliers at a low cost compared to the global market.  

Another component of Lenovo’s success in the area is its use of the Vendor-Managed Inventory Model, or
VMI—a model used successfully by other companies such as Dell, as well as many Japanese firms. VMI is
a cooperative strategy between manufacturers and raw materials suppliers, where upstream enterprises in
the supply chain centralize management of inventory. Raw material suppliers must replenish production
every four hours, which means that they end up building or renting raw materials warehouses near the
Lenovo production plant. For key components and parts imported from foreign suppliers, the company
shortens customs clearance time by setting up e-commerce customs records to be cleared in advance and
establishing network systems between its warehouses and customs, with the help of China E-Port and
customs. Lenovo’s VMI implementation has improved logistical efficiency and cut down costs. After
more than a year of implementing VMI, Lenovo’s Shanghai manufacturing plant reduced its overall
logistics operation time from 30–100 hours to 3–5 hours and its inventory turnover period from 7–10
days to 0.5 days.  

**Labor**

Another key advantage is that savings on labor costs extend over the entire company, not just on sourcing
and manufacturing. Low-cost labor in China also includes R&D engineers and designers. According to

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64 Ibid.
66 Yu Zhou, “Synchronizing Export Orientation with Import Substitution: Creating Competitive Indigenous High-
67 Wu Feng, “Research on Value Creation of VMI Based on Competitive Advantage in Supply Chain – with Lenovo
as an Illustration,” paper presented at 2011 International Conference on Business Management and Electronic
68 Ibid., 588.
69 The Lenovo VMI information comes from ibid.
70 Ibid., 585.
estimates by Lenovo’s CEO, Yang Yuanqing, labor accounts for 2–3 percent of total costs, while key computer components accounts for 60–70 percent.71

Responding to rising labor costs in southern China, Lenovo announced plans to build inland factories in 2010, signing a deal with the Chongqing municipal government on October 29, 2010, to build a Lenovo West China Operation Center in the Chengdu Hi-Tech Zone. The facility had its groundbreaking on January 29, 2011, and when completed will house a variety of functions, including a production center designed for an annual production capacity of 10 million PCs; a marketing center to cover western China, Central and South Asia, and Europe; and an R&D center for 1,000 people.72 On May 7, 2012, Lenovo further expanded its operations into the interior of China with the announcement of its Wuhan Industrial Base, an R&D, production, and sales facility that represents an investment of nearly $800 million.73

As was the case of the development of China’s east coast industrial zones, as IT companies such as Lenovo, Dell, and Intel move to inland high-technology zones, their suppliers are moving with them. The Taiwanese company TPV Technology Limited—the world’s largest ODM LCD monitor maker, which covers 60 percent of Lenovo’s LCD monitor production—announced in May 2011 that it was investing $90 million in Chengdu to build a plant to handle 12 percent of that Lenovo production.74

Government Support

Government support now seems to play a very limited role in Lenovo’s comparative advantages. Government support in the early days to the whole Chinese PC industry was significant, but those advantages do not seem to have been targeted at Lenovo at the firm level. In fact, Lenovo had to deal with the same imported parts as did international companies, and Lenovo has been viewed by the Chinese government to a great degree as foreign. In the 1980s the Chinese government protected its domestic PC “infant industry” from foreign competition through high tariffs on foreign-made PCs. China’s tariffs on imported computer parts also allowed companies like Lenovo to generate revenue through trading imported computer parts between Hong Kong and the Mainland, since it could have an import permit to be exempt it from the tariffs.75

Still, Lenovo benefited from its official sanction and the government’s preferential treatment of technology companies. Lenovo’s foundation under the auspices of the Chinese Academy of Sciences allowed it to start with relatively low risk and relatively valuable assets. The company was able to be supported by the government and benefit from the state’s R&D support and yet operate independently, mostly free from government oversight.

