

**China
Telecommunications:
Constituencies
and Challenges**

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Executive Summary

- With the rapid growth of China's national economy, China's telecommunications industry is taking off at an unprecedented pace, as represented by huge investment, fast expansion of networks and services, and expeditious upgrading of technology. Behind this notable industry move is a political and regulatory dynamism that involves many interactive or conflicting forces.
- The forty-five year telecommunications monopoly of the Ministry of Posts and Telecommunications (MPT) appears to have been broken by a second national network operator that has emerged, China United Telecommunications Corporation (China Unicom). But a more open, competitive market environment does not necessarily mean a fundamental change in China's telecommunications policy or regulation, not to speak of liberalization or privatization.
- Because the Chinese government considers telecommunications a powerful engine for the national economy and a strategic function for command and control, it has designated telecommunications a long-term development priority. However, as the application of advanced communications technologies brings the nation toward a society with a free flow of information, the traditional concept and practice of political control and regulation are increasingly challenged, even threatened.
- Driven by economic, political, and market forces, China has opened the areas of network equipment supplies, value-added services, radio-based mobile services, and satellite communications to experimental and limited competition. Foreign companies however, remain prohibited from holding network equity ownership and from direct involvement in service operations.
- On the basis of different cultural values and political ideologies, China and the United States seem to have different policy orientations for telecommunications. While China upholds modernization, expansion, and control as its most important concerns, the United States hotly debates the issues of monopoly, competition, and deregulation.
- The MPT's control of telecommunications and its rivalry with the Ministry of Electronics Industry (MEI) have a unique historical background. Its control has been severely challenged by non-MPT operators of private networks, and the interministerial rivalry has intensified by changing political and market conditions.
- To sustain the industry's health and to meet growth targets set for the end of this century, a minimum of U.S. \$10 billion will need to be invested annually in China's telecommunications between 1996 and 2000, some 14 percent of that expected from overseas sources. Pressured by a large shortage of funds, the government is working to devise new policy guidelines to encourage diversification of funding, that is, to develop a broader, more comprehensive funding base, with a significant shift of investment responsibility from the central authorities to local governments and enterprises. Major financing schemes under discussion have included financed leasing, payment by installment, security issuance, Build-Transfer-Operate (BTO), and Build-Lease-Operate (BLO).

- Despite an official ban on foreign equity and foreign involvement in management in the country's information networks, China remains a magnet for international telecommunications players. First movers or timely entrants may gain striking competitive advantages in marketshare, technological dominance, profitability, and close relationships with the government and business partners.

- To secure a strong competitive position in China, foreign companies, apart from their conventional role as equipment suppliers, need to rethink and develop business strategies based on considerations of a much wider variety of relevant variables rather than solely the factor of immediate profitability.

- Key stakes for foreign players for doing business in China include: (a) contextual factors, such as political conditions, legal and regulatory frameworks, financial and communications systems, and obstinate bureaucracy; (b) conflict between the goals of the Chinese government and those of foreign firms; (c) the Chinese preference for purchasing foreign products in relation to their source countries; (d) possible pitfalls of Sino-foreign alliances; and (e) the chances for foreign players of breaking into service areas. For U.S. firms, additional concerns derive from political relations between China and the United States, the annual renewal of Most Favored Nation status, and the relatively limited resources the U.S. government offers its own firms to finance ventures in China.

- According to the Chinese traditional concept of law, a nation should be ruled by internalized, often coercive moral forces, and the virtuous men of a nation, who are positioned to rule, are delegates and enforcers of these forces. Law can be as general or as particular as the government's policy objectives require. Often in practice no clear distinction is made between legal rules (law) and administrative commands (policy). Legality is usually viewed as a source of government legitimacy. China's National People's Congress is, in theory, empowered to make laws, but, in reality, China's State Council, under the leadership of the Chinese Communist Party, plays a more important role in legislation. Interministerial rivalries or disputes caused by conflicts of interest or goals often strongly influence the drafting, enacting, and enforcing of laws.

- An inadequate legal framework has had a negative effect on China's telecommunications industry. As of April 1996, no codified law was yet in place that could uniformly regulate the telecommunications industry. Lack of a legally powerful mandate has created loopholes that allow telecoms players to bypass MPT regulations; rule of exception has brought about unclear or ambiguous policies and inconsistent or fitful approval of business ventures that involve China's political constituencies outside the MPT.

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Chapter One

Prelude: The Challenge of Change

1.1 A New Player in China's Telecommunications Playground

On July 18, 1994, the China United Telecommunications Corporation (*Lian Tong* in Chinese), abbreviated as China Unicom, was officially established with a claimed registered capital of RMB (Ren Min Bi) 1 billion yuan (U.S. \$115.6 million). Government approval was granted by the State Council, China's highest policymaking and executive body, which issued State Document No. 178 (1993) specifically to proclaim the position of the Chinese central authorities and its approval of the new company.¹

The new telecoms consortium was initiated and directly sponsored by three ministries under the State Council: the Ministry of Electronics Industry (MEI), the Ministry of Electric Power (MEP), and the Ministry of Railways (MR), with the MEI playing the leading role.² Thirteen other large state-run organizations, listed below,³ were announced as shareholders of China Unicom, each of whom, as of July 1994, had reportedly invested up to RMB 80 million yuan (U.S. \$9.25 million) in the new venture.⁴

1. China International Trust and Investment Corporation (CITIC)⁵
2. China Everbright International Trust and Investment Corporation
3. China Resources Group Co. Ltd.
4. China Huaneng Group Co.
5. China Merchants Holdings Ltd.
6. China National Chemicals Import and Export Corp.
7. China National Technology Import and Export Corp.
8. China Foreign Economy, Trade, Trust and Investment Corp.
9. Beijing CATCH Communications Group Co. (a business corporation run by the Beijing Municipal Government)
10. Shanghai Scientific and Technological Investment Company Ltd.
11. Guangzhou United Telecommunications General Corp. (China

¹The exact corporate status and business scope of Unicom were not specified by the State Council.

²Two years earlier, in 1992, these three ministries had jointly submitted a proposal to China's State Council for the establishment of China Unicom. The main purpose in the proposal included the use and development of private networks for the nation, the introduction of competition into China telecommunications, and the reform of China telecommunications management system.

³Advertisement in *China Daily*, July 19, 1994, 12.

⁴"Telecommunications Corporation Expands Rapidly," Xinhua News Agency, May 11, 1995.

⁵The CITIC is reported by some sources to be the State Council's own investment arm.

Unicom Guangzhou Branch)

12. China Fujian Foreign Trade Center Group

13. Dalian Vastone Telecommunications & Cables Co. Ltd.

China Unicom plans to build an investment of up to RMB 300 billion yuan (approximately U.S. \$34.5 billion, based on the 1995 exchange rate) from different sources by the end of this century.

The stakes are high. With the prospect of massive capital investment required to upgrade and install networks and the subsequent huge profits to be made, 120 Chinese domestic entities and 66 foreign firms sent their compliments to China Unicom (see the **Appendix**); many provinces, cities, and large companies expressed their willingness to invest in the new venture and become shareholders; about 80 big-name overseas companies and financial institutions have shown interest in making contracts with the new entity.⁶ As positive and strong as China Unicom appeared, these current or potential stakeholders may nevertheless have reasonably been wary of the potential risks and uncertainties associated with Unicom, and their actual commitment to this venture is uncertain.

Headquartered in Beijing, the company initially created nine branches, namely, Electronics Telecom Branch, Electric Telecom Branch, Railways Telecom Branch, the First Branch, the Second Branch, Beijing Branch, Shanghai Branch, Guangzhou Branch, and Fujian Branch. As of May 1995, it was reported to have set up thirty branches.⁷ China Unicom plans to set foot in almost every province and city of the country. **Figure 1-1** shows the structure of China Unicom, and **Table 1-1** shows its chief officers.

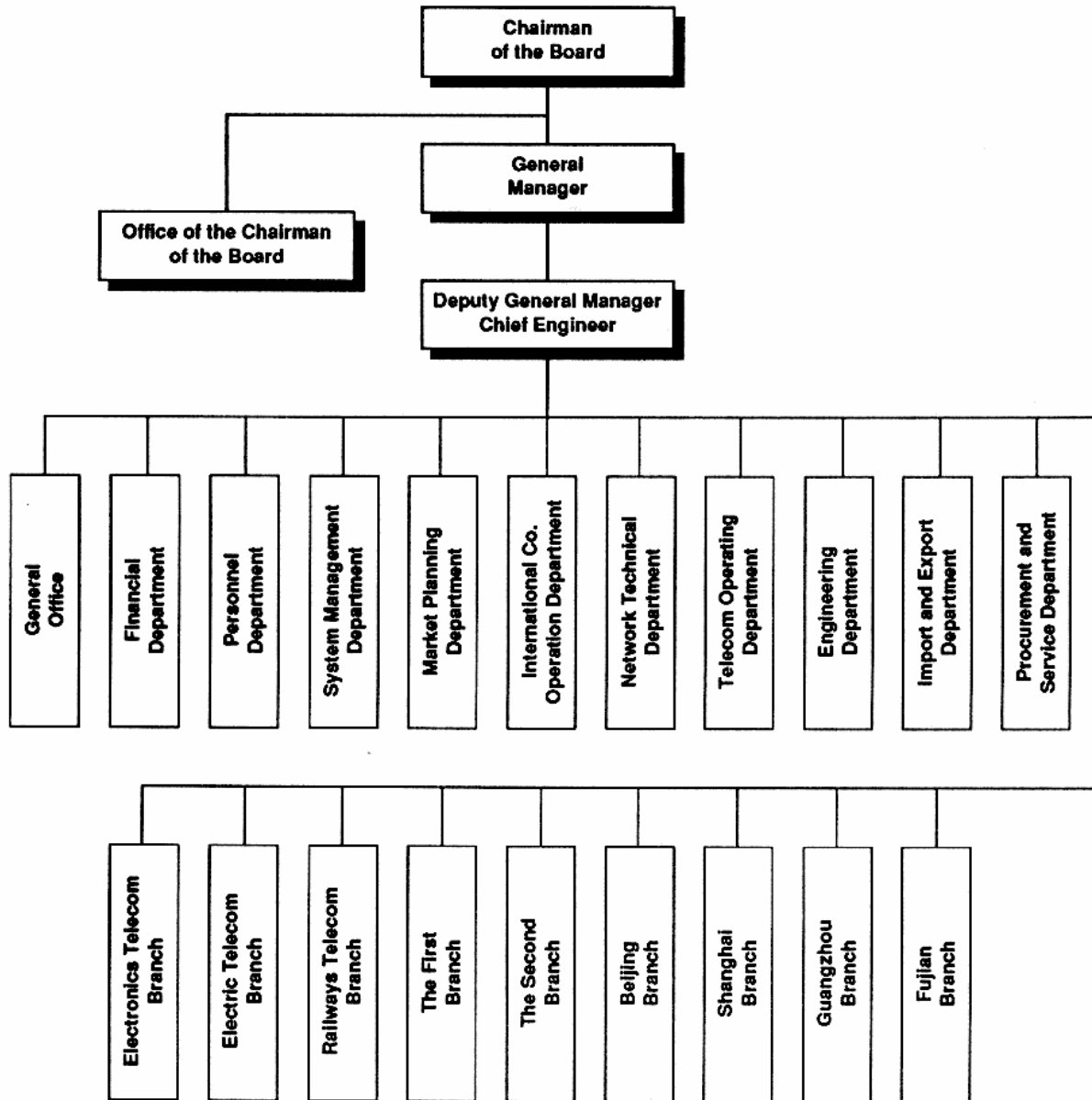
In addition to the input (capital investment, use of facilities, personnel support, etc.) of the large shareholders, China Unicom, for initial start-up operations, seems to be backed up by the availability of the MEI's large-scale electronic manufacturing facilities and R&D bases, as well as the MEP and the MR's private communications networks (equipped with 13 million circuits as against the 19 million of the Ministry of Posts and Telecommunications [MPT])⁸ across the country, which have considerable spare capacity.⁹ (There were more than thirty private national telecoms networks at the time when China Unicom was created, which were owned and operated by the Ministry of Railways, the Ministry of Electric Power Industry, China's oil industry, radio and TV broadcasting industry, Bank of China, Xinhua News

⁶Pei Jianfeng, "New Telecom Provider to Build Own Network," *China Daily*, July 25, 1994, 2.

⁷"Telecommunications Corporation Expands Rapidly."

⁸"Static Interference: China's Telecom at the Threshold," *Business China*, May 17, 1993, 19.

⁹But how and on what terms the arrangement between Unicom and the three ministries can be worked out remains a critical question.



Source: Ante Xu, "China's Telecom at the Crossroads," reprinted from China Unicom brochure, 1994.

Figure 1-1

Organizational Structure of China Unicom

Agency, and the Chinese military. Many of these private networks, with their spare capacities, are possible resources for China Unicom.)¹⁰

Table 1-1

Management Team of China Unicom

Chairman of Board of Directors	Zhao Weichen
President & Chief Executive Officer	Li Huifen
Deputy General Manager	Lu Jianguo
Deputy Managers	Chen Caimin, Guo Huanmin, and Yu Xiaomang
Chief Engineer	Peng Jingxian
General Office	Jin Xiaohong, Hong Ming
Departments	Responsible Officers
Financial	Shen Rongming
Personnel	Zhang Zhandi
Systems Management	Wang Yafang
Market Planning	Jiang Zhiming
International Cooperation	Zhu Yifei
Network Technology	Yao Muzian
Telecoms Operating	Tu Dongchen
Engineering	Wu Duhua
Import and Export	Wang Qing
Procurement and Services	Xu Qiang

Source: Unicom News Section, *CTC News* 1, 2 (Feb. 5, 1995), 11.

1.2 Mixed Blessings for the Newborn

China Unicom apparently enjoys top-level support, as reflected by the messages to the general public written in Chinese calligraphy by President Jiang Zemin, Premier Li Peng, and Vice-Premier Tian Jiyuan, among others. Calligraphy is a favorite channel of Chinese top leaders, who use it to signal support or solicitude. Official support was also conveyed by Vice-Premier Zou Jiahua, who supervises China's telecommunications, electronics, and other high-technology industries, in his inauguration speech, by saying "the establishment of China Unicom is a significant decision made by the central government to speed up the development of the telecommunications sector."¹¹ In that speech Zou urged the MPT and other state

¹⁰Pei Jianfeng, "New Telecom Provider to Build Own Network," *China Daily*, July 25, 1994, 2.

¹¹Pei Jianfeng, "Unicom Opens Door for Competition in Telecom," *China Daily*, July 20, 1994, 2.

departments to help China Unicom to begin operations quickly and to solve the problems of technology interconnection and upgrade, communication, financing, human resources, and foreign affairs. He detailed the MPT's responsibilities in assisting China Unicom's development (see Chapters Five and Six).

Top-level support is more solidly reflected in the agreement of the State Planning Commission (SPC) that, as an independent entity listed in China's national economic plans, Unicom is empowered to:

- Make its own plans for production, capital construction, personnel, internal finance, and R&D and technical renovation investment, and
- Examine and approve its subsidiary or branch capital construction and renovation investment projects valued up to RMB 50 million (U.S. \$6 million).

(This agreement is of great significance, given the system of state control over many sectors of the Chinese economy.)

A controversial message, however, was released by the top leadership when Zou reaffirmed the MPT's unshakable legislative role as both a regulator and operator in the market and requested China Unicom to abide voluntarily by the rules and regulations set by the MPT concerning such issues as technological structures, standards, and connectivity, in addition to business activities. Unicom is required by the SPC to submit planning and operational reports to the MPT and other top government organizations. Its production and construction plans are subject to preliminary review and examination by the MPT.¹² And despite the SPC's agreement, in dealing with various matters excluded from the two areas listed above, China Unicom is mandated to accept control by a number of organizations: the SPC, the People's Bank of China, the Ministry of Finance, the Ministry of Personnel,¹³ the Ministry of Labor,¹⁴ and the Foreign Affairs Office of the State Council.¹⁵ The central government has clearly indicated that, as a pilot project, China Unicom is the only

¹²Unicom News Section, *CTC News* 1, 2 (Feb. 5, 1995), 10.

¹³The Ministry of Personnel is charged by the State Council with managing senior government functionaries, leading personnel of the enterprises or institutions under the State Council, intellectuals, administrators, technical professionals, and other white-collar workers. It also formulates plans and draws up rules and regulations regarding personnel management of the state organs and establishments.

¹⁴The Ministry of Labor is different in function from the Ministry of Personnel. It is responsible for the management of the work forces, i.e., blue-collar employees and laborers working at state-run enterprises in cities or towns. It sets up and modifies policies and programs for the management, training, protection, and compensation of this work force.

¹⁵"China Unicom Is Officially Founded," *China Telecommunications Construction* 6, 4 (August 1994), 70. As this article makes clear, Chinese state-owned companies are all subject to government control and not so independent as U.S. firms.

organization authorized to launch the country's second telecoms network; no other firms, domestic or foreign, will be allowed to do so.¹⁶

In contrast to the central government's stated regulatory restrictions on China Unicom, the newly created company seems to be aggressively seeking a privileged route to get around the MPT. Zhao Weichen, Chairman and chief executive officer (CEO) of China Unicom, said at the opening ceremony for China Unicom that, because the State Council allows China Unicom to do some new market explorations, the company, within the scope of business allowed by state policies, had made long-term plans and would forge ahead and pursue all types of joint construction and investment ventures.

Politically, further confusion has been added by the State Council's announcement that the State Economic and Trade Commission (SETC; previously known as the State Economic Commission) would be charged with jurisdiction over China Unicom, with control over its operation, despite the SETC's lack of technological and managerial background in telecommunications. (See section 4.2.2; as of April 1996, no information was available on how SETC will actually exercise power over China Unicom.)

1.3 Overseas Reactions and Prophecies: On Sound Ground?

The birth of China Unicom triggered worldwide speculation about the trend and directions of China's telecoms development. A widespread consensus was that the event marked the end of the MPT's forty-five-year telecoms monopoly and that a more open and competitive market environment was rapidly being shaped, which represented an emerging challenge and opportunity for both Chinese domestic players and international competitors. Late in 1993, western telecoms analysts predicted that as China's domestic and overseas pressures would mount in China for the MPT to scrap its ban on foreigners becoming involved in the management of, or taking equity in, the telecommunications business, that Beijing would plan to relax its control in exchange for foreign capital and technology for the Chinese telecoms industry, that it would soon open up China's telecoms industry to foreign companies: they even predicted that the end to the ban might be less than six months away.¹⁷

These predications turned out to be too optimistic or shaky, because, although China's telecommunications market has grown increasingly competitive and regionally oriented, as of April 1996 no fundamental change in policy and regulation concerning foreign involvement has taken place. Instead, the State Council and the MPT have made constant efforts to

¹⁶Pei Jianfeng, "Unicom Opens Door for Competition in Telecom," *China Daily*, July 20, 1994, 2.

¹⁷Bloomberg, "Pressure Mounts on Beijing to Open up Telecoms Sector," *South China Morning Post*, Business Section, Nov. 11, 1993, 2.

reinforce their stand on prohibiting foreign companies from operational, managerial, or equity involvement in China's telecommunications networks, on the grounds of national security and sovereignty.

In the present Chinese sociopolitical circumstances, China's telecommunications industry does not seem to be heading toward liberalization, deregulation, or privatization.¹⁸ Opening up to increased competition in network equipment supplies and value-added and mobile communications services has not indicated a change in the long-held political and ideological notion that the role of telecommunications in the nation is analogous to that of the nervous system in a living creature. Decentralization of management do not necessarily lead to deregulation or decontrol of the national leadership. The new regulations issued late in 1993 on ratification and administration of publicly run communications businesses remain in effect today, and the prohibition against telecoms network ownership or service operations by foreign organizations, individuals, or foreign-funded enterprises in China has been repeated on all official occasions.¹⁹

With the arrival of China Unicom, the MPT's monopoly of national telecommunications appears to have been broken, but although no one can deny that the government may intend a new united front, to compete with the MPT to provide better, faster, and cheaper telecommunications services, in the long run the government will retain the power to curb attempts at foreign penetration, increase home competitiveness, and protect the domestic telecoms industry. Indeed, this view, was expressed in a brief, three-step leapfrogging development strategy²⁰ envisioned by the Chinese government:

Step 1: Import advanced telecoms equipment from abroad to meet the urgent domestic demand.

Step 2: Set up joint ventures with foreign companies to manufacture state-of-the-art equipment and absorb advanced technologies and management expertise.

¹⁸A fundamental assumption is that the Chinese government does not want, and is not planning, to weaken or lift its control, be it regulatory or proprietary, over the country's telecommunications industry, although some business areas have been officially opened to market competition.

¹⁹Early in 1996, MPT Minister Wu Jichuan restated that the Chinese government is unlikely to relax its ban on foreign ownership of networks and on operation of telecom services before the year 2000.

²⁰In June 1994, Minister Wu Jichuan indicated that China was aggressively leap-frogging onto a futuristic information superhighway by exploiting the country's backwardness. According to Reuters, he was quoted as saying that "China's telecommunications construction can leap over some development stages and technical levels which the western countries had gone through and directly adopt highly efficient new technology and equipment" (Reuters Asia-Pacific Business Report, June 21, 1994).

Step 3: Promote R&D at home and domestically produce the advanced telecoms equipment needed²¹ so that China can leapfrog into an advanced information society.

