



# Developing new innovation models: Shifts in the innovation landscapes in emerging economies and implications for global R&D management

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## ABSTRACT

Over the past two decades, there has been a substantial shift in the global innovation landscape. Multinationals from developed economies are increasingly globalizing their R&D activities and are developing an “open innovation” model to source innovations from outside the firm, including from emerging economies such as those in Asia. In addition, emerging economy firms, which traditionally have played a secondary role in the global innovation landscape, have now begun to catch up in developing their own innovative capabilities. This study explores the implications of this new innovation landscape for CEOs of multinationals and emerging economy firms, as well as for international management scholars and educators. While the multinationals might appropriate rents from their existing capabilities and source new ones in emerging economies, they may be threatened by weak intellectual property rights regimes and unintended knowledge spillovers to local firms, creating potential competitors. Firms in the emerging economies can learn from and catch up with investing multinationals, but to do so they need to develop their own innovative capabilities and move from a process to a product focus and from imitation to innovation.

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## 1. The shifting global innovation landscape

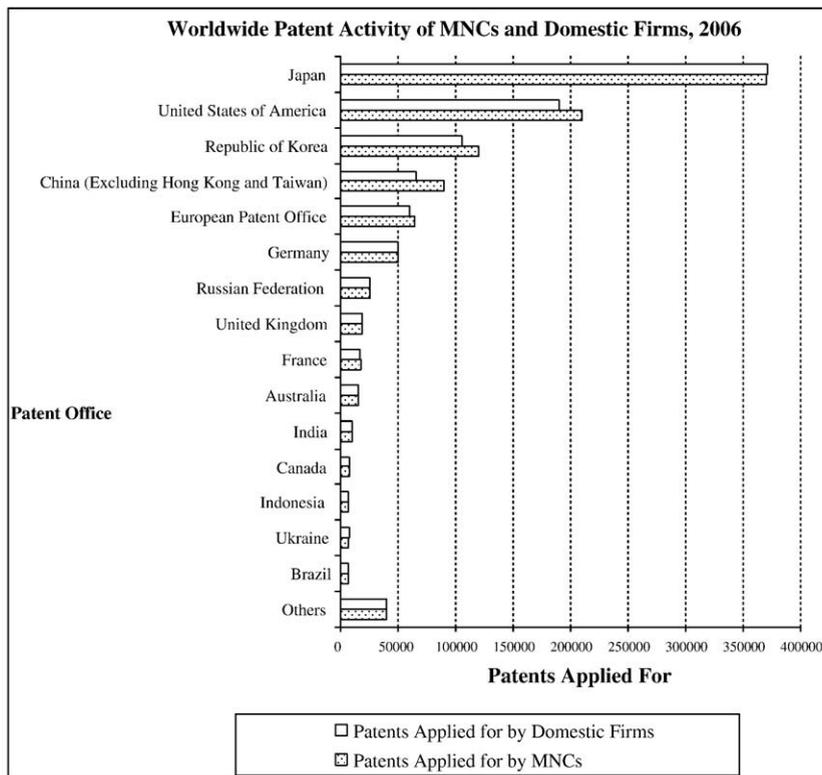
Over the past two decades, there has been a substantial shift in the global innovation landscape. First, multinationals from developed economies are increasingly globalizing their R&D activities and are developing an “open innovation” model to source innovations from outside the firm, including from emerging economies. Asia’s emerging economies such as China, India, and South Korea, which traditionally served only as low cost manufacturing bases where developed economy multinationals sourced their low-end value chain activities, have now witnessed a substantial growth in R&D investments by multinationals (Ernst, 2006; Ho, 2006). Second, firms from emerging economies such as Brazil, Russia, India and China, which traditionally have played a secondary role in the global innovation landscape, have now begun to catch up in developing their own innovative capabilities and some have emerged as major players in certain technology intensive sectors like mobile communications, electronics and information technology (Mathews, 2002).

Reiterating this shift in the innovation landscape, the number of patents issued to firms based in developing economies has increased dramatically over the past decade and interestingly, a large number of the patents issued to multinational enterprises (MNEs) from developed economies are now being generated in emerging economies (Gassmann and Han, 2004; Hicks, 2005). Figs. 1 and 2 show this trend in the worldwide patenting activities of MNEs and local firms in 2006.

These developments in the global innovation landscape are contrary to the assumptions often implicit in the extant literature. Primarily, the literature suggests that MNEs tend to locate their R&D activities close to their headquarters (Cheng and Bolon, 1993) owing to the complexity involved in such investments (Ernst, 2006; Ho, 2006; Patel and Vega, 1999). Similarly, the resource-based view of the firm (Barney, 1991) suggests that the latecomer firms from emerging economies that tend to lack unique, valuable, rare

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Source: WIPO 2007

Fig. 1.

and inimitable resources may not be able to gain competitive advantages needed to overcome the entry barriers erected by technologically superior multinational incumbents (Li and Kozhikode, 2008).

Building on recent research, several factors can be identified as drivers for this new landscape in global innovation. First, the increasing need for firms to respond to the market by developing innovative products quickly and at competitive costs requires sourcing of innovations and ideas from both within and outside of the firm boundaries, leading to initiatives such as open innovation (e.g., Chesbrough, 2003). Second, MNEs have been increasingly internationalizing their research and development (R&D) activities through overseas R&D investments and alliances to: 1) take advantage of host country scientific and technological inputs, and 2) respond to local market needs and innovate closer to their product markets and manufacturing facilities (Kuemmerle, 1999; Pearce, 1999a; von Zedtwitz, 2004). Third, emerging economy governments have provided favorable policies to encourage R&D investments by domestic as well as global companies (Cheng and Bolon, 1993; Li and Zhong, 2003; Mathews, 2002). Finally, emerging economy firms are beginning to catch up in certain technology sectors, by learning from their collaborations with MNEs and leveraging on the support from their governments, developing their innovation capabilities to make the transformation from imitation to innovation (Li and Kozhikode, 2008; Mathews, 2002).

This study explores the implications of this new innovation landscape for CEOs of multinationals and emerging economy firms, as well as for international management scholars and educators. We first discuss some of the key drivers for this new innovation landscape and the opportunities and challenges for both MNEs and emerging economy firms. While the multinationals might appropriate rents from their existing capabilities and source new ones in emerging economies, they may be threatened by weak intellectual property rights regimes and unintended knowledge spillovers to local firms, creating potential competitors. Firms in the emerging economies can learn from and catch up with investing multinationals, but to do so they need to develop their own innovative capabilities and move from a process to a product focus and from imitation to innovation. Following the discussion of major challenges faced by CEOs of MNEs and such emerging economy firms in this new landscape, we will develop some theoretical propositions and suggest directions for future research.

## 2. Factors affecting globalization of R&D by MNEs

Prior research suggests that multiple factors have contributed to the globalization of MNEs' R&D activities, including factors at the firm, national and international levels (Granstrand, Håkansson, and Sjölander, 1992, 1993). While firm level factors motivate siting R&D globally, national factors help determine the actual location choice (Fey and Birkinshaw, 2005; Patel and Vega, 1999;

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