

# JOURNAL OF ASIAN BUSINESS

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## ARTICLES

### *Focus On Japan*

#### **Survival: Technology, Institutions, and Change in Three Innovation-Intense Industries in Japan**

DAVID T. METHÉ

#### **The Coevolution of the National Innovation System and Business Strategy: The Case of the Japanese Biotechnology Industry**

KAZUHIRO ASAKAWA

This paper explores the way institutional changes are taking place within the national system of innovation in Japan, as related to the growing domestic biotechnology sector. The base of Japan's national science endeavors is not substantial enough to meet all the requirements of the country's rapidly advancing life sciences, and there are clear disadvantages to Japan's innovation system compared to that of the United States. However, prospects are not necessarily poor in view of recent innovation policy changes at various levels: the national policy level, the interorganizational level, and the individual organizational level. A careful investigation of this phenomenon has revealed that institutional changes in the biotechnology sector are an outcome of the coevolution of macro innovation policies at the national level and micro R&D and venture strategies at the organizational level. Coevolution consists of changes at various levels: recent policies in favor of life science research promulgated by the Japanese government, the fostering of university-industry technology linkages, growing incentives for the formation of biotech venture companies in biotech research due to financial deregulation in capital markets, and shifting business and R&D strategies in favor of life science research and cross-border research alliances. Through an analysis of the Japanese biotech industry, the author provides a dynamic framework for institutional analysis at multiple levels.

#### **Institutional Persistence and Companies' Struggles for Survival: The Case of the Japanese Semiconductor Industry**

YOSHITAKA OKADA

The Japanese traditional system of cooperation was highly effective for maintaining the dynamics of craftsman-type DRAM development, but not in the System LSI. How did this cooperation-oriented traditional system restrict companies to formulate their strategies for survival? The market-oriented mechanisms of terminating long-term relations and selling off divided production units to competitors not only increased options for corporate strategies, but also generated a ground for competitors to cooperate in some product areas. In addition, collective strategies among competitors for building basic technological capability further strengthened the cooperative orientation among competitors. The consequence was that a set of competitors continues to cooperate in some product areas and technological development, while they themselves engage in severe competition in other product areas. Market-oriented mechanisms

resulted in generating a far more complex mixture of cooperation and competition, and the mixture is an outcome of the continuous evolution in traditional Japanese institutions.

### **The Old Versus the New R&D Systems: NTT and the Japanese Telecommunications Industry from Institutional Perspectives**

YUZO MURAYAMA

This paper analyzes the postwar R&D systems of the Japanese telecommunications industry from institutional perspectives. The postwar period is divided into the era of the old system (1950s–1960s), the transitional period (1970s–1980s) and the era of the emerging system (1990s–2000s), and the innovation system of each period is examined. The results show that although the old NTT family system of controlled competition worked well in installing a modernized, nationwide telecommunications network in Japan, it faced difficult problems under the deregulation of the telecom industry and during the era of digitalization of telecom services in 1970s and 1980s. The Japanese telecommunications industry is now trying to gain competitiveness under the new environment created by the Internet by moving from controlled to direct competition, from closed to open R&D systems, and from the family-type to *Ba*-type R&D organizations. Although NTT has recorded some domestic success in developing equipment and system for accessing the Internet from a mobile telephone, it is yet to be seen whether this success could lead to international competitiveness.

## **RESEARCH REPORT**

### **Are Multinationals Relocating Manufacturing From Southeast Asia to China? Case Studies from Malaysia**

LIM NGAT CHIN, RON EDWARDS, AND TEE DING DING

During the period 2000 to 2004, global foreign direct investment (FDI) declined by 50.0%. Inflows to China continued on a steady rise at 10.5% growth per annum while inflows to ASEAN-5 (Indonesia, Malaysia, Philippines, Singapore, and Thailand) declined at 14.0% per annum from 2000 to 2003 before reversing this trend in 2004. Scholarly studies have shown that China's large market and high growth rates have been important factors in explaining the flow of FDI to East Asia since the early 1990s. In addition, a range of environmental factors has been proposed that also assist in explaining these trends. These include China's entry into the World Trade Organization (WTO), the economic integration of the Chinese Economic Area (CEA), the Southeast Asian economic crisis, the changing patterns of costs, and government incentives across Asia. This paper shows that multinational corporations (MNCs) are not simply transferring production from Southeast Asia to China, but rather that a more sophisticated segmentation of global production is taking place.