1.4 Major Issues of Concern: Who and What

The birth and growth of China Unicom has brought out a more dynamic and complex context, in which China's telecommunications industry is moving ahead to achieve growth. Several key issues embedded in this new context need to be addressed:

- Who becomes significantly involved in China's telecoms industry?
- Who are the potential winners, losers, or co-beneficiaries?
- Who actually controls and allocates resources at different levels?
- Who plays the role of coordinator and mediator in case of tension, disputes, or conflicts?
- What are the processes and mechanisms for decisionmaking?
- What challenges and dilemmas do political and regulatory regimes face?
- What are the possible coalitions and confrontations within and between industry consortia and other participants?
- What crucial technical problems will decisionmakers need to deal with?
- What are the stakes, concerns, and opportunities for foreign participants?
- What is the current status of the Chinese legal framework based on which the country's telecom industry operates?

²¹Xiong Bingqun, "Telecoms Development in China and New Target of the Year 2000," *China Telecommunications Construction* 7, 2 (March 1995), 10.

Chapter Two

Catalyst for Change

China Unicom has emerged as an indicator of China's dynamic telecommunications industry, which is growing with the country's economic and political moves. Underneath this industry dynamism is a multitude of active internal and external forces.

2.1 Development and Prospects

Only a few years ago, to Chinese ears, CHINADDN (China Public Digital Data Network), CHINAPAC (China Public Packet-switched Data Network), CHINANET (China's nationwide Internet network),¹ e-mail, electronic data interchange (EDI), and the Internet sounded like bizarre lexicons from outer space, but the situation is changing so rapidly that, in Chinese eyes, such terms are becoming as real and realistic, though not yet so widely accessible, as television (TV) or video pictures. In 1987, U.S. customers placing calls to the large industrial city of Shanghai had to dial an average of five times to complete a single call. By 1992, the overall chances of getting through to China from the United States on the first dialing attempt had improved from 25 percent to 45 percent,² and by the mid-1990s most callers got through on the first try. In 1992, operator-assisted service for phone calls and manual fax transmissions between China and the United States, and electronic transmittal of information through computer networks became available in Beijing, Shanghai, Guangzhou, Tianjin, Shenyang, Shenzhen, Nanjing, Chengdu, Xian, Wuhan, and Hangzhou.³ It was also reported in 1992 that in Tangshan, a town in Shangdong province, some 50 percent of all households had installed program-controlled telephones for domestic and overseas communication.⁴

In May 1994, IHEPNET, China's first direct network link to a U.S. Internet gateway, was established between the Institute of High-Energy Physics (IHEP) in Beijing and the

¹CHINADDN, connected to most of the provincial capital cities with a capacity of 776 circuits of 2.048 Mbps (megabits per second) and 2588 ports available, provides leased digital circuits with 2.4 kbps (kilobits per second) to 2 Mbps, frame relay, voice, fax, and teleconferencing services. CHINAPAC is composed of 32 nationwide node-switching centers and provincial node-switching centers with 60,000 thousand ports. Its National Management Center (NMC) is located in Beijing, and its tandem offices are set up in eight major cities. CHINANET, according to the MPT (*China Daily*, May 29, 1995), as of May 1995 provides users with the access to worldwide Internet for e-mail, UseNet News, Global Telnet, file transfer protocol (FTP), Gopher, the World Wide Web (WWW), Archie, and wide area information server (WAIS) services.

²Jeffrey Kao, "Phoning Home," *The China Business Review* (July-August 1992), 6.

³Ibid., 9.

⁴"Telecom Rising Nationwide," *Beijing Review* (March 1-7, 1993), 5.

Stanford Linear Accelerator Center through leasing a 64 kbps satellite communications network from AT&T. Soon afterward, another Internet connection, a joint effort of the Chinese Academy of Sciences, Beijing University, and Qinghua University which was called the China Education and Research Network (CERNET), was made by leasing a U.S. Sprint satellite communications network. CERNET has become widely known for rapid growth in users and database services. The plan, as of 1995, is for CERNET to provide a nationwide network for thousands of Chinese universities and research institutes to access the Internet by the year 2000. This project, financed partly by the central government and partly by regional network sponsors, entails construction of a backbone network that will initially operate at 64 kbps to 2 Mbps, with ten regional nodes and a management center in Beijing. In March 1995, China's access to the global information superhighway was greatly expanded by the installation of CHINANET, an MPT-operated commercial Internet system.⁵ In May, this nationwide network, operating at 512 kbps and 2 Mbps, began its initial public services and is reported to have connected CHINAPAC, CHINADDN, China PSTN, and CHINAMAIL networks, with an anticipated coverage of over two hundred major Chinese cities in thirty provinces by the end of 1996.

Obviously, China's economic revolution since the mid-1980s was paralleled by a more dramatic revolution in telecommunications. Its telecoms development has been characterized by huge investment (see Chapter Seven), rapid expansion of existing networks and services, and expeditious building of new networks. Its telecommunications construction has been focused on eight specific areas:⁶

1. Cross-country public switched telephone networks (PSTN), with the national trunks digitally transmitted and switched by SPC exchanges
2. Cellular mobile networks, with analog mobile networks interconnected for nationwide roaming, and GSM (Global System for Mobile Communications) digital networks expanded and interconnected for automatic roaming
3. Public packet-switched data networks
4. Narrowband integrated services digital networks (N-ISDN), which will be integrated with PSTN and public-switched data networks
5. Intelligent networks (INs), aimed for nationwide services

⁵Ted Plafker, "China to Triple Internet Links with Commercial Hookups," *Science* 267 (Jan. 13, 1995), 168.

⁶Adapted from Zhang Ligui, Director of the Directorate General of Telecommunications, MPT, "Telecommunications in China Entering a New Era of Rapid Development," *China Telecommunications Construction* 7, 5 (August 1995), 6.

6. An advanced communications support system to provide services and support for the operations of PSTN, N-ISDN, and IN which is expected to improve significantly the management of networks at both national and regional levels
7. An international communications network based on submarine fiber-optic and satellite communication technologies
8. Broadband integrated services digital networks (B-ISDN), deploying the technologies of asynchronous transfer mode (ATM) switching and synchronous digital hierarchy (SDH) transmission.

2.1.1 The State of the Art

In the past, China's telecommunications channels consisted mainly of the state-run postal and telecommunications offices throughout the country that supplement other dedicated communications networks used by broadcasting services, TV stations, newspapers, meteorological observatories, and marine industries. Other private networks served the needs of railways, road traffic, airlines, petroleum exploitation, water conservation and water power, all operated by government departments and ministries.⁷

Between the 1970s and early 1980s, China's communications system was characterized by the use of such technologies as high-frequency point-to-point radio, open wireline carrier, microwave radio relay, coaxial cable-transmission network, earth satellite station, electron-mechanical telephone exchanges, analog-mode-dominated long-distance networks, and wired broadcast across the vast Chinese rural territories. However, the pace at which China's telecommunications industry is advancing its technologies and improving the quality of its services and management has been impressive. In 1978, China had only 4.06 million lines of total public exchange capacity, 3.69 million telephone sets, 19,000 long distance circuits (predominantly open wires), and a national telephone density of 0.38 percent. In ten years, between 1980 and 1990, the public telephone switching capacity and the number of telephone sets both increased threefold, the number of long distance circuits fivefold, and telecommunications traffic sevenfold.⁸ According to a report by the International Telecommunications Union (ITU), on the basis of residential telephone service revenues of U.S. \$6.81 billion, in 1993 China's MPT was already ranked twenty-first among the world's top public telephone operators.

Major progress since 1991 has been demonstrated by the following:

⁷Chinese Academy of Social Sciences, *Information China*, 2 (1989), 584.

⁸Liu Cai, "China's Telecom Development and Policy," *Transnational Data and Communications Report* (January-February 1994) (Special Report), 24.

• **Key national projects completed (or work in process) during the eighth five-year plan period (1991-95) and beyond**

- China-Japan international undersea optical trunk
- China-Korea international undersea optical trunk
- Beijing-Wuhan-Guangzhou optical trunk
- Beijing-Jinan-Nanjing optical trunk
- Optical trunk along southeast coast
- Northeast optical trunk
- Northwest optical trunk
- Southwest optical trunk
- Guangzhou-Nanning optical trunk
- Guangzhou-Hainan optical trunk

These newly built interprovince fiber-optic trunks account for 37,000 kilometers (km) in length. If they are put together with other previously (prior to 1990) built interprovince optic trunks, plus all the intraprovince trunks, China's fiber-optic trunks were close to 100,000 km by 1995, comprising 75 percent of the length of all the long-distance telecoms transmission cables. These optic trunks connected the central switch exchange systems of all the provincial capital cities, with Lasa of Tibet the only exception (see Figure 2-1).

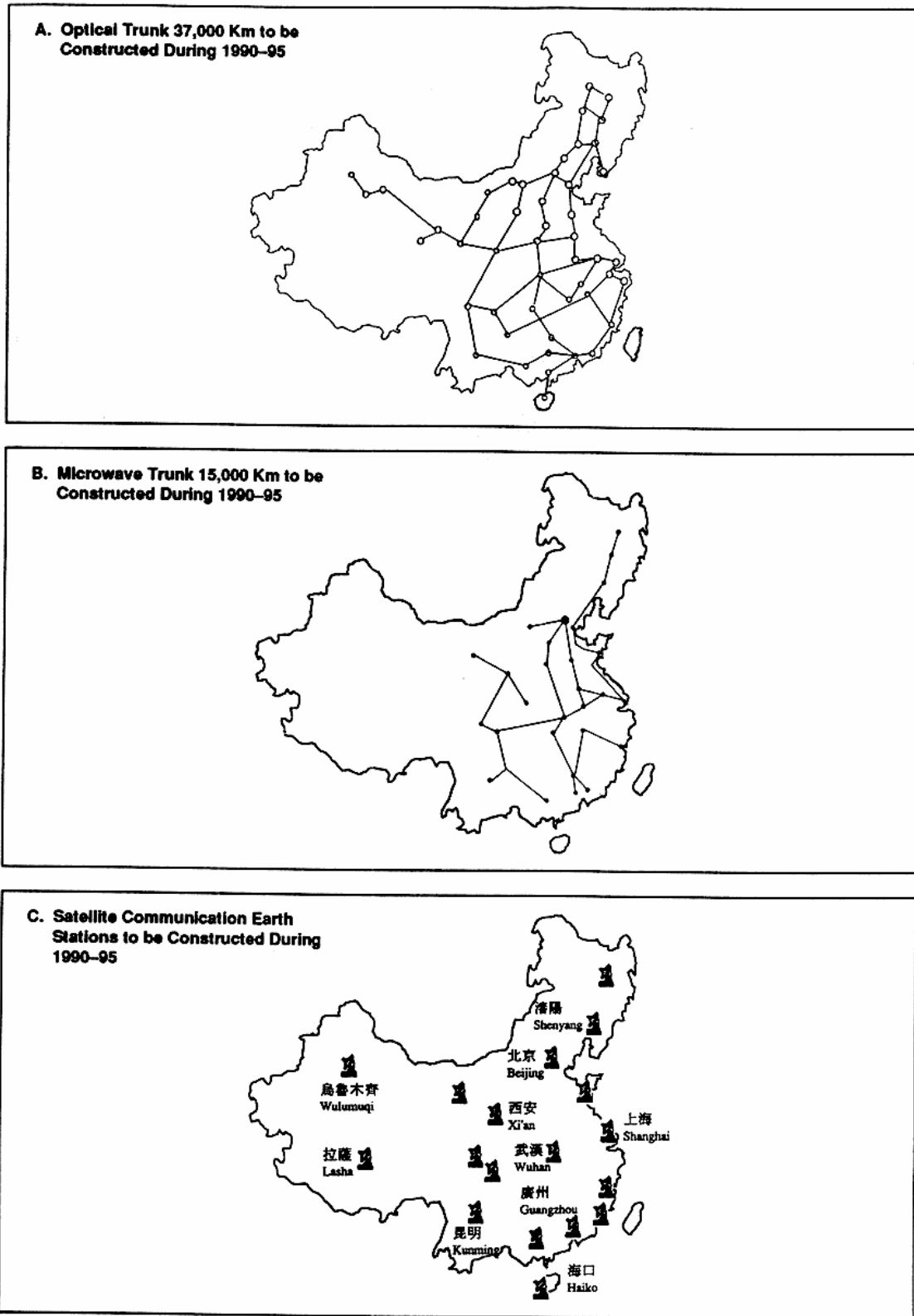
- 15,000 km of digital microwave trunks newly built or upgraded (see Figure 2-1).

- Roughly 20 new satellite communications earth stations constructed in Harbin, Shenyang, Xian, Shanghai, Xiamen, Haikou, Chongqing, Chendu, and Fuzhou (see Figure 2-1).⁹

- Completion of the first-phase public backbone digital data network (DDN), consisting of twenty-one digital circuit node exchanges, located in twenty-one major provinces or cities (2.048 Mbps E1, 776 ports and 64 kbps, V.35, V.24, X.21 DSO channels, and X.50 subchannels, for a total of 2,588 nodes). The network consists of three international gateways, located in Beijing, Shanghai, and Guangzhou,¹⁰ as well as eight hub exchanges, located in Beijing, Shanghai, Shenyang, Guangzhou, Wuhan, Chengdu, Nanjing, and Xian (see Figure 2-2).

⁹Xiong Bingqun, "Telecommunications Development in China and New Targets of the Year 2000," *China Telecommunications Construction* 7, 2 (March 1995), 6.

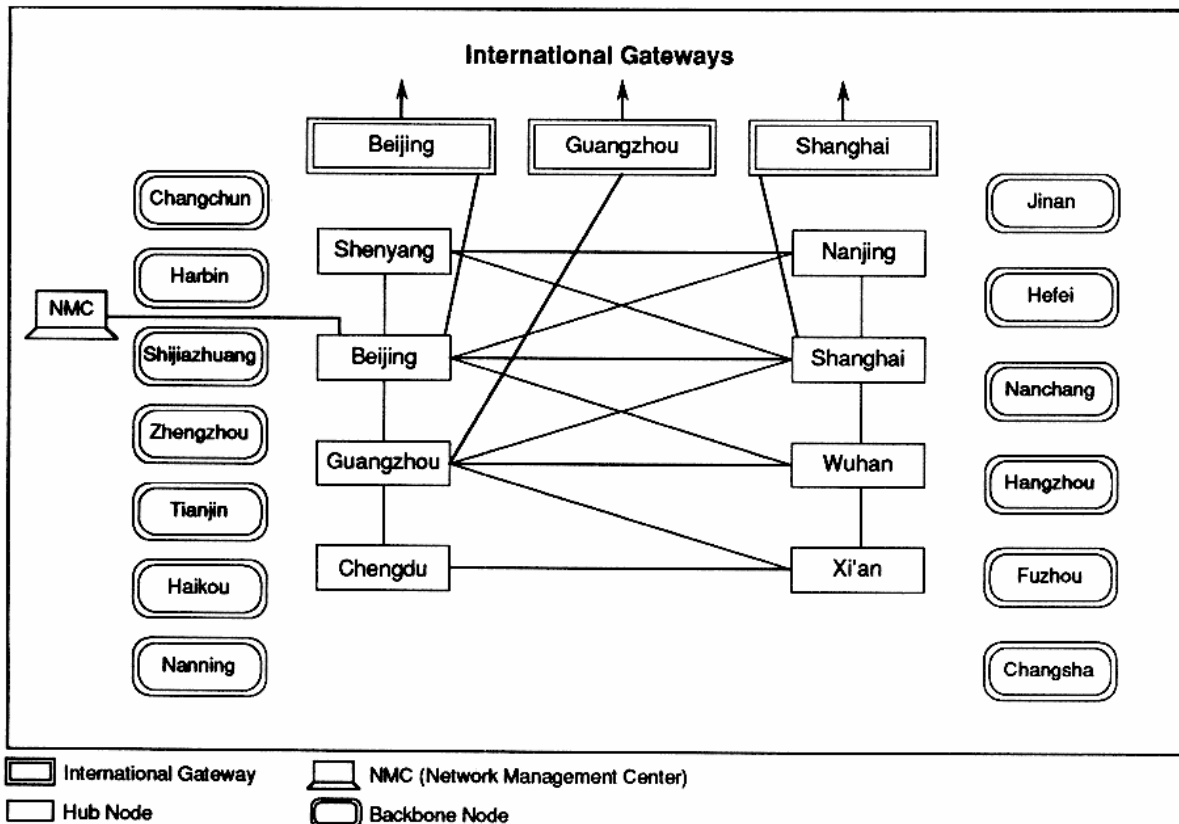
¹⁰The networks in these three cities direct most of the traffic to Japanese, Hong Kong, and Macau networks connected to other foreign networks. These gateways are used by 2,300 satellite circuits, 3,000 microwave and optical circuits, and about 250 submarine cable circuits. See Bill Bien, *A China Telecom Report*, Office of Telecommunications, U.S. Department of Commerce, May 20, 1994, 5.



Source: *China Telecommunications Construction*, 7, 2 (March 1995), 7.

Figure 2-1

Optical, Microwave, and Satellite Networks to Be Completed in China by 1995 or Later



Source: *China Telecommunications Construction*, 6, 6 (December 1994), 32.

Figure 2-2

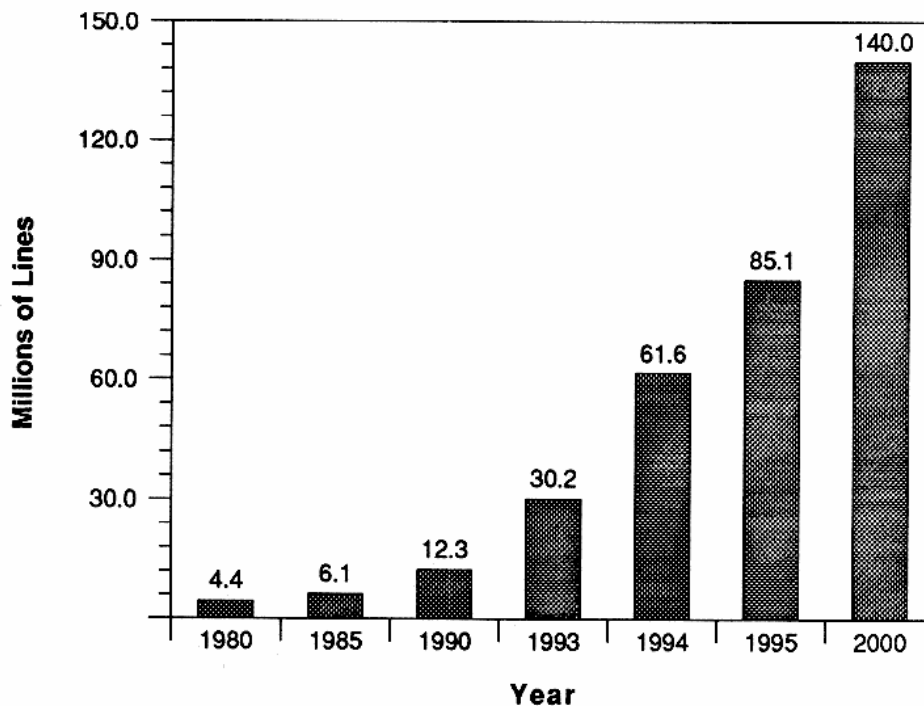
Organization of the Public Backbone Digital Data Network (DDN) in China

- Telecoms status indicators¹¹
 - National telephone density: (number of phone subscribers per 100 people)
 - 1994 3.2 percent (urban 13 percent, rural 0.49 percent)
 - 1995 4.5 percent (urban 17 percent, rural 0.79 percent)
 - Capacity of telephone exchanges:
 - 1994 49.3 million lines
 - 1995 68.6 million lines
 - Long distance trunks:
 - 1994 687,000
 - 1995 1,050,000
 - Number of telephone sets:
 - 1994 35.62 million

¹¹Adapted from "Rural Telephone Market Forecast in China" and "MPT Report," *CTC News* 1, 2 (Feb. 5, 1995), 1-2; "China Telecom in 1995," *CTC News* 1, 3 (Feb. 20, 1995), 1; Xiong Bingqun, "Telecommunications Development in China and New Target of the Year 2000," 4-10, and MPT reports.

- 1995 48.13 million
- Radio paging:
 - 1994 10.27 million subscribers
 - 1995 17.4 million subscribers
- Cellular phone:
 - 1994 1.57 million subscribers
 - 1995 3.6 million subscribers
- Technological upgrading by 1995
 - Digital switching systems reached:
 - 84 percent of the total long-distance switching capacity
 - Program controlled transmission reached
 - 97 percent of the total urban switching capacity
 - 100 percent of the total long distance switching capacity

Figures 2-3 through 2-5 illustrate trends in the development of China's telecommunications between 1980 and 2000.