73 “Lenovo Establishes Industrial Base.”
In 1988 Lenovo formed a joint venture in Hong Kong, a strategy used by Chinese companies to take advantage of the government’s preferential policy toward foreign investment and products, thus escaping the strict controls on resource allocation for domestic nonstate firms.\textsuperscript{76} China’s incentives for foreign direct investment in its special economic zones and industrial parks meant that foreign investors paid a nominal tax burden of 15 percent (still the preferential tax rate for the high-technology sector) and had an actual tax burden of 11 percent (after tax rebates, tax holidays, etc., were taken into account), while domestic investors paid 33 percent nominally and 23 percent actually.\textsuperscript{77}

\textsuperscript{76} Ibid., 2362.

\textsuperscript{77} Wanda Guo and Yueqiu Feng, Special Economic Zones and Competitiveness: A Case Study of Shenzhen, the People’s Republic of China, PRM Policy Note 2 (Manila: Asia Development Bank, 2007), 8.
Beijing’s Zhongguancun Park (Z-Park)

Lenovo is one of the earliest companies in Beijing’s Zhongguancun Park, and was instrumental in the conception of the park as the high-technology enterprise zone. Founded in 1998, Zhongguangcun Park was the first high-tech park organized by the State Council and sought to foster high-tech companies through a range of incentives. To this day, the park continues to provide favorable policies for high-tech start-ups and its longtime residents. The main goal of the park is to be an incubator for high-tech firms. As a large transnational company, the importance of Zhongguancun’s policy incentives aimed at start-ups and mid-stage companies may no longer be as significant for Lenovo as they once were. Still, Lenovo, along with other companies resident in the park, enjoy the following benefits:

- The park provides access to modern research facilities. The Haidian Subpark, where Lenovo is located, also has China’s most advanced e-government platform online to facilitate companies’ applications for preferential tax status, regulatory advice, etc.\(^78\)
- Zhongguangcun Park provides favorable land policies for modern manufacturing and hi-tech corporations.
  - Companies pay only 75 percent of fees for transferring land use rights and half of infrastructure construction expenses. For investments in additional facilities, there is an exemption from land transfer fees, and companies pay half of infrastructure construction expenses. Corporations facing difficulties in paying the land transfer fee within 3–5 years can get up to a one year grace period while paying 2 percent monthly.\(^79\)
  - Refunds are given for 70 percent of land administrative expenses and house removal administrative fees incurred during construction.
  - Companies pay only half of house property registration expenses, land registration expenses, industrial land transferring contract taxes, new fields funds, and flood control costs.
  - For additional investments, companies can claim half of contract tax costs for their additional land costs in order to obtain a refund. Industries approved by the government can be exempt from all newly-added land use fees.
- Employees benefit from housing subsidies given by corporations, and the corporations in turn can itemize those costs on their tax forms. Employees also get simplified housing loan procedures and reduced expenses in their housing application process.
- The “1+6” policy from the State Council in 2010 launched pilot programs that offer incentives in the form of stock options and bonuses for companies and employees to encourage innovation.\(^80\)
- Another benefit is preferential treatment through the avenue of mandated government purchases. The official Zhongguancun National Innovation Demonstration Zone Web site states that at the city and county levels of government, at least 60 percent of purchases must come from domestic companies. To reach this 60 percent requirement, the Beijing government will give priority to Zhongguancun companies’ products.\(^81\)

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**Tax advantages:** There are several tax advantages that Lenovo has taken advantage of, capitalizing on the location of its investments and the company’s status as a leading Chinese company and a high-technology innovator. Foreign investment in China’s central and western regions enjoys five years of tax reductions and a possible three years of halved income tax afterward. Lenovo is eligible to benefit from this regulation change because of its recent expansion into Chongqing.

Advanced technology enterprises, including Lenovo, are exempted from income tax for two years, followed by a halved income tax for the following six years. Export enterprises enjoy the benefits of two years’ exemption and three years at half rate. It is unlikely that Lenovo still can take advantage of these benefits unless it sets up new subsidiaries. Lenovo also benefits from China’s unified value-added tax (VAT) reform of 1994. VAT refunds are a significant advantage for exported products. Purchases of domestically made equipment are also eligible for a tax refund.

