Industrial Policy Evolution in China's Telecommunications Sector

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In the last 30 years, China has emerged as the world's largest telecom market. As of 2011, China had 285.115 million main telephone lines in use, and nearly 1 billion cell phones in operation. China also has the most internet users, with an online population of nearly 400 million netizens. Even so, challenges remain as legacy bureaucracies from the more turbulent 60s and 70s continue to exert control over business development in the telecom sector.

For several decades, Chinese companies were not capable of building out the needed infrastructure, giving large multinational companies such as Motorola, Alcatel, or Siemens an opening. However, shifts in government policy have changed attitudes within China to prioritize indigenous technological innovation. Despite this, the indecisive and deliberative nature of the Chinese state has impeded rollout of TC-SCDMA, a Chinese standard for 3G mobile service. This paper examines literature documenting the rollout of Chinese telecom services using several different frameworks, including industrial policy and negotiating theory.

Harwit, Eric (2008). China's Telecom Revolution. Oxford University Press, 1-17.

Eric Harwit's book *China's Telecommunications Revolution* is one of the most comprehensive works available regarding the massive telecommunications infrastructure expansion that China has undertaken in recent decades. "The book uses theories of industrial policy as the primary base for assessing the ways China conducted its telecommunications revolution" and "assesses the ways a key industry is shaped in a political system still dominated by a single political party intent on maintaining power" (2-3). China's telecommunications sector has grown largely as a result of industrial policy, which the World Bank defines as "government efforts to alter industrial structure to promote productivity-based growth." (World Bank, *The East Asian Miracle: Economic Growth and Public Policy*. New York: Oxford University Press, 1993: 304.). China and other Asian countries have extensively used industrial policy to guide their economic growth.

For example, according to Howard Pack and Kamal Saggi, 'Is There a Case for Industrial Policy? A Critical Survey', *The World Bank Research Observer* 21 (2006): 268):

Japan successfully used industrial policy to become a world leader in industries such as automobile manufacturing. In the case of Japan, Johnson's book examined the way many sectors (such as textiles, steel, automobiles, and others) developed over the twentieth century, and profiled key government actors and ministries that shaped their successful growth in both domestic and international contexts. Industrial policy in this context included many elements typical of government-driven plans for economic growth. Those included the extensive use of targeted tax incentives, a reliance on public corporations to implement policy in high-risk areas,

the creation of state-owned financial institutions, government-sponsored research and development, and administrative guidance of economic activity by the state bureaucracy.[3]

In the international realm, the Japanese state, mainly in the guise of the Ministry of International Trade and Industry (MITI), took measures from the 1960s to delay opening vital and often vulnerable sectors (such as automobiles, steel, chemicals, and electronics) to foreign competition. It also attempted to 'promote large-scale mergers [in these sectors] in order to produce concentrations of economic power' on a par with rivals such as the United (p. 5) States or West Germany. MITI also sought to limit foreign investment in and ownership of domestic Japanese industries.4

Johnson concluded that a model of growth led by the state and its bureaucracy could be applicable to other nations. He suggested 'a different society might be able to manipulate its own social arrangements in ways comparable to those of postwar Japan in order to give top priority to economic development…'.5

Scholars of East and Southeast Asian development were quick to pick up on Johnson's arguments, and to analyze other nations in their light. Stephan Haggard and Tun-jen Cheng, for example, considered South Korea, Taiwan, Hong Kong, and Singapore—also known as the 'Four Little Tigers' (or sometimes 'Dragons')—in the context of a state-guided development model. They found that (except in Hong Kong) the state played a major role in developing pragmatic trade policies toward foreign investment as well as export-oriented growth.9 The governments 'played a central role, supporting the activities of business, targeting particular sectors for investment, and engaging in production of heavy industries such as steel'.10 Ezra Vogel also analyzed the 'four dragons', and asserted that, partly for historical reasons, Japan's model was of great importance.11 Among other factors that Vogel found shaped development in the region was a meritocracy of rule that meant state bureaucrats 'played a critical role in industrialization'.12

Evans concluded that nations such as Brazil, Guatemala, or El Salvador, because of these historical and resulting structural differences, would have difficulty emulating the state-led industrial growth paths of nations such as Taiwan or South Korea. He did suggest, however, that countries such as Cuba or Nicaragua, which have had 'highly autonomous state apparatuses and thorough land reforms', might be in a better position to emulate the Taiwan example.24

China has also used industrial policy to guide development in other sectors of the economy. Harwit's book cites studies of the energy, steel, textile, and shipping industries, as well as alludes to his own previous work studying China's automobile industry. Harwit writes, "I found that those Chinese state-owned companies best able to cooperate with a foreign investing partner ended up as the most productive" (11). This is an approach used by Chinese telecom firms during their initial expansion of hardware throughout the country, but that the state later pressured them to abandon. Harwit's ultimate conclusion is that China "seems to fit quite

comfortably into the mold of a strong state with a guiding bureaucracy capable of nuturing key sectors, in the same league as Japan, Taiwan, South Korea, and Singapore" (11).

Harwit's book makes the case that industrial policy has guided China's telecommunications industry toward success, noting that "the industry has progressed faster than nearly any other such industrial sector in the world" (15). He draws comparisons to the industrial policies of countries where telecommunications development moved at a slower pace, and "chronicles the ways the government developed policies to foster the industry" (16). In summary, those included favorable financing, tax incentives, protectionist trade policies, and other strategies aimed at building a domestic telecommunications industry for a country with a large population very quickly. Harwit also concludes that industrial policy can create a competitive market environment, and describes China Telecom and China Unicom as "fiercely competitive" (16).