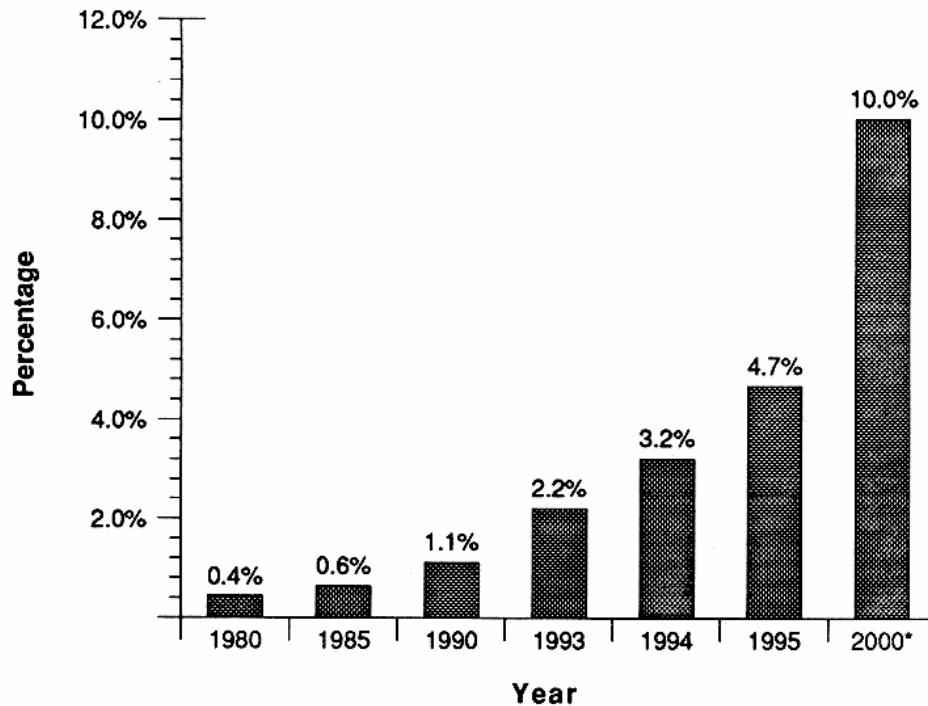


*Estimate.

Source: Adapted from *CTC News* 1, 2 (Feb. 5, 1995), 1-2; *CTC News* 1, 3 (Feb. 20, 1995) 1; and *China Telecommunications Construction* 7, 2 (March 1995), 4-6.

Figure 2-3

Capacity of Telephone Exchange



*Estimate.

Source: Adapted from *CTC News* 1, 2 (Feb. 5, 1995), 1-2; *CTC News* 1, 3 (Feb. 20, 1995) 1; and *China Telecommunications Construction* 7, 2 (March 1995), 4-6.

Figure 2-4

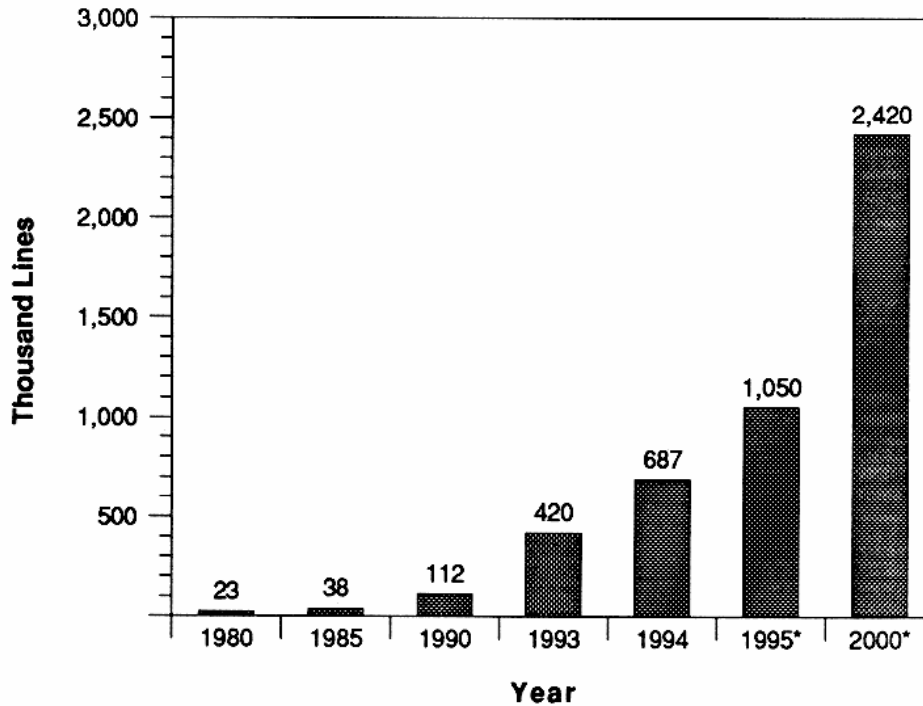
National Telephone Density

2.1.2 Future Prospects¹²

In 1994, after reviewing the trend in China's telecoms growth, the MPT modified its previous plan and sketched a more ambitious blueprint for advancing China's telecommunications than was proposed in the State's ninth five-year development plan (1996-2000). The objectives to be achieved by 2000 include:

- Revenues of the national posts and telecommunications: 6 percent of the GNP (0.55 percent in 1990)

¹²Xiong Bingqun, "Telecommunications Development in China and New Targets of the Year 2000," *China Telecommunications Construction* 7, 2 (March 1995), 10, and MPT reports.



*Estimates.

Source: CTC News 1, 2 (Feb. 5, 1995), 1-2; China Telecommunications Construction 7, 2 (March 1995) 4-6.

Figure 2-5

Long-Distance Trunk

- Capacity of the telephone exchanges: 114 million lines¹³
- Total number of telephone sets: 140 million
- National telephone density: 10 per 100 people
 - Urban: 84 per 100 households
 - Rural: 1.77 per 100 people
- Line access density: +6.5 percent
- Long distance trunk: 2.4 million lines
 - Optical trunk 60,000 km (GBps [gigabytes per second] plus SDH and DXC)
 - Digital microwave trunk 30,000 to 50,000 km
 - Satellite earth station (antenna diameter > 11 meter [m]) 60-70
- Mobile phone access lines: more than 8.87 million
- Cellular mobile phone subscribers: 18 million
- Radio paging subscriber: 100 million

¹³Other sources report that China aims at an exchange capacity of 140 million or higher main telephone lines. As of 1995, the United States, ranking first in the world, has 150 million lines (John Ure et al., *Telecommunications in Asia: Policy, Planning, and Development* [Hong Kong: Hong Kong University Press, 1995], 11).

- Data communication users: more than 1.5 million
- Intelligent services based on the telephone and CCS-7 networks will be provided, packet-switching network (to cover 90 percent of the cities above county level), on-line information retrieval, data communications based on national network backbones (public switched data network [PSDN], DDN, and CHINAPAC), including EDI, voice mail, e-mail, fax, frame relay, electronic telephone directory, videotex, and broadband services, will be developed, enhanced, and gradually made available for the general public.

The technologies to be adopted and the network systems for the year 2000 and beyond, proposed by the China State Science and Technology Commission and the MPT, include: CCS-7 signaling networks (a support system for national digital communication networks); digital synchronous networks and Telecommunications Management Networks (TMN) compatible with the integrated services digital network (ISDN); broadband ISDN (B-ISDN); encryption systems; digital switching and transmission technologies; microwave communications systems; and GBps high-speed transmission systems. The telecoms network is to be managed and coordinated by a hierarchical exchange system of interprovincial centers, provincial centers, prefecture centers, and county centers (toll centers), as well as international information gateways in Beijing, Guangzhou, Shanghai, and other major cities.¹⁴

2.2 Telecommunications as a Powerful Engine

2.2.1 Telecoms Growth and Economic Benefits

The years since the mid-1980s have been distinguished in China by two important movements: internal economic restructuring, which featured economic liberalization, decentralization, and marketization, and an external opening up to the outside world, which has resulted in a large inflow of foreign investment and a boost to foreign trade. Working together, these two movements have brought about a great national economic growth, averaging around 10 percent per year, and an even greater growth in telecommunications: annual business sales of posts and telecommunications¹⁵ increased, on average, by 19.8 percent between 1979 and 1993.¹⁶ Revenues generated are forecast to increase by 20 percent annually from 1996 to 2000, which means they may rise from a 0.55 percent share of China's

¹⁴Adapted from Xiong Bingqun, "Telecommunications Development in China and New Target of the Year 2000," 11-12, and "Critical Telecommunications Related Technologies on SSTC's Priority List," *China Science and Technology Newsletter*, State Science and Technology Commission, P. R. China, March 30, 1995, 3.

¹⁵Revenues generated from China's postal services have been only a rather small proportion of the total revenues.

¹⁶"China Information Policies," *China Science and Technology Newsletter*, State Science and Technology Commission, P. R. China, 40 (Feb. 25, 1995), 2.

GNP in 1990 to 6 percent by the year 2000.¹⁷ China's telecoms network has been developing faster than its growth in GDP since 1985, averaging 20.2 percent a year between 1985 and 1990, and more than doubled to an annual 45.9 percent in 1991-1994. (1991, 40 percent; 1992, 49 percent; 1993, 68 percent.)¹⁸ The growth of economy demanded and fueled the growth of telecommunications in the first place, and the growth of telecommunications then propelled expansion of the Chinese economy.¹⁹ Figures 2-6 through 2-9 illustrate the growth trend of China's GNP and its telecommunications industry since the early 1980s and a growth rate comparison (in percentages) between the two areas.

Behind these telecoms figures lie three facts that merit specific attention:

- The period 1991-95 witnessed an average annual growth of 43.7 percent, higher than that of the period 1986-90, which had a 20.1 percent growth.
- The share of the telecommunications services, as opposed to that of the postal services, increased in 1993 to 73.8 percent of the total P&T business volume.
- Long-distance services (operated by the MPT) make up between 85-90 percent of the total sales, while local services (operated by provincial and local Posts and Telecommunications Administrations [PTAs]) represent only a small proportion.²⁰ (For a detailed discussion of the relationship between the MPT and the PTAs, see Chapter Five.)

2.2.2 Official Bottom Lines

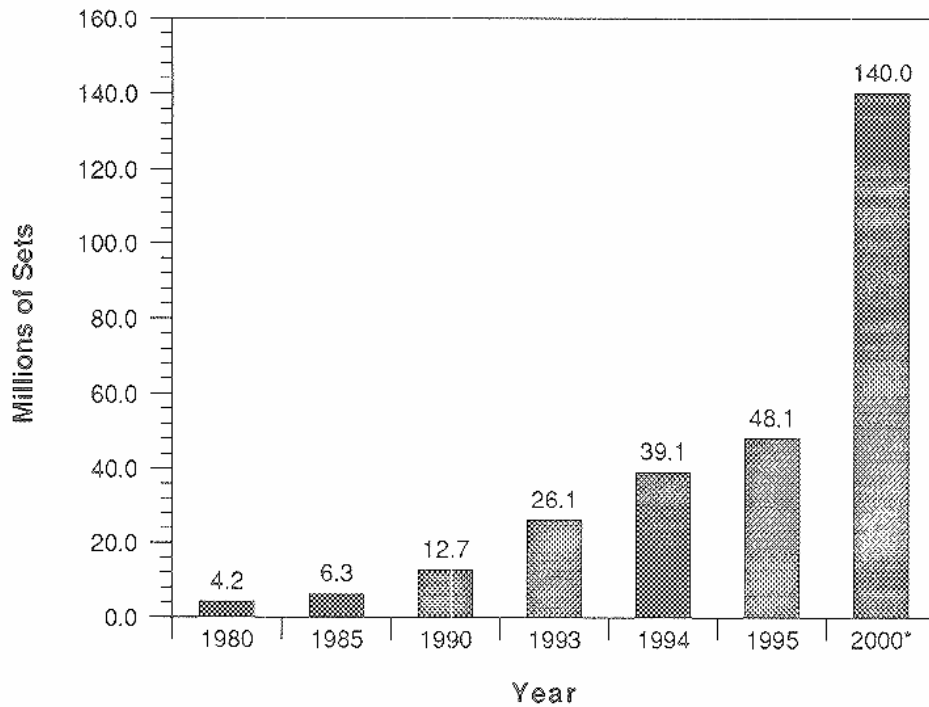
Modernization Requirement. The great growth in telecoms has a direct bearing on the increasing official recognition that China's ability to sustain an already sizzling economy is contingent on its capacity to develop and upgrade the country's infrastructure: a sturdy telecommunications infrastructure is vital to China's sociocultural, political, and economic

¹⁷Xiong Bingqun, "The Present and the Future of Telecommunications in China," in *Proc. 5th Int. Conf. Inst. for Posts and Telecommunications*, Tokyo, March 1993 [conference handout]. Xiong Bingqun was then Professor and President of the Chinese Academy of Posts and Telecommunications.

¹⁸Reuter World Service, "China's Telephone Monopoly Ends with New Service," July 20, 1995, and Ian Scales, "Beyond the Great Wall: Telecommunications in China," *CommunicationsWeek International* 21, 7 (July 1994), 5.

¹⁹According to Yang Peifang, research conducted by the MPT based on econometric modeling using data collected from twenty-nine countries shows that the marginal contribution to the national economy from investing in information and communications resources is 15.8 times as much as the contribution from investing in other forms of resources ("On the Goals and Ways of a Harmonic Development of Telecommunications," *P&T Economy* 16, 3, 1991, 2-4). Another report indicates that a 100 million yuan investment in telecommunications would increase the national income by 1.38 billion yuan in ten years' time: the investment-benefit ratio would be approximately 1:14, and an implicit internal rate of return of 45 percent (see Di Ang Zhao et al., in *Telecommunications Policy* [April 1994], 215).

²⁰MPT, "Overview of P&T Development in 1993," *Posts and Telecommunications Enterprise Management* (January 1994), 5.



*Estimate.

Source: Adapted from *CTC News* 1, 2 (Feb. 5, 1995), 1-2; *CTC News* 1, 3 (Feb. 20, 1995) 1; and *China Telecommunications Construction* 7, 2 (March 1995), 4-6.

Figure 2-6

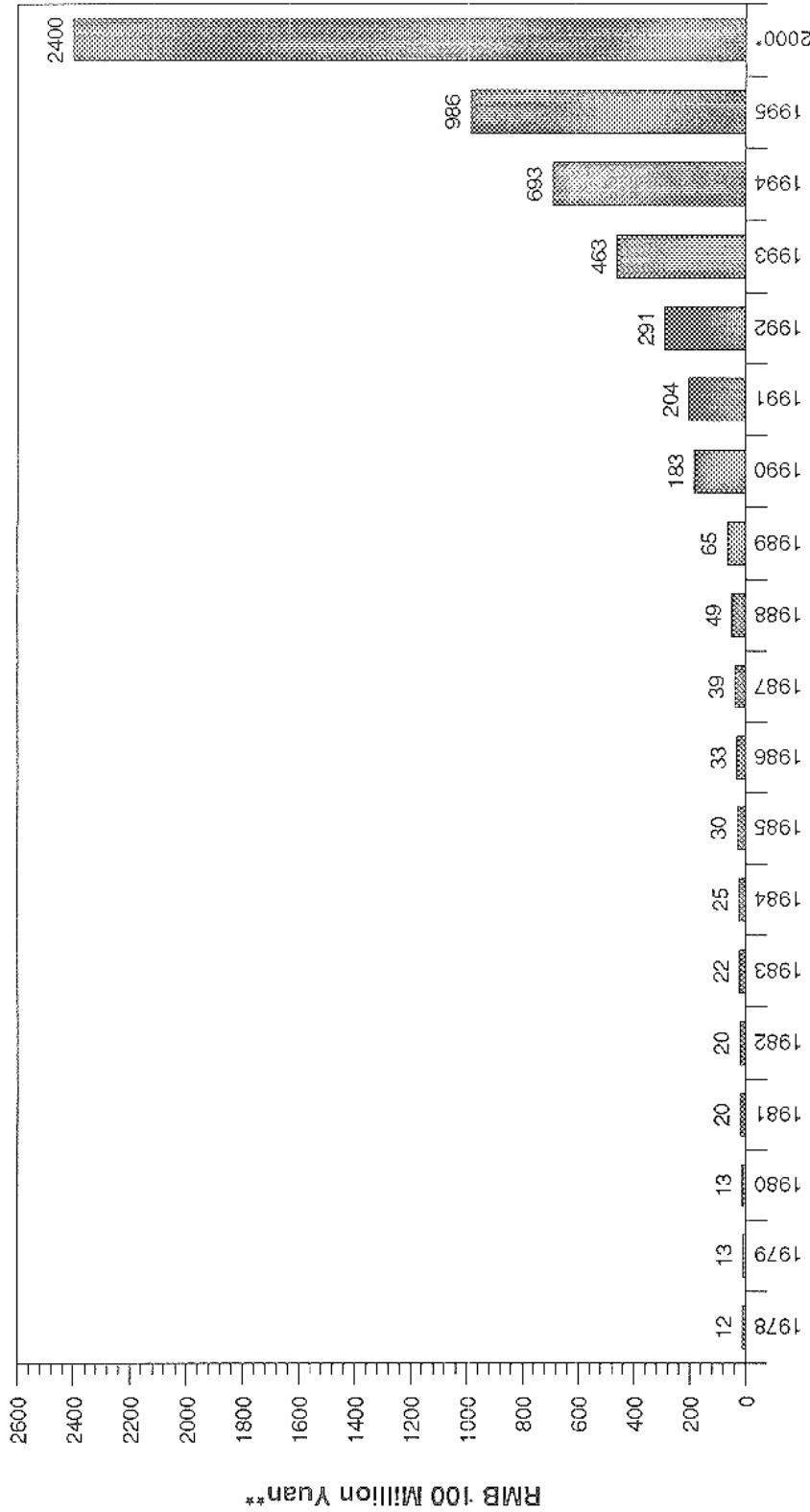
Number of Telephone Sets

development.²¹ The current telecoms system, in spite of marked progress, remains quite insufficient in provision of services and underdeveloped in technology, bottlenecking the nation's further growth.

The Chinese government understands that "a well planned, skillfully managed, and effectively operated communications system contributes to economic and commercial growth, to government efficiency and to the dissemination of information required for the attainment of educational and social goals as well as for the enhancement of the national culture."²² Accordingly, China aims to make available to the general public, within the shortest time frame possible, a wide range of information services that cover both voice and nonvoice data communications for inventory control, financial and economic management systems, public services (such as hotels, airlines, auto rental and taxi management, remote computing, office

²¹Wu Jichuan, the MPT Minister, said in April 1995 that "insufficiency in telecommunications capacity and shortage of services have been a major factor affecting China's opening up to the outside world and restricting China's economic growth" (*Financial Times*, Oct. 3, 1995, 27).

²²Mary G. F. Bitterman, "Improving Quality of Life with Telecom and IT," *Transnational Data and Communications Report* (November-December 1992), 11.



Year

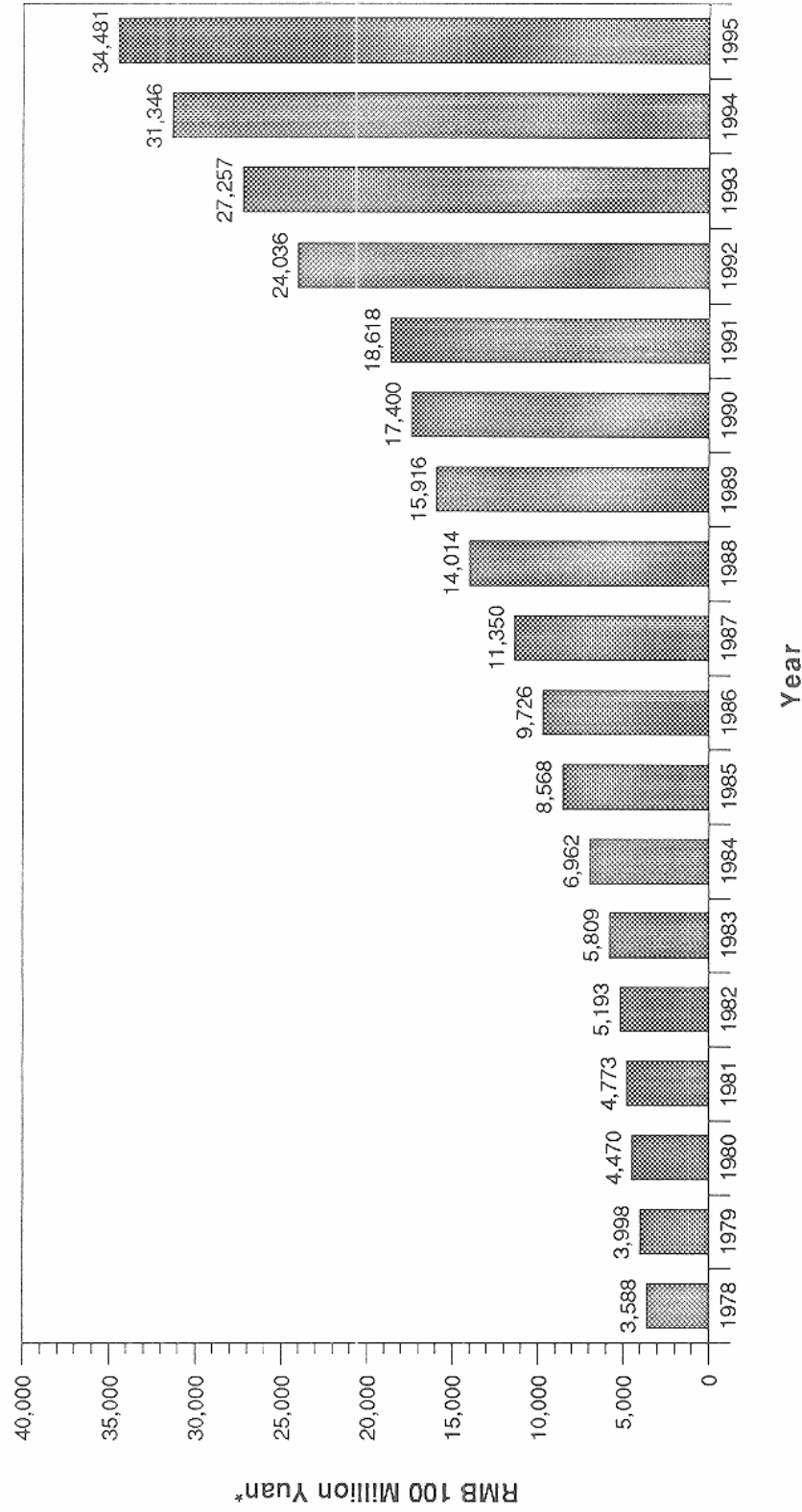
*Estimate.