Another important tax policy is the Tariff Exemption Policy for Equipment Import. Under this regulation, “the importation of equipment for foreign or domestic-invested projects which are both encouraged and supported by the State shall be granted tariff and import-stage VAT exemption. Provided that the foreign-invested product is subject to the Category of Encouragement, all equipment imported for its use within the aggregated investment shall be exempted from tariff and import-stage value-added tax (unless the project comes under the heading of those not entitled to Tariff Exemption).” Lenovo’s computer products have historically fallen under this “category of encouragement” and continue to do so.

Additionally, Lenovo receives government financing from the “Golden Projects” program, and other national campaigns have also resulted in advantageous access to bank loans.

**Government grants:** In 2009 Lenovo signed its first major information contract from a foreign government with Turkmenistan, agreeing to provide information services for the country’s education, business, medical, travel, and technology sectors, while expanding its sales channel and talent training in the country. This was made possible in part by a Chinese grant to Turkmenistan, worth RMB 50 million ($7.5 million) that will be used to buy Lenovo computers. A presidential decree by Turkmenistan in June 2011 announced that the State Bank for Foreign Economic Relations and the China Development Bank signed an agreement to transfer and manage the grant.

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83 Ibid.


**863 Program:** The 863 program is China’s national-level science and technology investment program. It was approved by Deng Xiaoping in the March 1986—hence the name 863. This program is run by the Ministry of Science and Technology, and in each five-year plan it selects sectors worthy of robust state investment. It is sometimes called China’s “Sputnik” and has been used to fund and commercialize significant amounts of science and technology development. While mostly funding public research institutes or state-owned companies, commercial companies can also participate in the program through partnerships with universities or research institutes. The 863 program continues to give Lenovo access to cutting-edge technology. A recent example is the virtualization technology from the National University of Defense Technology that will be used in some Lenovo computers.

**Subsidies:** China’s rural computer subsidy program was launched in 2009 as the third round of the national rural home appliances subsidy program. This program included Lenovo, as well as its competitors Dell, Acer, HP, Haier, and 10 other brands in the list of bid winners. Lenovo and the Chinese company Founder have worked on rural market penetration for years, with Lenovo starting its expansion in 2004 and holding a 42.4 percent rural Chinese market share as of 2009. The central government funds 80 percent of the subsidy while provincial governments fund 20 percent. Each household is restricted to a one-computer subsidy. Buyers can receive a 13 percent subsidy for their purchases that meet program requirements. Eligible computers cannot cost less than RMB 1,998. Lenovo announced 15 different computer models priced between RMB 2,500 and 3,500 for the program.

### Lenovo’s Relationship with Japan and the United States

At its birth, Lenovo appeared to be a clear example of Chinese indigenous innovation, using state research to create a product (the add-on language card) that catered to the local market. Lenovo has now become a global company with major research and manufacturing facilities across the world. In this process, it has been highly dependent upon cooperation, knowledge, and input from the United States, Japan, and other countries. The level of interdependence is almost certain to increase as Lenovo focuses more on high-end innovation and expansion into the U.S. and Japanese markets.

In its early years, Lenovo (then called Legend) benefited immensely from its American partners, including IBM and HP. Liu has argued that the partnership with HP was especially notable, as HP was Legend’s first teacher and probably critical for Lenovo’s present-day success. In choosing partners, Legend “scrutinized its partners . . . for their ability to provide the business and managerial know-how it already realized it

