

Editorial Commentary

Product Innovation in China: Opportunities and Challenges

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Nobody doubts the growth and size of the Chinese economy. Even a casual observer of the global market views China as among the most prominent developing economic regions, and China's rapid economic expansion has been widely reported. In the early part of this decade, China's GDP had been estimated at almost \$6 trillion (compared to about \$15 trillion for the U.S. economy). Furthermore, when adjusted for purchasing power parity, the gap between the U.S. and China is far narrower – some would argue that China has surpassed U.S. in purchasing power (Gjelten 2011). Chinese exports to the U.S. surpassed the \$100 billion mark as far back as 2006 (Anonymous 2006). China is also a leading destination for Western manufacturing capital investment. Between 2000 and 2008, U.S. firms spent a total of \$18 billion on manufacturing capital expenditures; China is the eighth largest investment destination for U.S. manufacturers (US-China Business Council 2011). These investments are an indication of Western firms' belief in China's future potential, and the need to expand their marketing efforts in China. It is no wonder, then, that hundreds of leading Western companies, from consumer retailers (Starbucks) and frequently-purchased consumer goods (Pepsico) to cars (General Motors) and services (Disney, Federal Express) have greatly expanded their business commitments in China in recent years, marketing a wide range of manufactured products and services to the increasingly affluent Chinese market.

Chinese firms also have evolved during this period in terms of their commitment to the global marketplace. In many industries, Chinese firms are only recently establishing a global presence. For example, Lenovo was a personal-computers maker for IBM for years, and other Chinese firms such as Haier (appliances), Pearl River (pianos), and TCL International (televisions) were also generic-goods manufacturers for big Western firms. Most of these were unknown in Western markets as recently as ten years ago, but now have established themselves as multinational competitors. (Lenovo bought IBM's PC division; Haier acquired U.S. appliance maker Maytag) (Crowell 2005). Multinational expansion presents challenges for Chinese firms; rather than being "order-takers" manufacturing products for big Western companies such as IBM or Maytag, these firms now must be able to design, develop, and produce globally competitive products themselves. Among other things, this will require them to make adjustments in their new product development (NPD) processes, and also to improve their marketing research efforts

so that they can better understand the global marketplace (and how foreign customer demands may differ from those of their home market).

This editorial commentary examines the state of the art in Chinese product innovation and NPD: how it is similar to, and different from, Western-based NPD, and how Chinese innovative firms can increase their global competitiveness through improvements in market research and other strategies.

How Chinese Product Innovation is Different

Some of our earlier research on product innovation suggests that, in some ways, product innovation is not too different in China as compared to the West. In a multi-country study of managerial attitudes toward pioneering new products into the marketplace, managers from the U.S., Europe, China, and other Asian countries all agreed that pioneering pays off in terms of improved market shares and profitability, and that the benefits outweigh the risks. However, when asked why pioneering is a profitable strategy, the answers differ significantly. Western product managers find that pioneering new products establishes competitive advantage, by preempting competitors from access to labor, distribution channels, and managerial talent. Chinese managers are more likely to say that pioneering provides differentiation advantages, such as being perceived by customers as the technological leader, or as the brand with the best brand image (Song et al. 1999; Song et al. 2000). In another study, we noted that Chinese government policy has prioritized investment in technology capability to increase global competitiveness, and would be a bigger driver of radical innovation than marketing-related capabilities. We found evidence that technology capability was more positively related to radical innovation in China than in the U.S. (Di Benedetto et al. 2008).

The most current research on innovation in China suggests that while there has been much progress in recent years, there are still noticeable differences and gaps when compared to innovation in the West. Recently, it was reported that the Chinese government was planning to spend about \$1.5 trillion to support R&D in certain key industries, including biotech, energy conservation, clean-energy vehicles, and information technology (Anonymous 2012). Chinese officials see innovation as the road to long-term strength for the Chinese economy and worldwide competitiveness for Chinese firms, and consequently fund innovation in industries such as the life sciences (Gwynne 2011). Innovation clusters resembling Silicon Valley have popped up for semiconductors and biotech, among others.