**RMB = Ren Min Bi (currency of People's Republic of China)

Note: Postal service revenues account for approximately 15% of the total P&T revenues.

Source: Adapted from Pan Yupeng, "IT & Telecom Keys to Promoting China's Economic Reform," *Transnational Data Reporting Service* (November-December 1992), 19-20; Liu Cai, "China's Telecom Development and Policy," *Transnational Data and Communications Report* (January-February 1994), 27; and statistics published in *Posts & Telecom Enterprise Management* (1994-95): 1994, 3, 30, 5, 34, 8, 46, 6, 41; 1995, 2, 35, 6, 42.

Figure 2-7
Business Revenues of Posts and Telecommunications

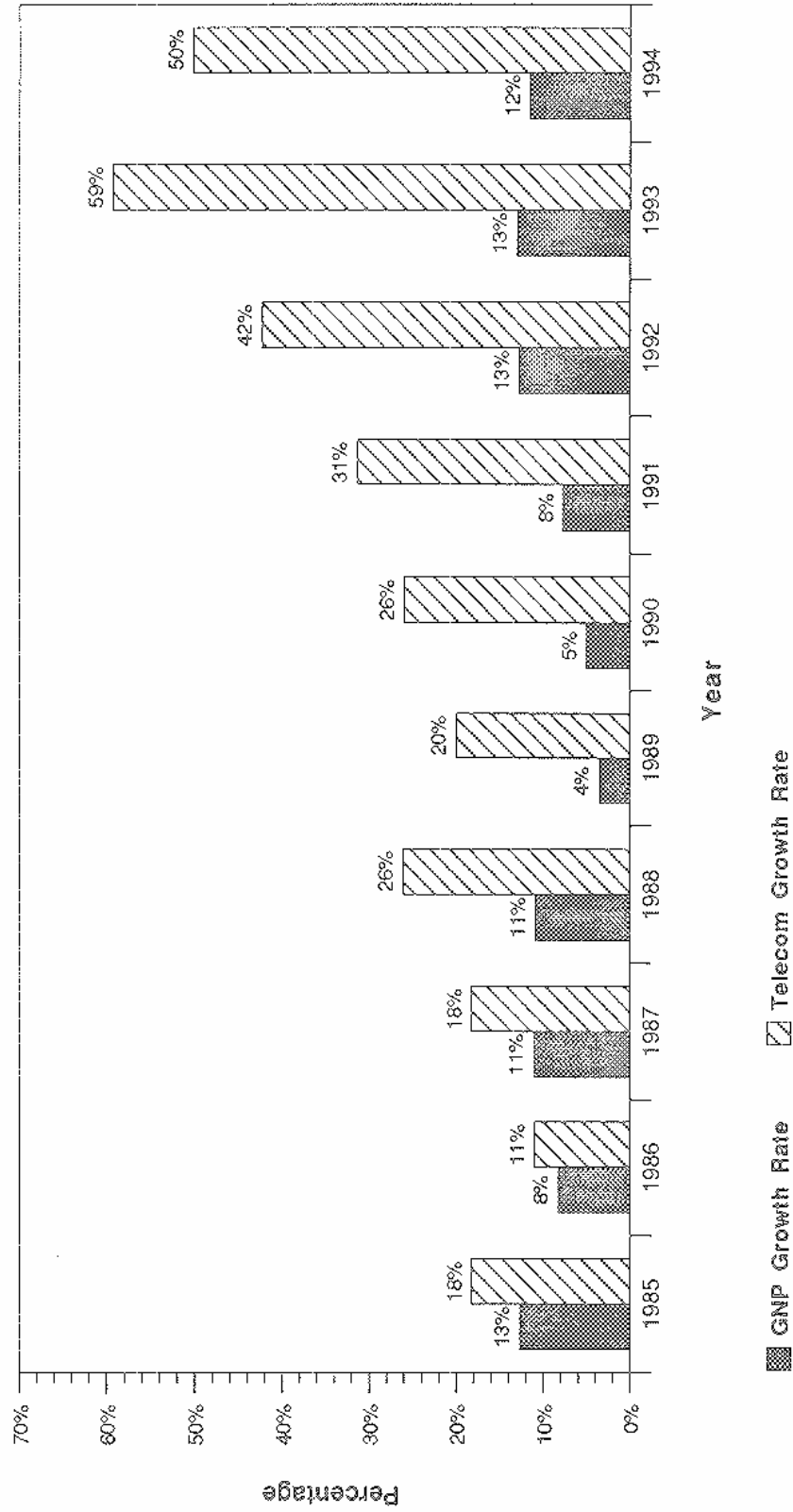


*RMB = Ren Min Bi (currency of People's Republic of China)

Source: Adapted from Pan Yupeng, "IT & Telecom Keys to Promoting China's Economic Reform," *Transnational Data Reporting Service* (November-December 1992), 19-20; Liu Cai, "China's Telecom Development and Policy," *Transnational Data and Communications Report* (January-February 1994), 27; and statistic published in *Posts & Telecom Enterprise Management*, (1994-95); 1994, 3, 30, 5, 34, 8, 46, 6, 41; 1995, 2, 35, 6, 42.

Figure 2-8

China's GNP Trend



Source: Liu Cai, "China's Development and Policy," *Transnational Data and Communications Report* (January-February 1994), 27.

Figure 2-9
Comparison of GNP and Telecom Growth Rates

automation, electronic banking, mass media, health care), and public security information systems. The application of information technology in all these areas depends on the application of a modernized public telecoms network system using advanced technologies.

The central government also understands that "the nation's modernization efforts demand that every aspect of the telecommunications sector, from efficient daily communications and component manufacturing, to system engineering and design, and network management and finance, be brought up to date."²³ Further, because the economic decentralization brought by the Economic Reform tends to divest Beijing of the operational control it once tightly held, the central government needs to make available a highly effective national management information system to keep track of geographically dispersed and politically sophisticated activities. The official conception of where telecommunications stand can be highlighted as follows:

- Telecommunications is a key factor for the improvement of economic efficiency of resources and technology
- It is a support function and strategic asset for government command and control, and for policy and decisionmaking processes
- It is an effective tool for building up a well-regulated nationwide market system
- It is a powerful tool to promote nationwide communications
- It offers a useful management information system to facilitate management of internal and external business operations²⁴
- It provides a backbone for development of national communications systems and advanced computer information networking applications²⁵
- It is a significant source of national revenue²⁶
- It enhances cultural and educational activities

²³Ken Zita, "Telecommunications: China's Uphill Battle to Modernize," *The China Business Review* (November-December 1989), 18.

²⁴Adapted from Lan Shiliang, "How an Information Industry Will Benefit China," *Transnational Data and Communications Report*, January-February 1994, 21. Lan Shiliang is Director of the Department of Long-term Planning and Industrial Policy, China State Planning Commission.

²⁵Technologically, the availability of modems and other devices has allowed the telecom network to support extensive point-to-point computer communications. The trend toward some kind of integration of telecommunications, cable television, and computer network systems is increasingly apparent in the world today.

²⁶According to a *Telecom Development Report by Pyramid Research, Inc.* (10, 7 [Sept. 8, 1995]), in the first half of 1995 China's telecoms revenues reached U.S. \$4.1 billion.

On the basis of this acknowledgement of the importance of telecommunications, the top leadership has designated telecommunications a national strategic priority since 1985, when China was preparing to enter the "information age," and has formulated guidelines for the information industry. Telecommunications products have been listed as one of twelve advanced foreign technologies to be imported for 1990s on a priority basis.²⁷ Early in 1995, the SPC and the Ministry of Foreign Trade and Cooperation publicly specified seven telecommunications projects in the major national technology innovation programs for the foreseeable future.²⁸

Policy Orientation. The official telecoms policies (proclaimed in 1993 and largely still in effect) state that:

1. As a priority industry and a prerequisite for opening up to the outside world, telecommunications enjoys a number of preferential policies for taxation,²⁹ loans (repayments can be deferred by as much as 90 percent),³⁰ and use of foreign currency.
2. Construction of telecoms network should observe the principle of "overall planning by the MPT, combined efforts and shared responsibilities and support by the MPT enterprises and local government at various levels."
3. Apart from MPT investment, all telecoms enterprises and local administrations are encouraged to raise funds from different sources for network development.
4. While focusing on building unified public network for basic services, the central government will give support to building dedicated networks to be run by different government departments.
5. Part of the radio and value-added services market is open to non-MPT enterprises for competition.
6. The telecoms equipment supplies markets are open to both domestic and overseas manufacturers.

²⁷*China Science and Technology Newsletter*, State Science and Technology Commission, P. R. China, no. 39, Feb. 15, 1995, 2.

²⁸*China Science and Technology Newsletter*, State Science and Technology Commission, P. R. China, no. 38, Jan. 15, 1995, 6.

²⁹Income tax, previously only 10 percent for China telecommunications, was raised at the end of 1994 to 33 percent, a standard rate levied on all domestic industries and enterprises.

³⁰*China Telecom 2000*, a report prepared by IGI Consulting, Inc. (1994), Vol. 1, 68.

7. The policy of opening up is aimed at adopting state-of-the-art equipment and technologies, using foreign funds, introducing advanced management expertise, and enhancing telecoms exchange with other countries.³¹

Structural Issues and Competition. For years, China has experienced what Ken Zita³² described as the three structural weaknesses of the Chinese telecommunications. First, there is little vertical integration of local and toll services, which results in decreased economies of scale in capital investment and revenue collection and created technical inconsistencies among regional networks. Second, R&D and telecoms component manufacturing are split between MPT and MEI entities, leading to frequently conflicting allocation and unwise use of scant resources. And third, limited state funds for MPT nationwide projects more often prevent effective and timely implementation of the plans.³³ To address these issues, the central authorities recently studied the Chinese information industry under either highly monopolistic or competitive circumstances. The resulting scenarios are shown in Table 2-1.

Competition turns out to have many advantages over monopoly. The enormous, soaring market demand, both potential and apparent, for telecoms products and services has driven the government to rethink its policies and strategies regarding the telecommunications industry. If it were to protect the old MPT monopoly without making essential accommodations or changes, the long-standing gap between supply and demand would widen, the desired political and macroeconomic control over the nation would remain unattainable, and the present momentum of economic development would soon be crippled. Lessons from overseas practices suggested that telecommunications operated by corporatized or competing entities provide better and cheaper services while generating larger and quicker profits than ponderous government ministries in a monopolistic context have been able to do. The Chinese central government is therefore compelled gradually and tentatively to ease its iron grip on the telecommunications industry. Initiatives taken by the mid-1990s include allowing value-added network services to be operated by licensees that offer data transmission and mobile radio services, establishing China Unicom to compete with the MPT, and to a certain extent decentralizing control of telecommunications.

³¹Liu Cai, "China's Telecom Development and Policy," *Transnational Data and Communications Report* (January-February 1994, Special Report), 27. Liu Cai is Director of Policy and Legal Regulations, MPT.

³²Ken Zita, at the time of this statement, was senior market planner at AT&T Network Systems, International Business Department, where he was responsible for market and strategic planning in China and Taiwan. Zita is the author of *Modernising China's Telecommunications: Implications for International Firms* (London: The Economist Intelligence Unit, Business International, March 1987, Special Report No. 1080) and many articles on China telecommunications.

³³Ken Zita, "Telecommunications: China's Uphill Battle to Modernize," 18.

Table 2-1

Two Scenarios Faced by the Chinese Information Industry

	Highly Monopolistic	Highly Competitive
Government	Exclusive owner, directly controlling the industry	Not a main owner, indirectly regulating the industry
Investment	State funding only	Many sources of funding
Scale	Fast-paced economies of scale, based on command planning	Economies of scale gradually formed, based on market mechanism and demand
Operation	Companies highly controlled and protected	Companies regulated by laws and selected by market forces
Competition	New entry of the competitors prohibited	Competition encouraged and protected
Market	Monopolistic seller's market	Competitive buyer's market
Business Scope	Priority given to the extension of the conventional products and services	Priority given to the development of new products and services
Technical Innovation	Slow application of the new technology	Fast application of the new technology
Cost	High operating and managerial costs	Low operating and managerial costs

Source: Adapted from a speech by Deng Shoupeng, Director of the Bureau of Techno-Economics, Development Research Center under the State Council of P. R. China, given in Washington, D.C., at a conference sponsored jointly by the Center for Strategic and International Studies and the Telecommunications Industry Association, Nov. 15-16, 1994.

The introduction of competition into China's telecoms market has other merits. The top leadership believes that the MPT by itself cannot achieve the required development goals. With centrally controlled competition between China Unicom and the MPT, market forces may set in to (a) rationalize the telecoms industry structure; (b) reallocate resources for more efficient utilization; and (c) diversify and facilitate telecoms financing. As a result, three immediate objectives are likely to be attained, i.e., to drive down the present high cost of telephone installation (RMB 3000-6000 yuan, about eight times as high as in the United States) and services fees, to raise the quality and variety of services, and to improve access to

telephones by communities in interior areas in order to help lessen the widening economic and social gap between coastal regions and interior lands.³⁴

To encourage limited and regulated competition, in 1993 the central government proclaimed nine areas of information and communications open for operation by state-owned or collectively owned (legally recognized) enterprises through a process of official licensing or administrative approval.³⁵

- Radio paging
- 800 MHZ trunked telephony
- 450 MHZ mobile communications service
- Domestic very-small-aperture terminal (VSAT) communications service
- Telephone information services
- Computer information services
- E-mail service
- EDI
- Videotex service³⁶

“World Player” Vision. If the current momentum of economic growth is maintained, China, within a period of ten or fifteen years, may emerge as one of the largest economies in the world, next only to the United States and Japan in terms of lump-sum economic strength. If the ambitious vision of a “Greater China,” which stands for an economic consortium of mainland China, Hong Kong, Taiwan, Macau, and some other southeast Asian countries that have significant proportion of Chinese population and have been profoundly influenced by Chinese culture and tradition, were to be realized, China would not only become an economic giant but also hold an influential political position in the Asia-Pacific region and the world. This vision reinforces official recognition that China’s domestic and international telecoms facilities and services, as key constituents of the national infrastructure, should be developed as fast as possible to sustain the nation’s economic growth and to meet the increasing needs of communications, both at home and abroad, for economic and political purposes.

³⁴Adapted from Tony Walker, “Global Phone Firms Covet China: Decision on Second Network Spells Big Potential,” *The Financial Post*, Aug. 27, 1994, 31.

³⁵Licensing and approval will be administered by the MPT or its subsidiaries, i.e., PTAs, depending on the type and scope of the business applied for. The difference between licensing and administrative approval is in that (a) licensing is subject to as predetermined quota and time frame, while administrative approval is not; and (b) licensed services usually do not involve the use of public telecom network or equipment, while administratively approved services do.

³⁶*China Posts and Telecommunications Enterprise Management*, May 1994, 31.

China's moves towards global network communications have been reflected in a series of initiatives reported by *CommunicationsWeek International* in February 1995:³⁷

- China will soon reach an agreement to land a spur of the 5 GBps Fiber-Optic Link Around the Globe (FLAG) in Shanghai. This link will provide China with several fiber-optic routes to Europe and Asia, supplementing existing fiber cables between China and Hong Kong, Japan, South Korea, Thailand, India, Malaysia, the United Kingdom, Spain, Italy, Egypt, Germany, and the United Arab Emirates.

- The MPT was in talks with AT&T about joining the AT&T-led WorldPartners global network services alliance.

- The MPT was considering joining the \$900 million Asia Mobile Telecommunications (AMT) project.

- The MPT had signed an agreement with Infonet Services Corp. to give users of the CHINAPAC data network access to Infonet's global data network.

- China Unicom planned to set up commercial, cross-border VSAT services for private network customers.

A well-developed telecoms system can help China catch up with advanced nations and strengthen its long-range goal of becoming a global economic power, because such a system, with its capacity for a quick and adequate flow of information, will enable China to make efficient use of its domestic and overseas resources, effectively select and apply the most advanced technologies at lower costs, and rise as one of the most active global players.

In line with this vision, Hong Kong, among the other members of a Greater China, would have an important role after 1997. The world's largest teleport, Hong Kong has fourteen satellite earth stations, five undersea international fiber cables, and a fully digitized domestic telecoms network. As of 1995, around five hundred multinational corporations had sited their Asian headquarters in Hong Kong, accounting for about 60 percent of the telecoms hubbing business in this region.³⁸ Such a weighty strategic position offers obvious advantages to China, which hopes for greater influence in world affairs.

2.2.3 Rising Public Awareness and Enthusiasm

In the early 1980s China was first exposed to a world in which information technology was thriving and transforming the ways people think, work, and live. The appearance in

³⁷Nick Ingelbrecht, "China Maps Global Links," *CommunicationsWeek International*, Feb. 6, 1995, 1, 34.

³⁸Nick Ingelbracht and Kenneth Scott Hart, "Tigers Ready to Pounce," *CommunicationsWeek International*, May 30, 1994 (Special Report), 16.

China of Alvin Toffler's *The Third Wave*³⁹ led to a record readership and an extraordinarily warm response from many Chinese, whose minds were already contemplating industrialization, informatization, and compunication.⁴⁰ Hot topics included the "information age," the information explosion, and information-oriented industry. Since then, the Chinese have embraced and shown keen interest in developing and using the new information technologies.

The public consensus is that electronic computation, data transmission, and telecommunications networks can help raise productivity and efficiency, upgrade social interactions, and, ultimately, improve the overall social well-being and quality of life. The concept of information has been extended from simply a knowledge base, a government-oriented data bank, a collection of statistics for economic analysis and scientific research, to a resource of knowledge and intelligence, a means to career advancement and personal growth, a marketable asset, a source of power based on interpersonal communications, and a matrix for education and value creation.

This rising public awareness of the importance of information has strongly affected official plans and strategies for the development of the information industry in China. With a national telecommunications network as the backbone, other major national information systems to be constructed include an economic information database, a science and technology information exchange, a system for monitoring and adjusting the market, a customs and foreign trade management information system, a system for financial and banking regulation and control, a mass media information network, a transportation coordinating database, an airline information system, an electric power supply information system, and a weather forecast information center. By 1994, China had built twelve large-scale computer information systems, 100 information networks, and more than 800 databases for education, science and technology, natural resources management, commerce and trade, health and medical care, agriculture, and various industries. Annual revenues from information services in 1994 reached RMB 8 billion yuan (about U.S. \$900 million). Information services have experienced an annual growth of 25 to 30 percent since the early 1990s, with a significant share in the consulting industry.⁴¹

Information and telecommunications technologies tend to serve the Chinese in their pursuit of a better quality of life, one that would embody not only utilitarian functions for

³⁹(N.Y.: Morrow, 1980).

⁴⁰The term "compunication" was coined by Professor Anthony G. Oettinger, of Harvard University, to indicate the emerging trend toward convergence between computing and communication.

⁴¹"China Information Industry in High-speed Development Stage," *China Telecommunications Journal*, Nov. 5, 1994.

material gain but also the satisfaction of human psychological and sociological needs for interpersonal communication, peace of mind, health care, employment and career achievement, personal self-realization, and social freedom and justice. In response to that pursuit, widening public efforts toward a higher standard of living have driven China's information and telecommunications industries.

In the mid-1980s most people in China regarded telephones as a badge of social status rather than as a means of communication, because easy access to telephones was then limited to the "privileged" class working at upper-level official positions or in upper-level organizations. The residential telephones available numbered merely 15,000 nationwide.⁴² Around the end of 1993, however, this number changed to approximately 7.83 million. By 1994, the number of public mobile telephone and paging subscribers had grown rapidly from virtually zero to 1.28 million and 11.21 million, respectively, and the service providers had spread throughout the country.⁴³ Today to individual Chinese telephones are as helpful a tool for communication as bikes are for transportation. Telephones are used for, among other things, business communications, telecommuting, social contacts, and personal interactions and lives. People pick up phones far more frequently than before not only because the access to telephones has greatly improved, but also because they have come to know that talking on phones brings them the quickest, and most convenient communications they need.