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88 See http://www.nudt.edu.cn/articleshow_eng.asp?id=44.
90 贛州市人民政府办公厅关于转发市商务局、市财政局《赣州市家电下乡工作实施方案》的通知, March 5, 2009, http://law.baidu.com/pages/chinalawinfo/1706/61/d11bc70dd5b5a0ebeb114aa365d481e08_0.html.
needed.” In a recent case study exploring the relationship between HP and Legend, one Lenovo manager claimed that “if you look at the history of the development of Legend, you can see HP’s influence at each stage.” More specifically, Lenovo learned from HP about product technology, business models, management practices, and strategic planning. The case study also references a McKinsey report that quotes Legend chairman Liu Chuanzhi’s account of Legend’s relationship with HP:

When we started to work as a distributor for foreign companies, we discovered that management was something we had to learn. So we learned from foreign companies while gaining an understanding of China’s computer market. Our earliest and best teacher was Hewlett-Packard. It was as HP’s distributor that we learned, rather thoroughly, how to organize sales channels and how to market.

While it is easy to point to HP’s willingness to transfer managerial knowledge to Lenovo, it is important to remember that Lenovo’s openness to learning from HP is the other side of the coin. The Chinese government has often been accused of increasing barriers for foreign companies wishing to enter emerging technology areas in China, hoping that this protectionism may give domestic companies a head start. This appraisal of Chinese policy is misguided, because the relationship between Chinese and foreign enterprises is not a zero-sum game. Indeed, the success of Chinese companies such as Lenovo has been built on the mutual learning and collaboration between Chinese and foreign companies. Zhou (2008) argues that “while the indigenous companies can become a leading force for innovation, they cannot do so without working with MNCs (multinational corporations).” The opposite is also true as Chinese domestic firms also served as the main agents to expand the market reach of MNCs in China. “The increasing involvement of MNCs in China in the past 20 years has been accompanied by, and in fact dependent upon, the growing competence of Chinese indigenous companies.”

As far as its current relationship with the United States goes, Lenovo has one of its three global operations centers and an assembly and distribution operation in Morrisville, North Carolina. This center covers logistics and software development and has a call center.

Beyond its partnership with HP, Lenovo has a long history of working with U.S. companies:

- Legend’s early partner, DAW, was one of the first authorized distributors of IBM PCs in Hong Kong and China.

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93 Ibid.
94 Ibid.
96 Ibid., 164.
98 Ibid., 166.
• In 1997 Lenovo signed an intellectual property agreement with Microsoft. This collaboration
deepened with the “value-added software plan” that preinstalled Microsoft Windows operating
systems in most Lenovo product lines. The plan also extended the partnership to include high-
end PC product development and joint marketing in emerging markets. Currently, Lenovo is
moving from Windows 7 technology to Windows 8 for the ThinkPad tablet.

• Lenovo’s first laptop, the Tianxi model introduced in 1998, was the result of two years of work
with companies such as GE Plastics and Nike, as well as the U.S. design firms IDEO and Ziba
Design.

• In 1999 Lenovo combined its laboratories with Texas Instruments for the cooperative
development of technologies for products like cell phones and digital projectors.

• Since 2000, Lenovo has held talks with private equity investors at General Atlantic about how to
develop and spin off distribution and software activities. General Atlantic’s investment in Lenovo
spanned from 2005 to 2010. Private equity firms played a key advisory role in Lenovo’s process of
acquiring IBM’s PC division by navigating Lenovo through the U.S. political landscape. Lenovo
has since worked with other private equity firms, and to date it has received a combined $350
million private equity commitment from three U.S. private equity firm: Texas Pacific Group
($200 million), General Atlantic ($100 million), and Newbridge (Texas Pacific Group Capital’s
Asian affiliate, $50 million).

• Lenovo used Intel’s microprocessors, and Intel chose Lenovo as its first strategic partner in
China. The year 2003 saw the establishment of the Lenovo-Intel Teach to the Future
Technology Research Center in Beijing for the development of new products for global
consumers. Lenovo now uses both Intel and AMD chips and was one of the early adopters of
AMD chips in order to cut costs.

• In 2008, Lenovo conducted strategic cooperation with VMware to promote application of
VMware virtualized technology in the Lenovo server.

