

*Making IT: The Rise of Asia in High Tech. Edited by Henry S. Rowen, Marguerite Gong Hancock, and William F. Miller.* Stanford: Stanford University Press, 2007. xviii + 388 pp. Figures, tables, notes, index. Cloth, \$65.00; paper, \$30.00. ISBN: cloth, 0-8047-5385-7; paper, 0-8047-5386-5.

Reviewed by Mark Fruin

The editors of *Making IT: The Rise of Asia in High Tech* have collected twelve chapters on the emergence of information technology industries in six Asian countries during the last quarter of the twentieth and early years of the twenty-first centuries. The countries examined are Japan, South Korea, Taiwan, Singapore, and India. China, Asia's looming IT giant, is discussed in only one chapter. Today, IT industries in Asia and the rise of Asia in high tech, the book's subtitle, are clearly matters of interest and importance.

*Making IT* harvests a bumper crop of useful information, facts, and figures, arranged in four parts. Part one covers IT developments in Japan in two chapters and appendices. As the first country in Asia to industrialize, Japan was a precursor of IT industries in the rest of Asia. Part two shifts to the Asian Tigers, referring here to South Korea, Singapore, and Taiwan, while part three covers the development of India's IT industry and the rise of a particular IT region, Zhongguancun, in China. The chapter on Hsinchu, Taiwan's Science City, by Chintay Shih, Kung Wang, and Yi-Ling Wei detailing how Taiwan established itself in IT high tech and worked its way up the value chain, is outstanding. Rafiq Dossani's chapter on IT in India is a model of painstaking research and data synthesis.

Part four, on common and emergent themes, explores the role of the state in shaping IT industries, venture capital, university–industry interchange, and the shift from catching up to creating IT. The venture-capital chapter by Martin Kenney, Kyonghee Han, and Shoko Tanaka is a highlight of the section. In sum, *Making IT* is solidly informative about the origins and evolution of IT industries in Asia.

Making sense of IT industries in Asia during four turbulent decades is difficult and demanding. A guidebook or industry roadmap for arranging and organizing data is

needed, and the editors have chosen Silicon Valley for that purpose. Most chapters are anchored by comparisons of IT industries in Silicon Valley with IT industries in Asia.

The centrality of Silicon Valley's IT industries for the world economy makes it a logical choice as a model, but hardly an appropriate one. Silicon Valley is exceptional—a confluence of four or five high-tech industries in what was once California's most fertile agricultural valley. Into the 1970s, Food Machinery Corporation (FMC) was the largest firm headquartered in San Jose and, since then, the explosive growth of Silicon Valley is generally considered both serendipitous and unparalleled.

Its remarkable ascent as the epicenter of IT industries worldwide should preclude comparisons of Silicon Valley with IT clusters elsewhere, even when they are located in North America and Western Europe. But it makes little or no sense to compare IT industries in Silicon Valley with IT industries in Asia, where countries boast distinctive national, regional, institutional, developmental and cultural features, all of which are rather different from the characteristics of Silicon Valley and of countries in the West.

Even asking how IT industries in China, Japan, India, South Korea, Singapore, and Taiwan compare with Silicon Valley effectively rules out posing more subtle and significant questions, such as how the inspiration of Silicon Valley combined with, and was transformed by, local traditions, native industries, divergent national policies, and indigenous private and public companies in six Asian countries. The issue, after all, is how IT industries in Asia grew, not how they compare with Silicon Valley.

Yet, the comparison is made in chapter after chapter. For example, Asian countries are late developers relative to the West, as affirmed in the political economy literature. Technologies requiring long gestations at home were transferred to Asia in a matter of years. Time constraints, high capital requirements, and various complications of funding, founding, developing, and managing IT industries meant that Asian governments, both local and national, were involved from the start. To the editors' credit, the state's salience in developing IT in Asia is not ascribed to cultural peculiarities or institutional rigidities. But if the rationale for state-led industries is so well understood, why compare them with Silicon Valley's relative absence of government guidance?

The Asia–Silicon Valley comparison is harmful in other ways. *Making IT* argues that Japan’s IT industries suffered because their software companies were overly dependent on hardware companies. A “lack of independence” led to “integral innovation,” or interdependent coordination, among many firms, a characteristic of Japan’s auto and electronics industries. Silicon Valley’s semiconductor and computer industries, on the other hand, championed a system of “modular innovation,” which signifies the independent functionality of parts and subsystems.

The juxtaposition of integral and modular innovation is designed to explain country-level differences—Japan versus Silicon Valley (America)—but, in fact, it better explains industry differences or perhaps the timing of industry emergence. Modular innovation is the norm in the semiconductor and computer industries, whereas integral innovation is more typical of the auto industry. Interindustry differences are the point, regardless of the countries considered. The changing nature of innovation in the auto industry that is accompanying the rise of global competition affects Japanese and non-Japanese auto firms alike.

Thus, comparing IT industries in Asia with IT industries in Silicon Valley is a framing error. IT in Asia arose in various countries at various stages of economic development for various reasons, producing an intricate, colorful kaleidoscope of competing Western and Asian firms, sector and industry similarities and dissimilarities, shortened technology and product life cycles, and differentiated market segments. Asia’s IT industries cannot be captured by a Silicon Valley lens. Asia is too big and diverse, its IT industries too many and varied. Their stories deserve their own telling.

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