Since the early 1990s, public awareness has turned into public enthusiasm for telecommunications. Applications for residential telephone installation pile up, and the waiting list expands rapidly. Public demand for information has also been stimulated for development of value-added telephone information services (TISs). By 1993, some 120 TIS stations were available, with the dial numbers 160 designated for manual TISs and 168 for automatic information service. The number of TIS stations is projected to be 400 in 1996 and 1000 by the year 2000. Other teleservice systems have come into use for different public needs, such as weather forecasts (dial number 121), time (117), voice mail system (166), and music to listen to (185).⁴⁴ These TISs provide information on a variety of subjects, catering to the diverse tastes of customers. Since starting operation, TISs have rapidly won growing popularity, especially in China's major cities (e.g., the number of service inquiries in Shanghai was only 1,493 per day in 1991 but climbed to 50,000 per day in 1993).⁴⁵ In

⁴²"China's Telecom and Posts in High-speed Development," *People's Posts and Telecommunications Journal*, Oct. 25, 1994.

⁴³"Overview: A Glorious Year of the Telecom Development," *Posts and Telecommunications Enterprise Management*, 1 (1994), 5; and DGT Annual Report, 1994.

⁴⁴She Qijiong, "China's Growing P&T Information Services," *China Telecommunications Construction* 6, 1 (1994), 49.

⁴⁵*Ibid.*

August 1995, *China Telecommunications Construction* reported that the MPT Directorate General of Telecommunications (DGT) and AT&T had jointly launched a new telephone service, Audiotex (reached by Chinese callers by dialing the international long-distance number 001-456-2893501), which gives updated information provided by the U.S.-based WPI Group about American business in China and trade opportunities. Both 800-number and 200-number (for special card holders) services are being planned and will be offered by the MPT in China's urban areas.

2.3 Outreach for Foreign Funds and Technology

China's telecommunications are, on the whole, characterized by a shortage of funds to sustain development and by relatively underdeveloped technology.

A technology- and capital-intensive telecommunications industry requires high revenue growth to pay for its high costs,⁴⁶ and high growth needs to be fueled by large investment. For years, the Chinese government and the MPT have repeatedly addressed the issue of financing, but the gap between the demand for funds and the supply only grows wider. The commitment made by the central government and the MPT to invest in telecommunications development has shrunk from year to year, while the provincial and local telecoms organizations or governments are increasingly urged to assume more financial responsibilities.

Meanwhile, the strategy of using foreign sources of funding has been greatly emphasized. Of the slot for foreign investment, 15 to 20 percent may no longer be sufficient if the desired telecoms growth is to be achieved. There are signs that the SPC will modify the regulations dealing with foreign investment in China's telecommunications so foreign investors will be able to become more involved through revenue- and profit-sharing or equity-linked lease schemes.⁴⁷

To obtain more funds from more diversified sources, the traditional MPT monopolistic structure is proving inadequate. The highly controlled and entirely restricted financing approach provides little incentive for either domestic or foreign investors, because the bureaucracy, among many factors, is too large and adaptability too small. This situation may explain why the top leadership has created China Unicom, in an attempt to enrich funding sources. The central government, recognizing the advantage of using market forces as a strong, invisible hand, wants to experiment by having the MPT and China Unicom, under the control and coordination of the top political regime, compete with each other not only to

⁴⁶According to the MPT source, some local network operators in China need to have a revenue growth of 60 percent to break even (Ante Xu, "China's Telecom at the Crossroad," [unpublished paper, March 1995], 6).

⁴⁷Ibid.

provide better and cheaper services but also to discover new ways to raise funds for development.

Changing technologies also contribute to the changes taking place in China's telecommunications. China's telecoms technology in general reportedly still remains significantly behind that of advanced countries, particularly in rural and remote regions. In spite of progress in modernizing the central office (CO) switches connected to the country's trunk lines, around early in 1994, 60 to 70 percent of China's local and rural exchanges were still analog switches, most of them electro-mechanical switches manufactured twenty to thirty years ago.⁴⁸ This technological weakness is evident mainly in the state of technology applications, the pace of technical innovation, in product design and manufacturing, R&D input and activities, and telecoms operations and management expertise.

To overcome such disadvantages, China is taking initiatives to outsource foreign technologies and technical know-how, in addition to its efforts to secure foreign funds. The problem with this pursuit of advanced technologies seems to be that many Chinese telecoms enterprises tend to overvalue physical equipment and components, that is, the hardware side of technology, but attach less importance the "soft" side of the technology: the three Ps (process, procedure, and practice), for instance, and the necessary managerial expertise involved, none of which can be automatically transferred from one side to the other, even in so-called turnkey projects.

⁴⁸Bill Brien, "China Telecom Market Assessment," Office of Telecommunications, U.S. Department of Commerce, May 20, 1994, 4.

Chapter Three

Regulatory and Policymaking Twists

3.1 Political Dilemmas: To Inform or to Control?

With the increasingly widespread application of information and communications technologies, the Chinese government has been challenged by a political and ideological contradiction. To implement the nation's modernization program, information technologies need to be vigorously developed and applied, which implies giving the general public wider and easier access to information, linking China's 1.2 billion people into a modern communications network, and providing individuals with more freedom in the use of information resources. This implication, however, raises an important issue: will information technology ever go so far in China as to undermine national unity and bring about a society beyond the government control?¹

Instances that have aroused official concerns include widespread use of satellite dishes for overseas TV programs, proliferation of short-wave radios used to reach foreign broadcasts, and the free flow of information through facsimile (fax) machines, electronic mail or the Internet, and direct-dial telephony, because the delivery of messages through these technologies is very difficult to monitor or check. The matter is made more serious, because government efforts to regulate or bring these technologies under control are often considerably constrained or undermined by conflicts of interest within government organizations or state-run businesses, which turn good profits by selling government-targeted telecoms products.²

Although it acts as a powerful engine for China's economic progress, telecommunications seem at the same time a reason for official apprehension. The government's argument, to safeguard its position, is that communications are the nation's nervous system and involve the nation's secrets and security, and if the mass of Chinese were to hook in to the "global village" directly through modern telecoms technologies, without any appropriate restraints, the country's social order might be impaired, the basis of the Chinese ideology might be loosened, and Chinese cultural values contaminated. This view explains why the central government looks for ways to monitor and control information sent and received over the Internet, including setting up technical barriers to certain news groups or

¹The Chinese government has consistently expressed concern about the impact a free flow of information might have on social and political stability, as well as on national security and sovereignty.

²"China's New Revolution Is Arriving via Satellite," *The New York Times*, International edition, April 11, 1993, 12.

against pornographic materials,³ and it accounts for the official determination to maintain control of telecommunications. All cellular telephones, pagers radio trunked equipment, and similar electronic devices have to be registered; all business ventures have to be approved; and foreign equity or operational involvement in China's telecommunications networks must be banned.⁴ In line with this official stance, China, according to an Associated Press (AP) report of June 1995, wants to restrict access to international computer networks and keep foreign firms from offering information services. The AP noted that China does not want to be a locus for the interchange of information, and most information allowed in would be oriented toward economics and business.

China's political dilemma concerning the free flow of information and government control will be manifested as the Internet, a worldwide computer network, becomes more available to the Chinese general public. The government sees the Internet as good and beneficial to national development in the areas of science, technology, economy, and education, but at the same time the government is deeply concerned about whether and to what extent wide and easy access to the Internet might jeopardize the nation's security, stability, and sovereignty. Since late 1995, the central government has attached special importance to control and management of China Internet,⁵ in an attempt to monitor and lock out pornographic and antigovernment information.⁶ Early in 1996, a new task force, the National Informatization Leading Group, was formed under the State Council, taking the place and the responsibilities of the National Joint Committee for Economic Informatization, for the purpose of making national information policies, coordinating different government organizations, and overseeing the operations of China's communications networks and services. The State Council ruled: that all Internet networks in China must be managed by the MPT, the MEI, the SEC, or the Chinese Academy of Sciences; that international Internet access must go through the MPT's gateways; and that the construction of new networks to be connected to the Internet must be approved by the State Council. Access providers and service subscribers⁷ of the Internet must both get official approval or be registered. Also early in 1996, the State Council issued a directive, and subsequently specific rules, requiring all

³Li Xing, a member of the CERNET Technical Board and professor of electronic engineering at Qinghua University in Beijing, was quoted in *CommunicationsWeek International* 147 (June 26, 1995), 41.

⁴Mark Clifford, "Crossed Lines: Peking Policy Statement Causes Confusion," *Far Eastern Economic Review* (Nov. 4, 1993), 26.

⁵The term China Internet is widely used in China to mean the connection of interior networks with the Internet.

⁶China was said to be soon using the latest technologies, such as filtering, encryption, and firewall technologies from Sun Microsystems, Inc., and from other foreign companies to monitor or selectively block access to incoming or outgoing information on the Internet.

⁷As of April 1996, the number of Internet subscribers in China had reached between 50,000-100,000.

economic and financial information to be subject to the Xinhua News Agency's detailed preview, approval, and inspection prior to distribution.⁸

The technological and regulatory measures taken by the Chinese government to get hold of the information flow in China conform to China's long-standing political ideology but may not in any sense imply a government withdrawal from the intent to plunge full-speed-ahead into the information age with Chinese characteristics. There are two related issues: first, with applications of most updated, real-time, microwave, and satellite and optic-fiber-based communications technologies, China seems to be working hard to make the impossible possible; and, second, although information may be an important source of political power and political support, and may help strengthen the government's ability to influence the directions of the public decisions, information can also empower individual initiatives. Conventional political notions of control through the restriction or blocking of the flow of information may no longer be viable when people can acquire, use, and even generate information for their own purposes.

The challenges Chinese authorities face today are not easily dealt with, because they involve both technological complications and political controversies. The government is at a crossroads, where it must make a rational choice for the nation's information and telecommunications development at a moment when it is also very wary of the possible side effects of this development. Without question, the Chinese government will try to maintain control over communications, an area considered sensitive and crucial for the country, but whether its effort will succeed, to what extent, and how control will be exercised remain questions. The pressure from the emergence of new information technologies may allow for fewer compromises and push the country toward more opportunities that the Chinese government can use to heighten its own roles.

3.2 Basis for Political and Regulatory Controversies: China vs. the United States

For the Chinese government, the theme of "to inform or to control" has deep and wide implications. Telecommunications in the United States, developed in the context of a culture that tends to value individuality above government policies or will, is closely associated with the dominant principles of freedom of expression, reciprocity between individuals, and universality of access. These cultural values may offer a potential threat to Chinese

⁸Xinhua News Agency is China's central government arm in exercising authorities over news releases. The intent of the State Council's directive is assumed by foreign sources as either a cash grab, a step to regain control of information, or both. The areas indicated for inspection include the content of the information, where to distribute it, rates charged, and who and how to use the information. Following the State Council's directive, Xinhua outlined in February 1996 the firm content controls: neither organizations nor individuals are allowed to engage in activities at the expense of state security and secrets. No one is allowed to produce, retrieve, duplicate, and distribute information that may cause social disturbance, or spread obscene and pornographic materials.

governance, because they emphasize the use of information to empower individuals, not government, and confront the existing Chinese political ideology which emphasizes telecommunications as a source of state power for economic progress and political stability. Different telecommunications development strategies reflect different cultural values and political ideologies. Table 3-1 briefly contrasts the telecommunications policy orientations of China and the United States.

Principal concerns of the Chinese and U.S. regulatory regimes expressed in current telecommunications issues also reflect some fundamental differences. In China, modernization, expansion, and control of telecommunications are upheld as the three highest priorities. While rapid development is urgently requested, the official ban on foreign ownership or operation of networks is constantly reiterated. In the United States, however, major debate has been centered on three themes, i.e., monopoly, competition, and deregulation.⁹ The trend shows that U.S. cable companies, local and long distance telephone companies will be allowed to get into each other's markets, large electronic utilities will be permitted to join the competition to provide an array of telecommunications services, and longstanding ownership restrictions on foreign companies investing in the U.S. telecommunications are likely to be lifted on the basis of reciprocal and effective market access.¹⁰

Regarding foreign equity and service involvement in the telecommunications sector, the difference between the two countries seems that China says no to any network ownership or operation by foreign companies while the United States allows foreign firms to invest in and operate cable TV, mobile telecommunications, and value-added services. Foreign ownership of U.S. telecoms companies is restricted within a certain proportion set by the Federal Communications Commission (FCC) (approximately 25 to 30 percent), on the condition that

⁹These three themes were addressed by the U.S. Telecommunication Reform Act of 1996, but passage of this Act does not mean that monopoly, competition, and deregulation will no longer be fundamental issues for the U.S. telecommunications industry.

¹⁰Tony Jackson, "Change Seems Inevitable," *Financial Times* (London), Thursday, June 15, 1995, *Telecommunications in Business*, 8; and Alan Cane and Emma Tucker, "US to Lift Barriers to Telecoms Investment by Foreign Groups," *Financial Times*, Monday, Feb. 27, 1995, 16. "Reciprocal and effective market access" means that foreign investors should come from the countries where regulatory regimes provide U.S. companies with an identical degree of market access.

Table 3-1

Contrasting Telecommunications Policy Orientations

China	United States
Create an environment to push forward development of telecoms system for national modernization.	Create environment to stimulate private system of free-flowing information conduits.
Increase access to information for institutions and whole society through use of telecoms facilities and services. Information providers basically limited to state-run telecoms operators or institutions.	Give individuals and institutions best possible opportunity to be both information customers and providers.
Relative liberalization of mobile telecommunications, value-added services, and data transmission, but registration and licensing as prerequisite.	Gradually deregulate telecoms industry through legislative and administrative action.
Provide rules and policies to regulate or control telecoms market; encourage network development to meet market demand.	Provide principles or guidelines to shape future telecoms market, not to design or control that market.
Promote multiple sources of financing by local government and telecoms administrations; encourage self-raised funds for development. Keep basic network and services under unified operation. Controlled and limited market competition mainly between MPT and China Unicom in nonbasic telecoms services areas. Competition regarded as impetus for development and improvement of services.	Promote and protect private investment and market competition, not government monopoly. Competition regarded as necessary instrument for resources allocation and market efficiency. Local telecoms companies act as regulated functional monopolies providing local services.
Target bottlenecks that restrict network development and hinder implementation of telecoms policies.	Avoid bottlenecks that would limit customer choice or ability of new information providers to reach their customers.
Focus efforts on constructing nationwide unified public network by which public telecoms enterprises provide services to general public. Network operation not open to private businesses.	Provide open access to network, open platform, and universal service for all. Work toward diminishing gap between information haves and have-nots.
Telecoms services for government and society. No preferential policies set up for specific public sectors yet.	Public right of way on information; provide affordable services for education, public health, and government.
Encourage technical compatibility, standardization, and interconnectivity.	Encourage technical flexibility and adaptability to accommodate change.

Source: Abstraction based on Albert Gore, Jr., Vice-President of the United States, "Removing U.S. Information Superhighway Restrictions," an address delivered at the National Press Club, Washington, D.C., Dec. 21, 1993; Wu Jichuan, Minister of MPT, "To Deepen Reform, Speed Up Development, and Provide China with Better Communications Services," *China Telecommunications Construction* 6, 5 (October 1994), 6-10; and Liu Cai, Director of Policy and Regulations, MPT, "China Telecom Development and Policy," *Transnational Data and Communications Report* (January-February 1994), 27.

no foreign investors can take control of corporate management.¹¹ Both governments to date are similarly cautious about, and opposed to, foreign involvement in basic telecoms network (common carrier) ownership and operations, even though their reasons sound different: one justifies its stand by concern for national security and sovereignty, the other by a proclamation of protection of the public interest, domestic industries, and corporate management control.¹²

3.3 The Chinese Government: Perplexed by Zigzags

What is becoming obvious in China's telecommunications today is an increasing gap and potential conflict between market forces and political considerations. Market forces are represented by an enormous demand of both individuals and organizations for various telecoms services, a growing incentive for different firms to enter the telecoms services business for profit, and growing pressure to modify or change existing telecoms regulations. On the political side, the government has apparently recognized three factors:

1. that telecommunications play a crucial role in China's overall development,
2. that the long-standing MPT monopoly in telecoms industry is inefficient and inadequate to meet the diverse needs of the telecoms market, and
3. that the introduction of telecoms competition and deregulation may gravely challenge the official stand of retaining control over Chinese society.

¹¹The U.S. Communications Act of 1934, section 310(b)(4), stipulates that foreign ownership of the American telecom companies is permitted only if it does not affect the dominant U.S. presence on the board of directors and managerial control remains in American companies' hand. Referring to the ownership of radio licenses, the original Act spells out:

(a) The station license required under this chapter shall not be granted to or held by any foreign government or the representative thereof.

(b) No broadcast or common carrier...license shall be granted or held by

1. any alien or the representative of any alien;
2. any corporation organized under the laws of any foreign government;
3. any corporation of which any officer or director is an alien or of which more than one-fifth of the capital stock is owned of record or voted by aliens or their representatives...or by any corporation organized under the laws of any foreign country;
4. any corporation directly or indirectly controlled by any other corporation of which any officer or more than one-fourth of the director are aliens, or of which more than one-fourth of the capital stock is owned of record or voted by aliens.

(United States Code, 18, Title 47, Washington, D.C.: U.S.G.P.O., 1989).

¹²One rationale for U.S. restriction on foreign ownership in communications, as expressed in the Radio Act of 1912, is, national security, i.e., that foreign control of common carriers or broadcasting might pose a threat to the country in time of war or other emergency. See Sorin A. Bodea, *The Impact of Section 310 of the Communications Act of 1934: Economic and National Issues* (Cambridge, Mass.: Program on Information Resources Policy, Harvard University, I-92-5, 1992), 3.

These factors suggest the contradictory position held by the central government, whose policymaking is necessarily directed toward achieving the best compromise or striking a balance between conflicting forces.

At the same time that the government wants to boost China's telecommunications to meet the country's modernization requirements, it is also concerned about the political consequences of liberalizing or deregulating this industry. A quotation from the policy statement made by Yang Xianzu, Vice-Minister of the MPT, regarding the separation of the telecoms regulation and operation, is illustrative:

Taking into consideration the integral nature of telecommunications, and on the prerequisite of ensuring effective centralized and unified leadership, command and control, over the whole network, we will practice multi-level management and decentralization in telecommunications enterprises, giving them relatively independent decision making power for operation.¹³

The statement reveals a hard reality: that political controversies and uncertainties create ambiguities, confusions, and lack of coherence in regulatory structure. Chinese political controversies and uncertainties of the 1990s are rooted in the government's ideological and economic dilemmas, which are reflected in the conflicts between communist and capitalist beliefs and between government-command and free-market-driven economies. As long as these dilemmas remain unsettled, and as long as the unusual blend of telecoms policymaker, regulator, and operator remain in place in China, creating a clear and effective telecoms regulatory framework that would allow telecommunications operators to compete will be very difficult, perhaps even impossible.

3.4 Regulatory Considerations and Moves

Compelled by the changing telecoms circumstances, the Chinese government has started to rethink the regulatory structure of the telecommunications industry. One conclusion already reached is that to achieve greater efficiency and effectiveness the mixed roles of policy, regulation, and operation should be separated. Government actions taken in this regard include establishing China Unicom as a national competitor to the MPT as well as two separation programs: separation of the postal and telecommunications business management and separation of the regulatory and operating bodies within the MPT. On the surface, this structural change conforms to the global trend in telecoms reform, i.e., splitting telecoms operations from regulation, but China's direction diverges significantly from that of many

¹³Yang Xianzu, Vice Minister of China MPT, "China Policy and Reform," *Transnational Data and Communications Report*, International Outlook (July-August 1993), 11.

other countries. For instance, the government has continually declared in policy statements that:

- No privatization of state-owned telecoms enterprises is permitted, either in full or in part
- Telecoms competition is a limited, controlled experiment, and no network operating entrant other than China Unicom or the MPT is permitted (as stated by Vice-Premier Zou Jiahua in a speech for opening ceremonies for China Unicom)
- China's separation programs are different in direction from those of free-market countries in that the separated entities are mandated to handle only specific day-to-day financial and managerial issues and are not in a position to make important policies or decisions independently

However, China shares with other countries some objectives for telecoms reform:

- Providing affordable basic telephone services to as many people as possible
- Attracting different sources of capital to modernize the nation's analog infrastructure
- Encouraging incumbent monopoly operators to provide better and cheaper services and to be more responsive to market demand
- Positioning incumbent monopoly operators to enter selected international markets
- Using licensing to regulate new entrants that offer officially allowed services¹⁴

The Chinese government has called the restructuring of China's telecoms an internal reform of operational and management systems, intended to change government functions and separate government and enterprise functions while adopting a hierarchical business structure that gives P&T enterprises at lower levels some operational autonomy, thus allowing them to become relatively independent service carriers.¹⁵ But because the government, fearful of losing control, still holds equity ownership of all telecoms enterprises at national and provincial levels and reserves to itself power over such matters as the appointment and promotion of key executives, policymaking on the uses of major financial resources, and

¹⁴David Gillick, "Telecommunications Policies and Regulatory Structures: New Issues and Trends," *Telecommunications Policy* (December 1992), 726.

¹⁵Liu Cai, "China's Telecom Development and Policy," *Transnational Data and Communications Report* (January-February 1994), 27; and Yang Xianzu, "China Policy and Reform," *Transnational Data and Communications Report* (July-August 1993), 12.

finalizing other important business decisions, the notion of operational autonomy for telecoms enterprises seems more like a white elephant.¹⁶

3.5 Fledgling Competition

The weakness of China's telecoms regulation can be demonstrated by its inability formally or effectively to encourage, regulate, or protect market competition. Given China's nearly half-century of government under a socialist system based upon communist ideology, its centralized command economy, and state ownership of enterprises, market competition remains "premature," which is to say, not yet realized and underfunctional. China's marketplace lacks two elements: an effective regulatory mechanism to regulate and promote competition and a fair and equitable basis, in terms of higher quality and lower price, on which all market participants would be entitled to compete. As a result, China's market does not yet adequately maximize customer benefits or limit monopoly power to encourage free entry or free exit. In telecommunications, market penetration and business planning and implementation still come under the control of the government and Chinese enterprises are not yet legally independent, they cannot realize competitive advantages by, for example, the timely transfer or reallocation of resources to potentially better areas of operation for greater efficiency and productivity. Further, telecoms companies remain very limited in their capacity to support structural decisions—expansion, contraction, diversification, or specialization—as market forces dictate.