• Currently, Google’s Android operating system is being used for Lenovo smartphones and tablets.

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99 “Script of Lenovo Chairman Yang Yuanqing’s Speech,” Microsoft News Center, April 17, 2006.
100 Ernst, “Can Chinese IT Firms Develop Innovative Capabilities?” 10.
101 Ibid., 9–11.
102 Ibid., 10.
Lenovo’s Acquisition of IBM’s PC Division

- In December 2004 Lenovo bought IBM’s PC division for $1.25 billion plus assumed debt, for a total of $1.75 billion. The deal made Lenovo’s rank as PC maker jump from ninth place to third, behind Dell and HP, and increased its PC business fourfold.\textsuperscript{104}
- The acquisition was key to Lenovo’s global expansion. Senior managers estimated that the acquisition helped cut down the time it would have taken Lenovo to internationalize by five years.\textsuperscript{105}
- Annual sales quadrupled from $3 billion to $12 billion.\textsuperscript{106}
- Lenovo generated significant brand value, leading to the improvement of the intangibles on its balance sheet. Brand equity is an area that most Chinese companies have struggled to increase.
- Lenovo gained IBM distribution in 116 countries, which IBM had developed for decades.\textsuperscript{107}
- Lenovo gained a five-year right to use IBM’s brand, marketing, and corporate sales force. It also gained a worldwide network of computer sales and distribution employees with knowledge of tax laws and invoicing practices in 66 countries.
- Lenovo retained executives with U.S. corporate experience and connections. Postacquisition, 7 out of 15 of the most senior executives were non-Chinese.\textsuperscript{108} The board was changed and included an American CEO, Stephen Ward (formerly of IBM), who was then followed by another American, William Amelio (formerly of Dell).
- The ThinkPad brand associated Lenovo with quality, innovation, service, and support as the company sought to fight the popular image of low-price, low-quality Chinese brands.\textsuperscript{109}
- The acquisition also brought Lenovo R&D gains, adding 1,500 patents from IBM to the 1,000 already held by Lenovo. The R&D workforce grew from 1,100 to 1,800, accounting for 9.5 percent of Lenovo’s total workforce and 18 percent of its nonmanufacturing workforce after the increase. As a result of the acquisition, Lenovo gained the IBM R&D facility in Yamato, Japan, which had valuable ThinkPad and RFID (radio frequency identification) experience. Lenovo also invested further in North Carolina, where IBM had operations. The company’s patents and employees were now truly global.
- The acquisition propelled the company’s expansion into laptop production and the corporate sectors. Eighteen percent of Lenovo’s preacquisition revenues were from laptops, while the figure for IBM was 60 percent. Eighty-three percent of Lenovo’s revenue had originated in sales to small businesses and consumers, whereas 60 percent of IBM’s revenue came from corporate sales.\textsuperscript{110} Thus, through acquisition, Lenovo retained IBM’s financing and global services staff, gaining a leg up in corporate sales.\textsuperscript{111}