Nevertheless, such progress is very industry specific and Chinese innovativeness is stymied in some industries by a lack of customer understanding and of cross-functional collaboration, both prerequisites for successful innovation (and a topic to which we return later) (Orr and Roth 2012). Notwithstanding the examples listed above, the innovativeness of Chinese firms could be strengthened in some industries, such as packaged goods, such that the products they produce are more competitive in the global market. On the other hand, some innovation in China may escape attention in the West, since some innovative new products developed in China stay in China, for example in consumer electronics (Anonymous 2012). This may occur simply due to the massive Chinese market. A firm such as Tencent (developer of the popular QQ instant-messaging service) generates sufficient revenue within China, using a low flat-rate pricing model, that it has little reason to adapt its products for overseas sales. Indeed, it often happens that the R&D skills possessed by these firms are so well adapted to the Chinese market that it may be extremely challenging to adapt these products for foreign markets. The business model used by these firms may rely on Chinese low-cost labor and access to intellectual property that may be impossible to

duplicate in other countries. As an example, some mobile phones developed in China may be difficult to sell elsewhere as the manufacturers would face stiff licensing fees on their intellectual property (Orr and Roth 2012).

The New Product Development Process in China

NPD in the West is a complex process, usually depicted as starting with a strategic planning step, in which strategic objectives for NPD are set (Barczak et al. 2009). A balance between long and short-term projects, incremental and radical projects, high and low risk projects, and so on is usually seen as desirable (Cooper et al. 2004; Cooper and Edgett 2010). A recent study among Chinese product managers suggests that fewer firms strive for balance in NPD objectives, viewing NPD most frequently as a way to increase market penetration (Ozer 2011). This is perhaps not too surprising, in light of the experiences of firms such as Haier and Lenovo, which have clearly prioritized single-minded global market share growth by their recent actions. Another major difference noted in Ozer's study was that few Chinese firms report high levels of top management support for NPD activities. This is in sharp contrast to Western-based research, which finds that one of the most important success factors in NPD is the commitment to new products by senior management (Cooper et al. 2004). Additionally, a much narrower range of techniques are used in China to support NPD activities, as compared to the West. Other than brainstorming and focus groups, two techniques widely used in China to support the front end of innovation, few Western-style techniques are commonly used (Ozer 2011). Finally, Ozer reported that only a quarter of the Chinese firms in his study used cross-functional teams, one of the central elements of product development in the West (Cooper et al. 2004).

Other recent evidence suggests significant operational and strategic differences in NPD in China as compared to the West. For example, Chinese firms often use a NPD process characterized by "innovation through commercialization," somewhat different from the Western standard (Orr and Roth 2012). That is, they will rush a new product to market, often in a much shorter time than Western competitors will do, even at a relatively lower initial level of quality. The intention is to quickly improve quality in later generations. A related NPD process typical to China has been called "frugal innovation;" this involves a redesign of the entire innovation process that sacrifices some product quality to obtain much faster product development at a fraction of the cost (Anonymous 2011).

Some of these observed differences may be due to Chinese culture. Traditionally, Chinese culture is perceived as being relatively risk-averse (Hofstede 1980), which might explain Ozer's (2011) observation that Chinese managers are often reluctant to pursue more than one new product objective at a time. Risk aversion might also explain the reluctance of Chinese product managers to adopt the latest tools to support NPD, relying instead on tried-and-true methods such as focus groups. Perhaps a longer period of time to prove the value and usefulness of these techniques is required in China as compared to the West. Nevertheless, the North American-based findings suggest that strong top management support and well-functioning cross-functional teams are very closely related to new product success (Barczak et al. 2009), so these can be immediately targeted as areas for improvement in Chinese product innovation. Many of these issues are revisited in the next section.

Better Market Research and Other Strategies to Drive Innovation in China

There is no question that China is poised to become one of the top innovating nations in the near future. The economy is large and expanding, and there is a pool of very well-trained

scientists. Chinese firms have already taken leadership positions in some industries, and have benefited from government investment in innovation as a bridge to future competitiveness. Still, there is room for improvement, in particular in industries that so far have lagged behind. First, and maybe most relevant for this essay, is the need for Chinese firms to improve their market research methods to better understand the Chinese customer. In the past, technology-driven innovation has served Chinese firms well, as they have taken advantage of rapid growth in the Chinese market. Increasingly, however, they will need to combine this with market-driven insights. The most successful firms will be able to combine their technological or manufacturing prowess with a clear understanding of the evolution of the Chinese business environment and of the wants and needs of Chinese customers. Better market research will allow Chinese firms to obtain this customer information, to translate it into workable customer insights, and ultimately deliver products that better address the Voice of the Customer (Griffin and Hauser 1993).