3.6 A Follow-Up Note

China faces many difficulties in telecoms regulation, partly because of political dilemmas and partly because of its unique sociocultural realities. But, as Asian Development Bank Specialist Silvio Cattonar suggested in an article on telecoms regulatory issues,¹⁷ these difficulties could be lessened if, using proper market-oriented sector policies, the country were to move more quickly toward establishing an appropriate telecoms environment and a well-defined regulatory structure that fit into the market structure under development.

Many structural and regulatory issues are embedded in China's telecommunications, parallel to the remarkable progress already made. The implications of government endeavors illuminate realities of China's telecoms, which are not adequately conveyed by either "wired" or "wireless" networks:

¹⁶This metaphor is intended to indicate that government control over telecoms enterprises is still effective; decisionmaking "autonomy" in this area is often symbolic, particularly for important business issues.

¹⁷Silvio Cattonar, "Regulatory Problems," *Transnational Data and Communications Report*, International Outlook (July-August 1993), 11.

- The government's control of telecoms has not truly been relaxed. Government functions and telecoms operations remain integrated.
- The government plays a significant role in ratifying regulations concerning telecoms policies, development plans, social obligations, and many other important matters.
- Because the market system in China is merely on its beginning stage, competition there significantly differs in nature from that in other mature market-driven economies.
- China's present telecoms regulations and policies are focussed on controlling, selecting, balancing, coordinating, or resolving political, managerial, and technical problems, rather than on protecting consumers' or investors' interests.
- Telecoms beneficiaries often are not clearly identified in present regulations and policies.
- Telecoms regulations and policies generally are not presented as explicitly or clearly defined as they should be,¹⁸ which is owing in some measure to China's political, sociocultural, or language systems.¹⁹

¹⁸The benchmark for explicitness and explicit definition usually refers to policies and regulations established by countries with more advanced telecommunications technology.

¹⁹By "particular language system" the author intends to propose two hypotheses: (a) that the Chinese way of thinking tends to be more implicit and holistic than explicit and analytical, and (b) that the Chinese language, as a unique linguistic system that reflects the Chinese way of thinking, inclines toward expressions that are less content-defined or detail-oriented.

Chapter Four

Institutional Forces and Stakes: Interaction in the Power Structure

4.1 Overview: Political Players in Action

The dynamism of China's telecommunications has increasingly expanded internal political jockeying and the bureaucratic rivalries among political players in national and provincial or local government. Although official recognition of the strategic importance of telecommunications to China's national economy and of modernization more generally appears a sufficient reason for the rapid development and change in telecommunications in China, two other factors are important. The first factor is the domestic interest groups that want to break into the lucrative telecoms business, which include ministries with private networks, governmental organizations at central, provincial, and city levels, the People's Liberation Army, and other enterprises lower down the ladder. The second factor is the concern within the top leadership over the implications for control of the nation of this rapid development in information technologies.¹ From the Central Committee of the Communist Party at the top, many policymaking and administrative organizations are somehow involved in China telecommunications, each to a different extent. The major players and their involvement are briefly discussed here.

4.1.1 At the Top

The Central Committee of the Chinese Communist Party (CCCCP). In contemporary Chinese politics, the Central Committee of the Chinese Communist Party performs a crucial role. Its power is exercised differently from that of political parties elsewhere in the world. Because the Chinese Communist Party functions exclusively as a ruling political organization in China, the Central Committee provides the supreme political, ideological, and organizational leadership for the nation. It exerts power and influence over almost all aspects of the country, ranging from national policies and strategies for political, economic, and social development, military and security issues, to international relations. The guiding principles prepared by the CCCCCP, in line with the Party's political aims and objectives, usually dictate national policies and the development priorities for economic sectors. Although the CCCCCP normally holds back from direct involvement in the country's administrative or managerial functions, its significance in these arenas is decisive because it must approve all personnel nominations or replacements for all important leading positions,

¹This argument is adapted from John Ure's article, "Telecommunications, with Chinese Characteristics," *Telecommunications Policy* (April 1994), 183.

including those for the State Council, the National People's Congress, and provincial or city governments.

The National People's Congress (NPC). Unlike such systems as a western parliament or the U.S. Congress, the Chinese National People's Congress operates under two authorities: the Chinese Communist Party and the nation's Constitution. The Constitution stipulates that all power in the People's Republic of China belongs to the people; the organ through which the people exercise their power is the NPC, a plenipotentiary and supreme polity. The People's Congress is interpreted as the basic political system and organizational form of national power in China, representative of China's sociopolitical life as a whole.²

According to the Constitution:

the People's Republic of China is a socialist country under the people's democratic dictatorship led by the working class and based on the alliance of workers and peasants. The alliance of workers and peasants in China is the alliance of the overwhelming majority of laborers, and an extremely broad united front, led by the Chinese Communist Party.³

This passage seems ambiguous regarding the NPC's position, but it reflects Chinese political reality: even though the NPC is at the top of the power structure, a political party—the Chinese Communist Party—is entitled to an even higher position. In practice, the NPC's Chairperson and the Premier of the State Council are, almost without exception, selected from among the members of the CCCCP Standing Committee, and the NPC's power is exercised through unified political leadership of the CCCCP (a core constituent), the NPC, and the State Council, whose mission, in principle, is to implement agendas of the NPC.

The State Council (SC). Directly under the CCCCP, the State Council represents the highest organ of State executive and administrative power: the Chinese Central Government. It is responsible to the CCCCP and for enforcement of statutes and resolutions adopted by the NPC. Its most important functions include:

²*Information China: The Comprehensive and authoritative Reference Source of New China*, organized by the Chinese Academy of Social Sciences, compiled and edited by the China Social Sciences Publishing House; English edition edited by C. V. James (New York: Pergamon Press, 1989, 3 vols., English edition), Vol. 1, 385, 387, and 390. According to the Chinese Constitution, the primary functions of China NPC include: (a) interpreting, amending, and supervising enforcement of the Constitution; (b) reviewing and passing laws and basic statutes; (c) electing members and chairperson of the NPC Standing Committee; (d) electing the President and Vice-President of P. R. China; (e) electing the Chairperson of the Central Military Commission; (f) choosing the leading personnel of the State Council, e.g., Premier, Vice-Premiers, State Councilors, and Ministers; (g) examining and approving plans for national economic and social development as well as the country's budget, and supervising their implementation; and (h) ratifying and abrogating treaties and other important international agreements.

³*Ibid.*

- Adopting administrative measures, enacting administrative rules and regulations, and issuing decisions and orders concerning domestic or international affairs
- Drawing up and implementing plans for national economic and social development
- Directing and administering policies and regulations regarding domestic, civil, public security, national defence, and related matters
- Conducting foreign affairs and making treaties and agreements with foreign countries
- Exercising leadership over the ministries and commissions under the SC, specifying their tasks and responsibilities, and supervising their performance
- Exercising supreme authority over the lower level government of provinces, autonomous regions, and municipalities; specifying the sphere of functions and powers for local administrations⁴

Headed by the Premier, as of May 1995 the SC has twelve ministries, nine commissions, twelve bureaus, eight special offices, and a considerable number of specialized institutions or organizations working under its control. The Chinese banking, taxation, customs, auditing, and mass media systems also are under the SC. The relationships among these entities are balanced and coordinated through the SC's General Office. As a rule, major policies, plans, orders, directives, and regulations proposed by the ministries or commissions within the jurisdiction of their respective departments must be submitted to the SC for review and approval prior to issuance.⁵

4.1.2 Immediately Under the State Council

The State Planning Commission (SPC). Given the Chinese socioeconomic and political systems, the State Planning Commission represents an extremely powerful hand of the SC. It is authorized by the SC to take responsibility for formulating strategic and long-term goals for the national development, goals unveiled in China's ten-year, five-year and one-year development plans. It initiates efforts to bring the nation's finance, credit, interest rate, taxation, wages, materials, foreign exchange, and labor forces under macroeconomic control, facilitates the SC in making national policy concerning industrial structure, technology development, resources allocation, and foreign economic relations, and directs and coordinates different levels of developmental planning. Its areas of concern extend also to population, labor, education, public health, broadcasting, tourism, social security, etc. With China's ongoing trend toward greater decentralization of power and its increasing market

⁴Ibid., 393-394.

⁵Ibid., 395.

orientation, both endorsed by the economic reform over the past sixteen years, the SPC's role as a de facto industrial planning secretariat of the SC has been redefined and, in relation to its previous reach, diminished; its functions have shifted to some extent to broad oversight of the national economy, as shown by the SPC's decreased administrative and increased regulatory activities. How far this change will go, and whether it will ever be reversed to any degree, remain to be seen.

The State Economic and Trade Commission (SETC). In terms of officially recognized functions and responsibilities, the State Economic and Trade Commission acts as an internal trade commission, as opposed to the Ministry of Foreign Trade and Economic Cooperation (MOFTEC). It was previously known as the State Economic Commission, whose jurisdiction overlapped with that of the SPC. The SETC has been granted authority to take from the MOFTEC some important responsibilities that extend across several ministries and sectors.⁶ What appears incomprehensible is that, although the SETC has neither a managerial nor a technological background in telecommunications, the SC has granted it jurisdiction over both Ji Tong,⁷ a Chinese telecoms corporation that is a declared subsidiary of the MEI, and the Chinese telecoms consortium China Unicom. The SETC's specific role in these two telecoms companies is assumed to be only that of an equity watchdog,⁸ but this assumption has not yet been publicly substantiated.

The State Science and Technology Commission (SSTC). A national science and technology policymaking and advisory body, and a kingpin in the formation of strategies for technology acquisition and social and economic impact, the State Science and Technology Commission is charged with formulating guiding principles and policies for the nation's science and technology development. It reviews and approves major technology-oriented projects, draws up science and technology development plans based on outlines prepared by the SPC, and helps manage and allocate government funds for SPC-ratified projects. It also handles issues of international cooperation and exchange in science and technology. Its key role in telecommunications modernization is to assess China's capacity and needs in order to

⁶"The New Policy Making Hierarchy," Center for Strategic and International Studies (CSIS), Washington D.C., November 1994.

⁷Ji Tong, founded in 1993, is reported to be one of the largest communications companies in China. It is composed of 30 major shareholders made of state-owned enterprises and research institutes, among which are China Electronic Leasing Ltd., China National Electronics Appliance Corporation, Beijing Municipal Electronic Office, Shen Zhen Guohua Trading Ltd., Dongwang Tongpai Telecom Industry Company, Beijing Wireline Factory, and Nanjing Wireless Factory. Ji Tong is under the control of the MEI and charged with the responsibility to implement the Three Golden Projects, including seven national VANS projects and manufacturing ventures. It also aims to set up joint ventures with foreign companies in telecoms R&D activities, building local trunked radio, paging, cellular and CT2 (second generation cordless telephone) networks, and running public data and value-added service networks.

⁸"The New Policy Making Hierarchy."

absorb foreign technology, a role, according to Ken Zita,⁹ with two important kernels: the SSTC must plan tactics to disseminate foreign technology, and it must promote the diffusion of domestic innovations throughout the telecoms R&D community. The SSTC attends to such strategic issues as planning for the overall technology framework, selecting technology, and coordinating major technological programs across different departments and regions.

The State Commission for Restructuring Economic Systems (SCRES). The State Commission for Restructuring Economic Systems is mandated to work on schemes for restructuring China's economic systems. It identifies key problems, facilitates changes in China's macroeconomic environment, and oversees reform of large state-owned enterprises. Its role in telecommunications is reflected by its increasing involvement in restructuring the communications sector and by its support for the founding of China Unicom. Details on how and to what extent the SCRES is involved in China's telecommunications construction, or in the MPT's recent organizational restructuring, are not available.

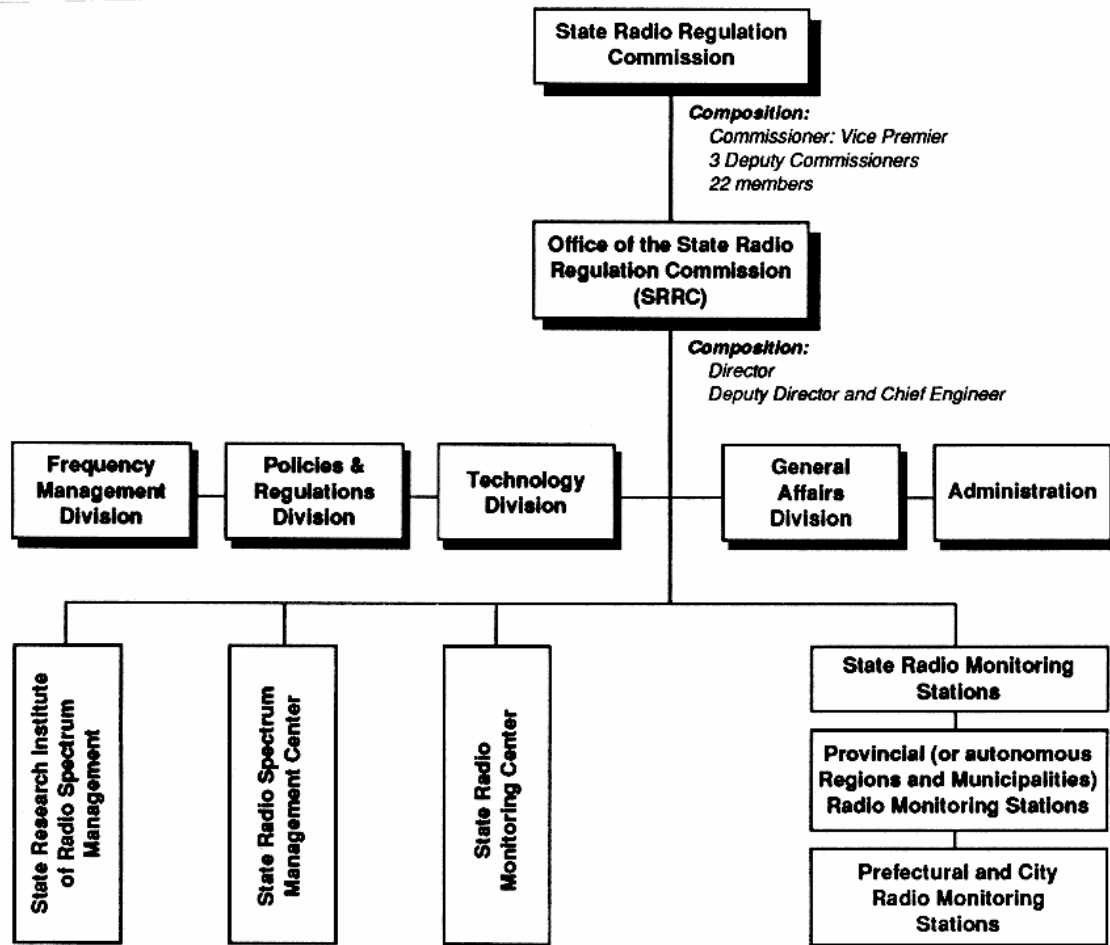
The Ministry of Foreign Trade and Economic Cooperation (MOFTEC). Compared with the more domestic focus of the SETC, the MOFTEC's responsibilities are oriented toward external economic and trade relations and interactions. The MOFTEC formulates policies, regulations, and strategies for China's foreign economic and trade activities, in line with goals for domestic development set by the CCCCPC and the SC. As a national regulator and mediator, the MOFTEC deals with issues of foreign trade, foreign economic cooperation, and foreign investment. It guides, regulates, and manages overseas investments of Chinese enterprises, approves foreign applications to set up business entities or agencies in China, coordinates intergovernmental, bilateral, or multilateral economic cooperation programs, and administers trade shows and negotiations for national corporations or government offices. MOFTEC's stake in telecommunications is probably in the area of importing and exporting telecoms equipment or technology transfer, where the Ministry is in a position to exercise its power to support or veto related proposals.

The State Radio Regulation Commission (SRRC).¹⁰ The State Radio Regulation Commission, not well known but powerful, operates like a cross-ministry or -commission task force regulating and managing China's radio frequency spectrum resources for mobile, satellite, maritime, and aeronautic communications. Under the dual jurisdiction of the SC and the Central Military Commission, the SRRC has one commissioner, three deputy commissioners, and twenty-two members who also hold leading positions in various other ministries or commissions. The weight given to the SRRC seems significant: a Vice-Premier of the SC chairs it, while the Minister of the MPT, the Assistant to the General Staff of the

⁹For information about Ken Zita, see Chapter Two, note 32.

¹⁰The SRRC is physically located within the MPT but functions independently.

Central Military Commission, and the Deputy Secretary General of the SC all hold seats as Deputy Commissioners¹¹ (see Figure 4-1).



Source: Adapted from *China Telecommunications Construction*, 6, 1, (1994), 20, 23.

Figure 4-1

China's Regulatory Network

The SRRC is mandated to provide supreme leadership over national allocation and management of radio frequency spectrum and to regulate and coordinate the country's radio frequency spectrum market. It also directs and works with provincial and local radio

¹¹Even though these political figures may play symbolic roles for the SRRC, the central government's motive is unquestionably to keep radio frequency under its control.

regulation commissions and relevant technical stations to form a nationwide regulatory network. Since 1990, the SRRC has been challenged by the soaring demand for mobile and wireless communications which has engendered serious problems of frequency congestion and interference. In response, it has for the first time publicly announced new regulations, effective September 1994, of which the following are the main points:

- Any use of radio frequency must be preceded by a formal application and authorization or licensing
- Lease or transfer of the SRRC-assigned or -allocated frequency is prohibited
- Radio equipment for transmitting or receiving must meet technical standards approved by the SRRC
- Assigned or allocated frequencies can be used only for SRRC-approved services.
- No frequencies assigned to the military can be used by public wireless services¹²

Ad Hoc Leading Groups (LGs). In Chinese policymaking and implementation processes, ad hoc leading groups would seem to play a unique role. When national development priorities recognized by the CCCC and the SC require cross-ministry or -commission cooperation and involvement, issues concerning coalitions, conflicts of interest, or political tension among these ministries or commissions may arise that can result in prolonged bureaucratic jockeying and twists detrimental to national development. To bypass potential bureaucratic rivalries and strengthen coordination and processes of checks and balance among ministries or commissions, the SC and the SPC have actively promoted horizontal linkages between ministries or commissions and among provincial and municipal authorities; they do so through a uniquely intertwined political structure: national project or industry-oriented leading groups that bind leading members of the different ministries or commissions but exercise a power above ministries or commissions standing alone. The following are a few examples of the leading groups:

The Leading Group for the Revitalization of the Electronics Industry. This Leading Group was formed in the early 1980s, with then Vice-Premier Li Peng as the chief and involving a number of ministries or commissions, such as the MEI and the SSTC. Its official mission was to map out national strategies and policies to head toward the "information age." The government's conception was that, to push forward China's informatization advances, electronics technology was extremely important, mainly large-scale integrated circuits (ICs), computer information systems, and telecommunications. Therefore, it was necessary to set up an authoritative body to guide and coordinate the different ministries and commissions

¹²Adapted from "The New Policy Making Hierarchy."

an authoritative body to guide and coordinate the different ministries and commissions concerned. In addition to setting priorities for national information development, this Group was the chief link between the SC, the state planning and economic commissions, manufacturing and big user ministries, and the Ministry of Foreign Economics and Trade (now MOFTEC). The Group acted to guarantee the availability of foreign exchange for important projects and was the highest reviewing agency for new telecommunications manufacturing plans.¹³ It headed and sponsored many significant national projects and technology importing programs that paved the way for China's information and communications industry.

The Three Golden Projects Leading Group. This three-party Leading Group is composed of the Minister of the MEI as director, the Vice-Minister of the MPT as deputy director, and the deputy governor of the People's Bank of China (the Chinese central bank) as member.¹⁴ It was set up in early 1994, with the aim of coordinating these parties in carrying out the Three Golden Projects—Golden Bridge (a national data-communications network serving about twenty ministries under the SC); Golden Gate (a project to build a data-communications network for EDI and e-mail for trade and customs ministries and state-owned enterprises); Golden Card (a credit-card verification and electronics fund transfer (EFT) system for China's banking and financial systems).

The National Joint Committee for Economic Informatization. A large, recently formed (1993), leading consortium chaired by the current Vice-Premier, Zou Jiahua, with Hu Qili, Minister of the MEI, as Acting Vice-Chair, this Committee comprises twenty-four ministries and commissions and some large telecoms users. It is charged with formulating policies, strategies, and plans for the construction of the national information and communications infrastructure and is mandated to coordinate regional and departmental efforts for implementing information and communications projects on these levels. In February 1996, the SC set up a new leading group to take charge of China's information- and communications-related policy coordination and supervision, which replaced the National Joint Committee.