\textsuperscript{106} Zeng and Williamson, \textit{Dragons}, 53.
\textsuperscript{107} Ibid.
\textsuperscript{108} Ernst, “Can Chinese IT Firms Develop Innovative Capabilities?” 13.
\textsuperscript{109} In trying to incorporate the ThinkPad and Lenovo brands, Lenovo talked to over 4,000 customers globally and found they valued ThinkPad’s quality, innovation, service, and support. If Lenovo demonstrated it could continue that, then customers felt comfortable doing business with the new master brand and even thought it would come with Chinese efficiency as a bonus. Interview with Deepak Advani, vice president of predictive analytics and SPSS CEO at IBM and former senior vice president and CMO of Lenovo, in “How Do You Take a Brand Global?” Qn (April 2009), Yale School of Management, http://qn.som.yale.edu/content/how-do-you-take-brand-global.
\textsuperscript{110} Ernst, “Can Chinese IT Firms Develop Innovative Capabilities?” 13.
\textsuperscript{111} Zeng and Williamson, \textit{Dragons}, 53.
Lenovo also has a deep relationship with Japanese business. In Yamoto, Japan, Lenovo has a design lab that it inherited from IBM, now one of nine of Lenovo’s global research centers. Yamoto was the site of the primary IBM ThinkPad research. It also sources a number of key parts from Japan, including hard drives and batteries. As a global company, Lenovo relies heavily on suppliers and markets in other countries, and Japan is no exception. Dependence on Japanese parts became evident after the tsunami disaster that hit northeast Japan in 2011. Lenovo escaped largely unscathed but with a heightened awareness of Japan’s critical role as a link in its supply chain and an end market. Lenovo’s integrated circuits, hard drives, batteries, and LCDs all have Japanese supply chain connections. Sony and Sanyo provide batteries, and Hitachi supplies hard drives. Although Lenovo was able to weather the storm, the risk to supply chain disruptions are very real, especially in the forms of availability of inputs and sudden price shocks.

Lenovo’s relationship with NEC is now almost certainly the company’s most important link with Japan. On July 4, 2011, Lenovo finalized a joint venture to sell PCs in Japan with PC maker NEC Corporation and launched NEC Lenovo Japan Group, now Japan’s biggest PC supplier, with approximately 25 percent market share. Lenovo holds a 51 percent stake and NEC holds 49 percent in the joint venture. NEC gained $175 million in Lenovo stock in the deal. According to the Kyodo News service in Japan, the Lenovo-NEC deal represents “the first full-fledged alliance between major Japanese and Chinese players in the information technology industry.”112 Aside from the technology and market access benefits, Lenovo is also setting up customer service operations in Japan. Looking toward the future, Lenovo CEO Yang Yuanqing expressed interest in expanding the alliance to beyond the PC business.113

Both the U.S. and Japanese markets are key strategic areas for Lenovo. Expansion in these two currently underpenetrated markets will be critical for Lenovo’s continued growth. At the current low levels of penetration, Lenovo is unable to achieve the economies of scale that are needed to become the number one company globally. In November 2011 China Daily reported:

According to Lenovo, mature markets, such as the United States and Japan, contributed more than $100 million of the company’s profit last quarter. In 2011, HP, the PC market leader, considered to spin off its PC segment, only reversed its decision shortly after. Yet the damage was already done as it introduced major uncertainty for HP’s corporate clients. It would not be surprising that Lenovo will be the main beneficiary of HP’s uncertainty. Meanwhile, sales revenue in the mature markets exceeded that in China for the first time during the third quarter, coming in at $3.3 billion and accounting for 42.6 percent of the company’s global sales.114

Logistics in Japan and the United States also depend on foreign third-party firms. In June 2011, CEVA Logistics, a Dutch company formerly known as TNT, released the following in a press release explaining its relationship with Lenovo in the United States and the Asia-Pacific region:

CEVA’s operations on Lenovo’s behalf span two regions (the Americas and Asia Pacific), and their key growth markets in the United States and Japan. CEVA’s Japanese team was recognized as the Global Supplier of the Year for the cross dock operation they manage on behalf of Lenovo in Tokyo, Japan. This operation was also presented with the Innovation Award for its focus on continuous improvement, delivery of a highly efficient, high-velocity cross dock solution and the smooth delivery of Lenovo’s products across Japan. The U.S. operation, where CEVA manages Lenovo’s West Coast Distribution Center in Woodland, California, received the accolade of the Operations Excellence Award. This facility is responsible for 100 percent of Lenovo’s ocean freight product bound for the US and serves as a retail distribution center for Lenovo’s largest retail customers.115

The value added for a Lenovo PC clearly accrues across a wide range of companies and countries. Lenovo’s fate is tied up with that of its foreign suppliers, and vice versa. Lenovo’s growth markets may be susceptible to trade friction, because protectionist policies that emerge in one market are likely to provoke countermeasures in other countries. As a globally diversified company, this may not be a significant impediment for Lenovo, but it will be important for Lenovo’s continued growth and success for the company to effectively manage not just technological innovation but also the political and international trade aspects of their business. As Lenovo has become global, so have its concerns.