Interestingly, Chinese firms might be able to pick up some of these skills from foreign multinationals doing business in China; yet many of these still view China as an “outpost,” and have not invested in building a real presence in China to gain deep knowledge about the Chinese market (Orr and Roth 2012). Recent evidence suggests that, finally, some large Western multinationals are transferring senior level executives to China to administer global research and development. These firms understand the importance of getting closer to the Chinese customer, and also to Chinese universities and institutions involved in science and engineering in support of product development.

A second important path for improvement concerns greater collaboration among functional areas such as marketing, R&D, and manufacturing, long viewed a hallmark of successful product innovation in the West (Gupta, Raj and Wilemon 1985). Japanese firms have also relied heavily on internal (and external) collaboration, and were responsible for the development of techniques such as Quality Function Deployment to foster communication across functions (Hauser and Clausing 1988). Chinese firms have been criticized for not being able to stimulate collaboration among functional areas, resulting in clumsy handoffs from one department to the next in the NPD process, and undifferentiated, incrementally new products that capitalize principally on manufacturing scale (Orr and Roth 2012). As noted above, the percentage of Chinese firms reporting that they use cross-functional teams is surprisingly low (Ozer 2011). As better market research techniques are employed, and Chinese firms more fully incorporate the Voice of the Customer, greater collaboration between the marketing and R&D functions within Chinese firms should ensue, with improved NPD efficiency as the result.

Additional suggestions for improvement include retaining more of the home-grown scientific talent, and encouraging a culture of risk-taking (Orr and Roth 2012). Chinese “local talent” often seeks employment outside of China. Traditional methods to encourage employee retention, such as building institutional loyalty, may not be enough to offset the call to work for a big foreign company. Interestingly, foreign multinationals that have established a major presence often make a concerted effort to keep the best Chinese talent working for them in China. General Motors, for example, runs advanced R&D and design centers in China, to attract the best individuals graduating from the top universities. These are led by local Chinese managers well connected to the universities and play a significant role in recruiting and retaining the most skilled researchers. GM also has organized their Chinese operations such that they are fully integrated into their global programs, just as their North American or European operations are. The subcompact Chevrolet Sail was totally designed in China, and the Buick GL8 minivan is built in China

(cheaply, on an older product platform no longer used by GM in the West but perfectly suited to China) with expert coaching and assistance from overseas divisions (Wale 2012).

Regarding a greater emphasis on risk-taking, it is well known that China and other Asian countries score low on the risk-taking cultural dimension (Hofstede 1980). It has been reported that the heavy presence of state-owned enterprises has discouraged risk-taking (as well as internal collaboration), thus having a particularly negative impact on innovation (Anonymous 2012). Nevertheless, the occasional foray into risky behavior may be very rewarding to Chinese innovating firms. In the semiconductor industry, traditionally Chinese firms have relied on global firms to make decisions on design and functionality, which tend to be driven by the needs of Western customers. As the Chinese middle class has emerged, more design decisions are made locally, to the specifications of local customers (the “built in China for China” idea). Then, starting from this domestic base, Chinese firms are able to use leverage to grow their global sales; Lenovo, for example, has grown to the number two position worldwide in personal computer sales (Dvorak et al. 2012).

To conclude, many observers of product innovation in China see that Chinese firms in many industries have turned the corner from innovation due to technology transfer from the West, to breakthrough innovation driven within China (Orr and Roth 2012). Often, this turnaround in innovative capability is preceded by Chinese government support in key industries. In targeted industries such as information technology and biotech, Chinese firms have gone from “order takers” to global competitors in their own right; the remarkable market share growth of Chinese firms such as Lenovo really are only the tip of the iceberg. Complacent Western firms should not be caught off guard by emerging Chinese competitors, as many were by the onslaught of formidable Japanese competitors in the 1980s. They need to be prepared for competition from innovative Chinese firms, as they battle for market share in the Triad (North America, Western Europe, and Japan), as well as in China itself, and in other targeted growth markets such as India and Russia.

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