The Leading Group of Shanghai Telecoms Industry Development. An example of a local government following the path of the SC, this Group is under the directorship of the Communist Party Chief of Shanghai Municipality. (The Party plays a key role at almost all levels of the Chinese government.) Locally, it is the most powerful telecoms policymaker. Its effort has brought the Shanghai PTA to collaborate with the Shanghai Broadcasting, Film, and Radio Bureau in constructing the Shanghai CATV network, which as of early 1995 had 1.2

¹³Ken Zita, *Modernising China's Telecommunications: Implications for International Firms* (London: The Economist Intelligence Unit, Business International, March 1987, Special Report No. 1080), 11.

¹⁴Ante Xu, "China's Telecom at the Crossroad," CSIS, Washington D.C., March 1995, 3. Ante Xu was a research fellow at CSIS, Washington D.C.

million subscribers. After Shanghai, nineteen other provinces were said to have formed similar leading groups by early 1994, to regulate, manage, and promote regional or local telecommunications.¹⁵

4.1.3 Key Players in Telecommunications

The Ministry of Posts and Telecommunications (MPT). As China's telecommunications and posts policy-setting body, regulatory agency, and public network operator, the Ministry of Posts and Telecommunications performs a significant and monopolistic role in China's public telecommunications and postal services. It formulates policy, rules, and regulations for the telecoms industry, devises national telecoms development strategies and programs, and handles telecoms managerial problems. It also controls and manages a considerable portion of China's telecoms equipment manufacturing facilities and serves as a liaison between the central government and thirty-one semiautonomous¹⁶ PTAs.

Under the MPT are twelve departments, two bureaus, six corporations, five R&D-oriented institutes, and two publishing and news release entities. As of late 1993, within MPT headquarters there were about forty-two directors or deputy directors with a staff of 450, but nationwide the MPT numbered approximately 1.18 million employees.¹⁷ (For a detailed explanation of the MPT's organizational structure, see section 5.2 and Figure 5-2.) Its policy and regulatory functions are primarily performed by three departments:

1. **The Department of Policies and Regulations** prepares, sets, and reviews development policies, regulations, and directives; monitors the enforcement of policies and regulations; and provides guidance for provincial PTAs and telecoms enterprises.
2. **The Department of Telecoms Administration Policy**, a de facto regulator, prepares specific telecoms regulatory policies and business guidelines and requirements for network services; monitors and supervises implementation of telecoms-related rules and regulations; processes service-entry applications and issues licenses or permits; and evaluates and coordinates public and private networks.
3. **The Department of Planning and Construction** helps plan national telecoms development; provides overall guidance for private network planning; assesses technology transfer, investment projects that fall solely under the MPT and joint

¹⁵Ibid.; also Ding Lu, "The Management of China's Telecommunications Industry," *Telecommunications Policy*, April 1994, 196.

¹⁶"Semiautonomous" refers to the dual jurisdiction over provincial telecoms administrations by both the MPT and the provincial government.

¹⁷"New Policy Making Hierarchy."

ventures (JVs) with foreign companies; and prepares and codifies production and design standards for construction by provincial PTAs.¹⁸

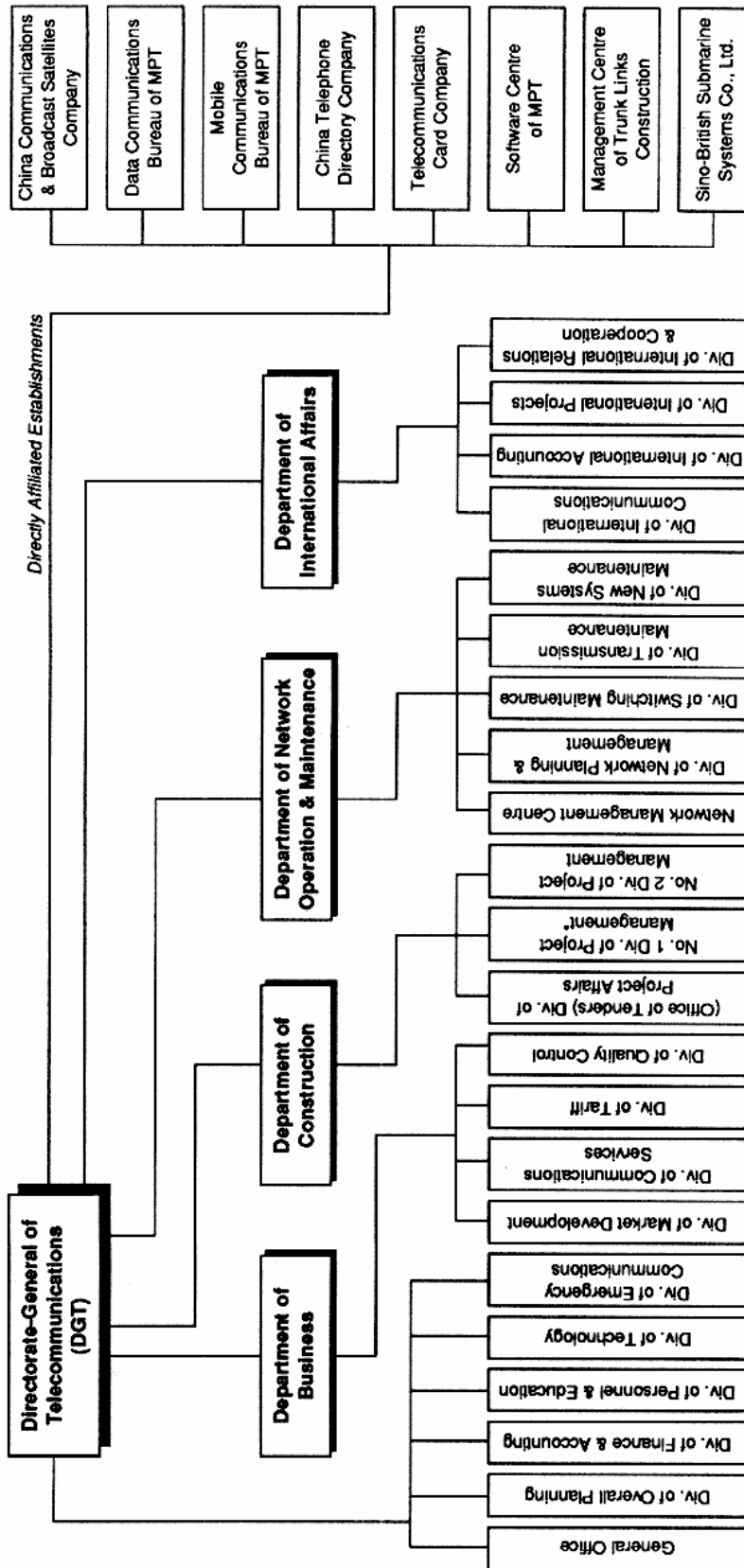
The Directorate General of Telecommunications (DGT). The reshaped Directorate General of Telecommunications is an outcome of the structural reform of the MPT apparently completed in 1994. The official basis for the reform was the separation of regulatory and management responsibilities and a shift in the MPT's focus from micro-management to macro-control.¹⁹ Prior to reform, the DGT was a senior management council within the MPT responsible for coordinating business and technical affairs, including tariffs, maintenance, regulation, and radio frequency management. Since 1994, the DGT has become an MPT-controlled enterprise or quasi-public company, which in May 1995, was renamed China Telecom (a name indicative of a strong reaction within the MPT to China Unicom), with autonomy in accounting, personnel, operations, and business management. The DGT, or China Telecom, designs, constructs, manages, and operates a national telecoms network to provides basic and advanced services extensively.²⁰ Like a modern corporation, the DGT (China Telecom) has five major functional categories—marketing, communications services, network planning and management, international communications, and maintenance centers for switching, transmission, and new systems—plus eight subsidiary business entities (see Figure 4-2). The degree of power it has to make independent decisions and the kind of political and administrative arrangement that might be made between the MPT and the DGT-China Telecom, at national and local levels, remain unclear.

The Ministry of Electronics Industry (MEI). The MEI represents a powerhouse for China's electronics technology-based information and communications industry. Mandated by the SC to assume responsibility for formulating national policy, plans, and strategies, the MEI has under its leadership a wealth of nationwide resources and facilities engaged in electronics technology-oriented manufacturing and R&D activities. The efforts of its manufacturing and R&D bases are focussed on electronic components and equipment, computers (hardware and software), and digital switching systems and components. Four divisions and a quasi-

¹⁸This description of the functions of these three departments is adapted from "New Policy Making Hierarchy."

¹⁹In China, official use of the term "micromanagement" indicates an extensive and intensive political as well as managerial involvement of the government in business enterprises, while "macrocontrol" usually indicates the government regulation or control enforced by some indirect means or through the use of macroeconomic tools.

²⁰According to the official announcement carried in *China Daily*, May 29, 1995, China Telecom, as a state-owned enterprise registered with and ratified by the State Administration for Industry and Commerce, will operate public telecommunications networks, involving provision of services, manufacture, telecoms infrastructure construction, sales of telecoms equipment and devices, technical and software development, and consultancy. Its major business scope includes provision of international and domestic services of telephone, telegraph, and fax, data and image communications services, satellite communications, mobile telecommunications, B-ISDN, global personal communications, value-added services, as well as leasing telecoms lines and equipment, providing maintenance for customers, and investing in telecoms systems overseas.



*Project bidding.
MPT = Ministry of Posts & Telecommunications
Source: DGT Annual Report, 1994.

Figure 4-2

Organizational Structure of the Directorate General Telecommunications (DGT)

independent corporation undertake the ministry's mandated responsibilities: the Administration of Television, Broadcasting, and Telecommunications; the Administration of Computing Industry; the Administration of Electronic Components; the Administration of Radar Industry and the China National Electronics Industry Corporation.

Although both the MEI and the MPT are involved in information and communications, traditionally the essential difference in their responsibilities, as defined by the SC, is that the MEI is a manufacturer and developer of telecommunications parts and systems while the MPT is a telecommunications regulator and services provider. But this difference increasingly becomes blurred in China's rapidly changing telecoms environment, where the two ministries frequently confront each other and the old telecoms policy and regulatory framework have become outdated and ineffective. In addition to strengthening its manufacturing facilities, the MEI has taken steps toward entering the telecoms services market, such as the newly established information and communications enterprises Ji Tong, the Golden Cell Corp.,²¹ and China Unicom, all keen to become involved in telecommunications network construction and operations.

The MEI's power and influence may presumably have a bearing on blessings traceable back to the top leaders who once chaired this ministry. For instance, Jiang Zeming, China's number one leader since 1989, was the Minister of MEI in the 1980s; Li Peng, the current Premier, acted as both Head of the Leading Group for the Revitalization of Electronics Industry and Minister of Electric Power; Li Tieyin, the State Councillor and Head of the SCRES, was the Minister of MEI before Hu Qili, the present MEI Minister, who had a high profile during the Zhao Ziyang Administration prior to the Tian Anmen Square Incident in 1989.

The Ministry of Railways (MR). Officially:

the Ministry of Railways manages the national railroads system; coordinates railroad relations with other branches of the national economy; formulates long-term development programs as well as technological policies; works out the nation's annual railway transportation plans and supervises their implementation, and administers national railroad construction.

It is China's largest ministry, with more than three million employees nationwide. In 1994, it had twelve regional bureaus, 50 subregional railway departments, and more than 200 local railway administrative stations. Its internal communications facilities and networks are run by the Signal and Telecommunications Bureau, directly under the MR Minister. By the end of

²¹Golden Cell Corp. is a communications manufacturer under the control of the MEI.

1993, it had about 800,000 exchange lines and 500,000 main lines in use.²² In 1994, according to one source, the MR owned 35,000 km of above-ground lines, 30,000 km of coaxial cable, and 3,000 km of fiber-optic cable. It has also set up numerous microwave links, plus switching capacity for 400,000 telephone lines, so that its telecoms operations could reach most corners of China.²³ Late in 1994 the MR negotiated with AT&T to use loans from the World Bank to purchase 5ESS SPC switching equipment, and at the same time it had a number of projects underway for digital trunk cables to link twelve regional bureaus, X.25 package-switching-data networks, teleconferencing networks, and railway signal-control network systems.²⁴

The Ministry of Electric Power (MEP). The Ministry of Electronic Power is mandated to draw up policies and plans for development of China's electronic power. It is working toward the objective of adding seventeen to twenty new power plants each year, in order to meet the SC's goal of 300 gigawatts (GW) of generating capacity by the year 2000.²⁵ Like the MR, the MEP owns a private network, which consists of 27,000 km of digital microwave links, 2,000 km of fiber-optic cable, 28,000 conventional and trunking-communication radio stations, and 0.46 million lines of switching capacity (75 percent digitized). This private network provides services for dispatching, data-communications, telephony for administrative purposes, and emergency communications.²⁶ The private networks of both these ministries have considerable spare capacities available for public services, and, not surprisingly in light of soaring demand and the huge profit potential for telecommunications, both ministries decided to enter into a strategic alliance with the MEI, which has strong political and technological advantages for operating China's second largest national public telecoms network.

The People's Liberation Army (PLA). The People's Liberation Army, the Chinese armed forces, has its own telecommunications network systems, which provides telecoms services for internal use. PLA telecoms components and equipment are usually purchased from MEI-affiliated manufacturers or from abroad. The Huamei (literally "China-America") Telecommunications Company is a Guangzhou-based JV of the Commission of Science and Technology in the Industry of National Defence (CSTIND) and SCM/Brooks Telecommunications L.P., of the United States, and Galaxy New Technology. As part of the PLA, the CSTIND deliberately keeps a low profile, and because of the military involvement, Huamei,

²²Adapted from "The New Policy Making Hierarchy."

²³Tony Walker, "Global Phone Firms Covet China: Decision on Second Network Spells Big Potential," *The Financial Post*, Aug. 27, 1994, 29.

²⁴"The New Policy Making Hierarchy."

²⁵Alexa C. Lam, "Infrastructure Investment Tips: China," *The China Business Review* 21, 5 (September 1994).

²⁶"Report on Private Network," *CTC News* 1, 8 (May 5, 1995), 1.

as a telecoms company, has given out very little publicity. The PLA's projects and its business-related activities usually are largely independent of ministerial control, and this is also true of Huamei. The MPT seems to support Huamei mainly for two reasons: (a) the PLA has an important voice in the SRRC for allocating radio spectrum to different users, and (b) Huamei focuses on providing advanced, not basic, services, such as broadband- and ATM-technology-based services, which, rather than running counter to the MPT's interest, more likely complement it.

The China Electronics Systems Engineering Co. (CESEC), a subsidiary of the PLA, reportedly plans to offer cellular services in fourteen Chinese cities by the end of 1996, using a 10-MHz radio spectrum previously reserved for military application, with technical assistance from Hong Kong-based Star Paging (International Holding) Ltd., which will lease the equipment for the venture. In 1995, CESEC already had four analog advanced mobile phone service (AMPS) networks operating, in Chendu, Guangzhou, Lanzhou, and Shenzhen. It plans to expand service in Jinan, Kunming, Qingdao, Shantou, and Weizhou late in 1996, with a combined capacity of 50,000 subscribers, which will double with additional time-division-multiple-access (TDMA) networks to be installed in 1996.²⁷

Beijing CATCH Communications Group Company. Beijing CATCH is a product of the Beijing Municipal Government. Based on a science and technology research institute founded in 1982, the Beijing CATCH Communications Group Company came into being in 1991, with the sponsorship of the city's government. In the same year, it began production of YJH-4508 Trunking Mobile Telephone Systems, which received a network license from the MPT and were installed in Anhui province. CATCH set up mobile telephone networks in Beijing, Tianjin, Tangshan, and Qinhuangdao, as well as twenty-eight trunking mobile telephone networks in five provinces. It has also established branch offices in the United States, Japan, Germany, Russia, and Hong Kong. It plans to continue developing and expanding domestic involvement in the production, installation, and operation of paging systems, CT-2 networks, wireless trunking mobile networks, mobile telephone networks, and satellite and cable communications networks. Its ambitious goal is 25 percent of China's paging and cellular market by the year 2000.²⁸

Provincial and Local PTAs. The regulatory and operating mechanism of China's telecommunications have a distinctly dualistic nature. That is, at the national, provincial, municipal, county, and township levels, P&T all are under political and regulatory pressure from two sources. National telecoms services carriers (long-distance and international

²⁷Nick Ingelbercht, "Chinese Army Readies Third Cellular Net After Policy Shift," *CommunicationsWeek International* (Aug. 7, 1995), 8.

²⁸Adapted from "The New Policy Making Hierarchy."

telephony and national information and communications networks) must observe rules and regulations made by the SC (usually represented by the SPC and the Ad Hoc Group) and the MPT, while lower level P&T operators²⁹ are under the jurisdiction of both regional and local governments as well as the MPT's regional or local offices (PTAs). (See Figures 4-3 and 4-4 for the organizational structures of provincial and municipal PTAs, respectively.) In addition, ad hoc leading groups in many provinces exert cross-departmental and -sectorial pressure on the conduct of provincial and local telecoms business. Telecoms manufacturers and service providers either affiliated with the MPT or set up by provincial or local government are in a similar situation of dualistic control or supervision (see Figure 4-5).

4.2 Sources of Concern and Conflict

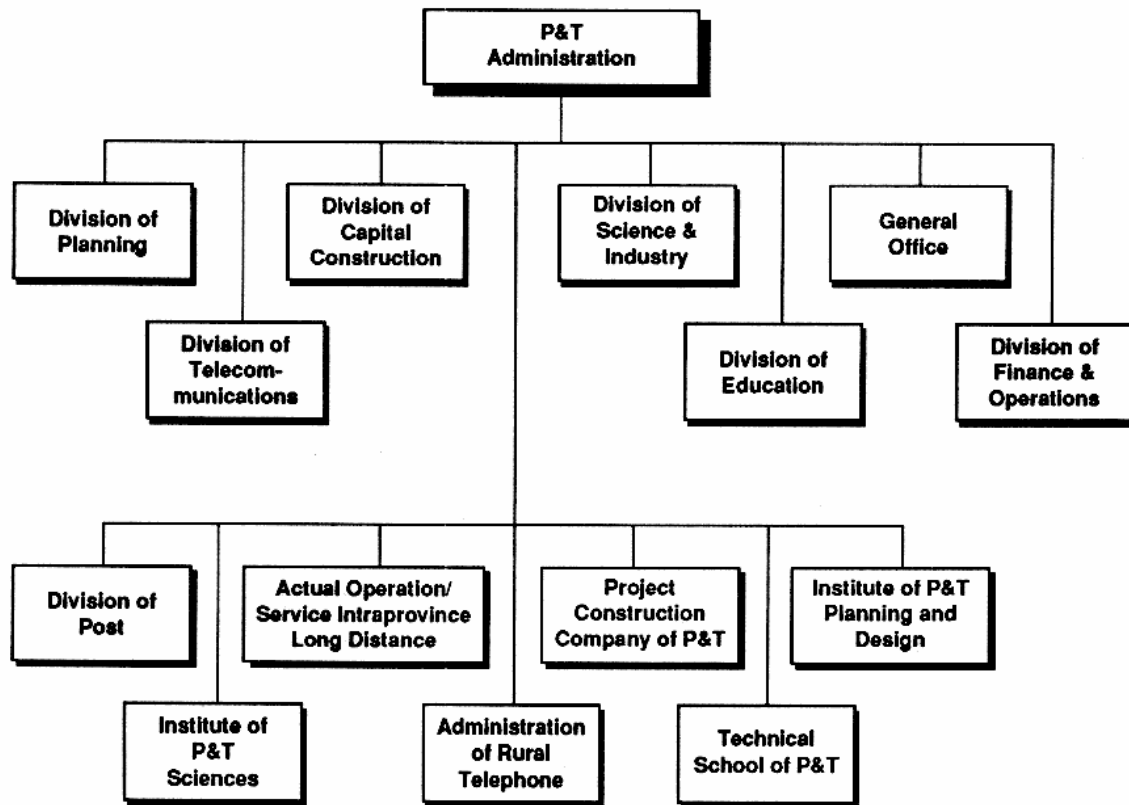
4.2.1 Bureaucratic Disparities and Regulatory Hardships

It is not easy to probe into or understand the exact roles and functions the organizations discussed in section 4.1 performs in the decisionmaking processes for China's telecommunications development, partly because telecommunications, with its high and intricate stake, is fraught with politics and partly because political processes in China, as in many other countries, are largely opaque. The division of power among ministries or commissions and between the central authorities and provincial or city governments seems a very delicate issue, implicit and confusing. The officially defined linkage among different political entities (as shown in Figure 4-6) may well contrast effective interrelations (conjectured in Figure 4-7), in which the roles played by the SC, SPC, and Ad Hoc Groups within a complex power structure are crucial. In light of the functional responsibilities defined as policymaking, telecoms planning, manufacturing, and services, each political player tends to have a relatively set domain of performance (see Figure 4-8), although some try to expand aggressively.

At issue are complicated and competitive political and administrative interests of primarily five distinct realms within the national and regional bureaucracy:

1. The top leadership, represented by the SC
2. The SPC
3. Ministries and commissions (SETC, SRRC, MPT, MEI, etc.)

²⁹The thirty-one provincial carriers (PTAs) operate intraprovincial telecommunications public networks. They construct and expand provincial networks, perform engineering tasks, and cooperate with municipal governments to provide local telecommunication services. Provincial carriers also cooperate with the MPT to set investment goals, plan network construction, and determine tariffs and revenue objectives.