Key Findings

- Being in an emerging industry with access to a large domestic market, like that in China, can be a recipe for success (right place, right time). Lenovo benefited from first developing the distribution channels (with government protection from international competitors), then helping foreign vendors with sales and low-end manufacturing/assembly, cooperating with foreign companies to create low-cost computers with up-to-date technology fit for Chinese consumers. Lenovo was able to then slowly move up the value chain. The size of the domestic Chinese market was a major factor that enabled Lenovo to grow into a globally competitive company. The China market continues to be a sustainable source of advantage for Lenovo, both in overall sales and as a low-cost manufacturing and R&D base. The development of the export-oriented manufacturing base by international players (including Taiwan) also gave Lenovo an opportunity to benefit from the quality and economies of scale created.

- Lenovo is relatively unique among Chinese companies for having an internationally recognizable brand. It used its acquisition of IBM’s PC division to take full advantage of international talent,

marketing, and supply chains. Moreover, it upheld high quality in its products and international standards in its business operations. Lenovo proves, contrary to popular opinion abroad, that a Chinese company can develop a brand internationally, even in mature markets, and succeed in a rules-based and transparent international business environment. Many other Chinese firms that have tried international acquisition have not had the same level of success due to cultural and other barriers. But more mature companies should consider following Lenovo’s example of bolstering credibility and capabilities through acquisition. Patience is needed since the process took at least five years for Lenovo with plenty of setbacks.

- Companies can be innovative without breakthrough technologies. Lenovo does not depend on breakthrough technologies, but rather on sensitivity to the right technologies for the market. Although Chinese companies are often criticized for being adaptive rather than innovative, this direction has worked well for Lenovo. Incremental and adaptive innovation means that Lenovo has not made the fundamental miscalculation that innovation needs to mean increased sophistication.

- Market-led industrial policy does exist in China. The space the government gave to Lenovo allowed for the company to retain autonomy and react to market incentives, two elements critical in Lenovo’s success that were not present with state-owned enterprises like Greatwall. Instead of trying to picking winners, using selective policies to foster an industry while letting the markets take care of who wins and loses creates stronger companies. Lenovo succeeded despite the Chinese government providing firm-level support to other companies. As a result, the PC market is extremely competitive in China, and the same can be said about the mobile phone and home appliances markets. Firms emerging from such a competitive landscape are more resilient both at home and abroad.
Nathaniel Ahrens is deputy director and fellow at the Hills Program on Governance at CSIS. Ahrens is also executive director and founder of the American Mandarin Society. He was formerly an adjunct fellow with the CSIS Freeman Chair in China Studies, where he focused on issues relating to China’s trade, industrial policy, and innovation. In 2010, Ahrens was a visiting scholar at the Carnegie Endowment for International Peace, where his research focused on climate, energy, and sustainable development issues in China, as well as Chinese national innovation policy and government procurement. Previously, Ahrens worked for 10 years in China. He holds an A.B. from Vassar College, is a M.I.P.P. candidate at the Johns Hopkins School of Advanced International Studies, and studied at Beijing Language and Culture University.

Yu ZHOU is a professor of geography in the Department of Earth Science and Geography at Vassar College. She received her bachelor and master’s degrees in urban and environmental sciences at Peking University in 1986 and 1989 and her Ph.D. in geography at the University of Minnesota in 1995. Her research is in the areas of globalization and high-tech industry in China, and she is the author of *The Inside Story of China’s High-tech Industry: Making Silicon Valley in Beijing* (2008). She also studies ethnic communities and transnational business networks in Los Angeles and New York. She was selected as one of the Public Intellectual Fellows for 2008–2010 by National Committee on United States–China Relations.