China's industrial policy as it relates to the telecom industry has also shifted over the past several decades. China used to rely primarily on large Western multinational companies to build its telecom sector. But it realized that "development of the host countries is a fortuitous side effect at best, which will only come about if the host government maintains enough autonomy and control to guarantee that the benefits of foreign direct investment are shared between providers and recipients of foreign capital" (Stallings, 1990). As a result, directives from the state have caused its telecom industry to move toward a policy of indigenous innovation. This means that the government wants Chinese companies to create their own intellectual property and be involved at all stages of the manufacturing and implementation process. The politics of the decision to pursue domestic development of new technologies have greatly impacted the rollout of the Chinese 3G standard, TD-SCDMA.

China joined the WTO in 2001, which had an impact on China's industrial policy as it pertains to the telecom industry. Large multinationals became reluctant to participate in the technology transfer agreements that Chinese firms were using to move away from reliance on Western companies (Gao, 2007). In 2006, China formalized its decision to make indigenous innovation a national strategy and build a country that could do creative, rather than iterative, work (Chen & Liu, 2008).

China has strict regulations governing what foreign telecom firms can do. The Chinese state exerts control in several ways. The first is by heavily regulating capital and investment. Foreign Direct Investment (FDI) was not allowed before 1978, and is currently accepted on a selective basis that is integrated with China's industrial policy. FDI is considered acceptable only if its goals align precisely with those of China's planned industrialization. China also uses procurement policy to give preferential treatment to indigenous companies. Foreign companies are often asked to participate in technology transfers, while domestic companies obtain preferential financing and generous government support in China. Import and export controls are also used in a protectionist manner to control the market for goods in the telecom industry.

Fu H., & Mou, Y. (2010. An assessment of the 2008 telecommunications restructuring in China. Telecommunications Policy, 34, 649-658

Fu and Mou used a bargaining perspective to try and understand China's strategy toward telecom modernization (650). There had been little telecom infrastructure in China until after the Great Leap Forward and Cultural Revolution as a result of domestic political upheaval (650). Following the restoration of order, some changes began to take place. There had been a state-owned company granted a telecom monopoly until the 1990's, when the administrative state began to allow other companies to operate in the telecom sector (650). During these years the old Ministry of Post and Telecommunications (MPT) bureaucracy that had explicitly taken part in the telecom business retreated and became the Ministry of Information Industry (MII), which was only permitted to operate in a regulatory capacity (650). Following this bureaucratic retrenchment, the number of large telecom companies in China grew from only one in 1994 to five by 2001. These reforms were intended to introduce an element of competition to the system (657). However, there is little western-style competition in the Chinese telecom market as the CCP maintains a tight grip on the telecom industry in China for political reasons and is unlikely to let go (657). The state ministries have prevented telecoms from truly competing by making it difficult for more than one company to offer the same service.

" X. Gao and J Liu"catching up through the development of technology standard: The case of TD-SCDMA in China" 36 (2013 p531-545 Telecommunications policy;

The heavy-handed use of industrial policy also worked to inhibit TD-SCDMA adoption in China as firms waited for signals from the government about what to do. Technology development moves at a rapid pace in the private sector, and it did for the international standards that were competing against China's TD-SCDMA. As a result, TD-SCDMA was saddled with a "late adopter" position, which made it difficult for it to gain ground as a 3G standard. Gao and Liu analyzed the issue of TD-SCDMA adoption from a coevolutionary standpoint, studying how business and government worked on the problem side by side in China.

A company called Datang became the focal point of TD-SCDMA development activity, and they were very active in lobbying the Chinese government to support the new standard. Datang gained approval from the Chinese government by proving to the bureaucracy that TD-SCDMA would help to advance their industrial policy goal of indigenous technological innovation. In exchange, the Chinese government provided support for TD-SCDMA in the form of (4 ways from p. 538).

Influenced by the lobbying strategies of Datang, the Chinese government offered four types of support. First, support through signaling. For example, the strong support to TD-SCDMA Industry Alliance from NDRC, the most powerful government agency in China, indicated that the Chinese government wanted to support TD-SCDMA. This policy signal was very helpful in attracting other firms such as ZTE and Huawei, who are competitors of Datang, to join this alliance and increasing the credibility of TD-SCDMA and Datang. (538) Change of policy and mixed success. // 4 ways govt supported TD-SCDMA from pg. 538

Discussions and conclusions

The path toward TD-SCDMA adoption in China was not at all straightforward. It was complicated by China's use of industrial policy to guide telecom development, which had both positive and negative impacts on the process. Overall telecom expansion in China has moved at an unprecedented pace as a result of interventionist measures by the state, but support for a 3G standard came slowly. Gao and Liu wrote, "The reality is that the policies of the Chinese government toward TD-SCDMA seemed to be very strange: were very supportive in making TD-SCDMA one of the 3 international standards for 3G mobile communications, but became very ambiguous and uncertain after TD-SCDMA was accepted as an international standard. TD-SCDMA could have died because of the ambiguity and uncertainty (Li, 2010; Yang & Lu, 2010). (532)

*Foreign firms have struggled to capture 3G market share as a result of the TD-SCDMA situation.

The findings of this paper have important practical implications. For example, from a strategy perspective, MNEs need to develop new capabilities and collaborate actively with local firms with advanced technologies in order to benefit from the opportunities offered by these locally developed technologies. For example, they need to have a good understanding about the impact of late-comer disadvantage, and co-create the whole TD-SCDMA value chain with local firms. However, few MNEs developed this kind of understanding, and as a result their market share in the TD-SCDMA market has been very small (for example, in the equipment market it is less than 20%, compared with more than 80% in the 2G era). (532) However, the institutions in China actually created huge obstacles for the development of TD-SCDMA. In particular, government agencies in many cases were just paying lip service. They said a lot but little was done. (534)