P&T = Posts & Telecommunications

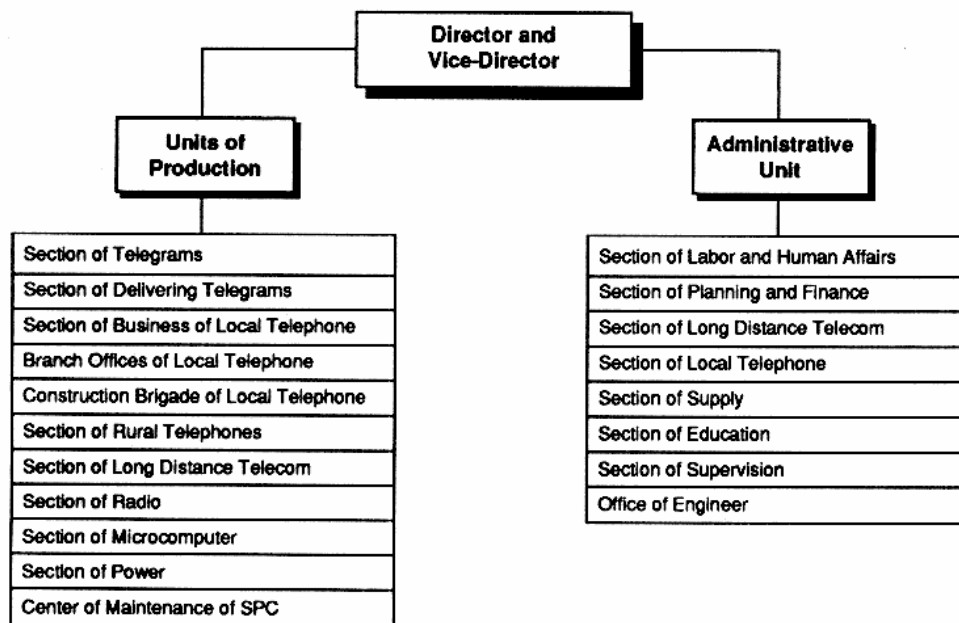
Source: IGI Consulting, Inc., 1994.

Figure 4-3

Provincial Posts and Telecommunications in China

4. Large telecoms enterprises and trading companies affiliated or accountable to the MPT, MEI, the PLA, and some other ministries or commissions
5. Provincial, municipal, and local authorities with responsibility and power to implement local telecoms development plans and control local telecoms resources.

More often than not, each political, administrative, or business body may have different, even conflicting objectives and priorities (especially in a rapidly changing economic and technological environment), making bureaucratic jockeying and confrontation impossible to avoid. With China's telecommunications industry moving toward a more market-oriented direction, the conventional political battle over control of telecommunications resources seems to have intensified. China Unicom is, in a way, both an indicator and an intensifier of the conflict among bureaucratic organizations. Thus, one of the toughest challenges for the Chinese top leadership is how to balance different political forces and create an environment in which different telecoms stakeholders cooperate and coordinate with one another.



SPC = Stored Program Control

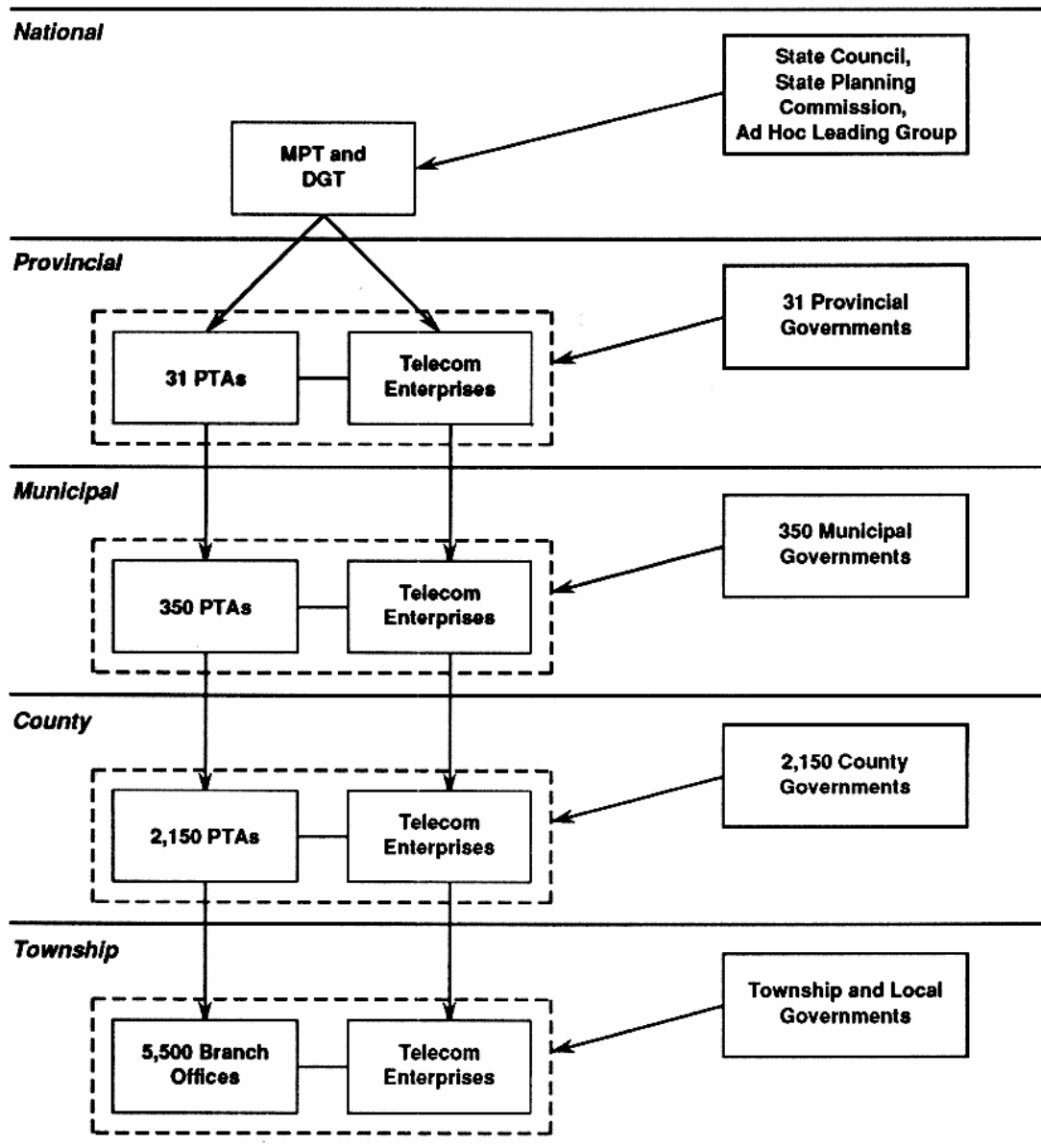
Source: IGI Consulting, Inc., 1994.

Figure 4-4

Municipal/City Posts and Telecommunications Administration in China

When the SC reviews and approves information and telecommunications policies or plans proposed by the SPC, it faces pressure from the CCCCCP and the ministries or commissions involved, because a national development priority does not automatically find concerted ministerial commitment if who gets what from the foreseen benefit remains a problem. For this reason, perhaps, the SC often appeals to ad hoc leading groups in an attempt to allay potential tension. It is a political universal that bureaucratic rivalries generally derive from conflicts of interest associated with a desire to control resources and cash in on lucrative sectors and that the complexity of policy implementation is almost always caused by rivalries thus generated. In this regard, China is no exception.

A good example of this political issue would be the tariffs on telecoms equipment imported from abroad. In 1994, the General Customs Administration officially demanded that telecoms equipment or components imported using overseas loans were subject to tariffs, effective January 1, 1995, but this decision met resistance from importers and end-users. After four months of lobbying by the MPT to modify it, the SC agreed that telecoms equipment imported with foreign loans would continue (in 1995) to enjoy tariff exemption—a



Note: Entities inside dashed rectangles are controlled or influenced by organizations in closed rectangles to the right.

DGT = Directorate General of Telecommunications

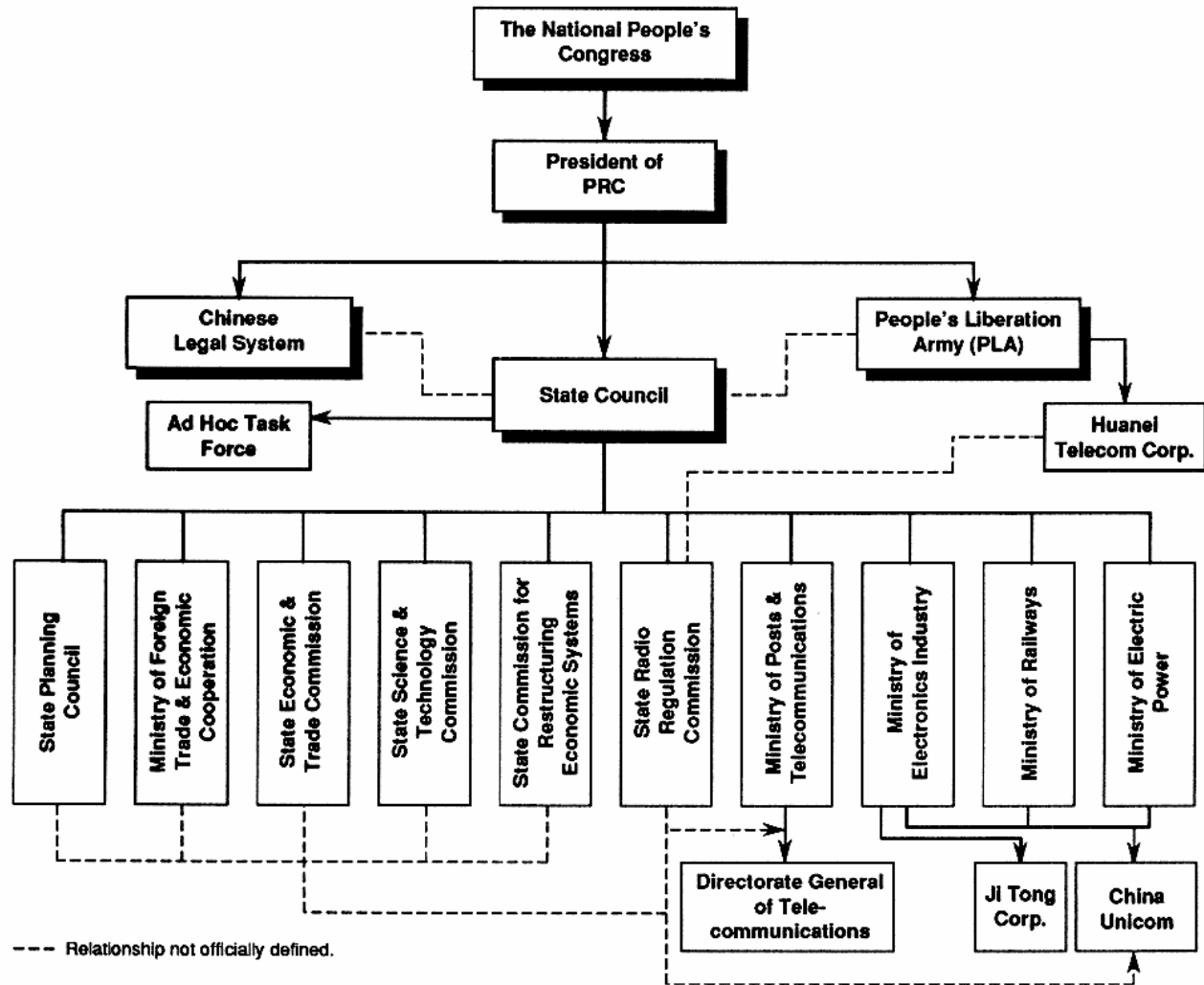
PTA = Posts & Telecommunications

MPT = Ministry of Posts & Telecommunications

Source: Adapted and revised from IGI Consulting Inc., 1994.

Figure 4-5

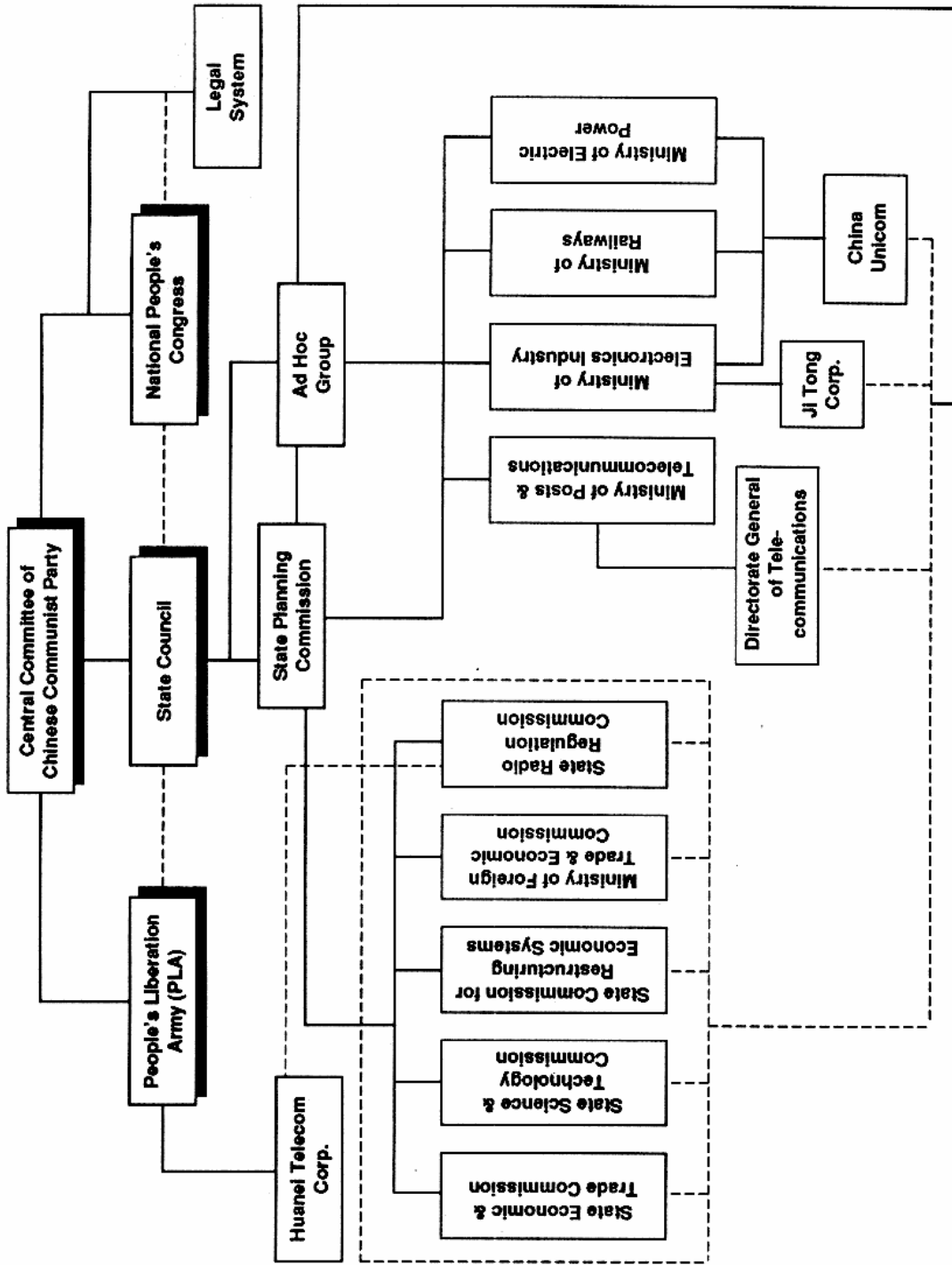
Dualistic Regulatory Structure of Telecommunications in China



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Figure 4-6

Top Leadership Structure for Telecommunications
Stipulated by the Chinese Constitution

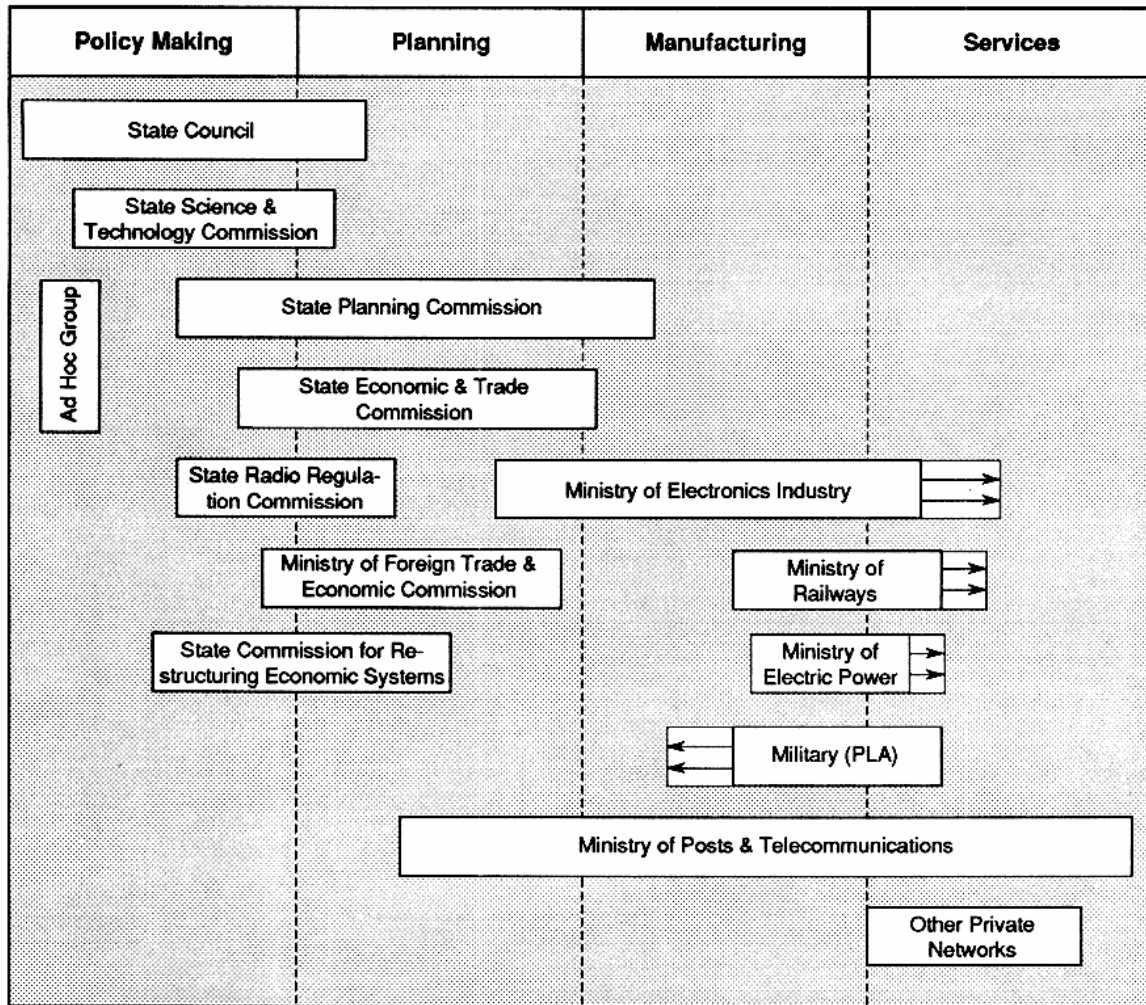


--- Relationship not officially defined.

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Figure 4-7

Effective Political Regulatory Structure of Telecommunications in China



PLA = People's Liberation Army

Source: Adapted from ZGI Consulting, Inc., (need date) and Ken Zita, *Modernising China's Telecommunications: Implications for International Firms* (London: Economist Intelligence United; Hong Kong: Business International Corp., 1987).

Figure 4-8

Functional Responsibilities of Political Players in Telecommunications in China

gain for importers and end-users, but a loss for the Customs in tariffs equivalent to some 9 billion yuan (approximately U.S. \$1.07 billion).³⁰

4.2.2 Why SETC Jurisdiction

At first sight, the SETC's jurisdiction over China Unicom and Ji Tong Co., mandated by the SC, seems peculiar, but in a way it is understandable: using the SETC is an alternative

³⁰Adapted from two issues of *CTC News*, 1, 7 (April 20, 1995), 1-2, and issue number 11 (June 20, 1995), 1.

avored by the Chinese central government to achieve political coordination of and compromise among the SPC, MPT, MEI, and other bureaucratic bodies involved in China's telecommunications. Because of the SETC's power in setting long-range budgets and adjusting annual funding levels for both planned and extraordinary expenditures, the SETC may (a) oversee China Unicom and Ji Tong's equity status, (b) check and balance efforts of the MEI and MPT to control China's telecommunications, and (c) act as ex officio arbiter for political opposition or business disputes. According to some Chinese sources commenting on the SETC's involvement in China Unicom, (a) a Chinese business entity like Unicom must have a government organization—a parent—to depend on for administrative and legal recognition; (b) because the Unicom chairman was also the deputy chairman of the SETC, affiliation between Unicom and SETC seems natural; and (c) because the SETC is only a support for Unicom's legitimacy, it does not need telecoms experience to exercise control over the company's operations.

4.2.3 Central Government vs. Local Authorities

Political and bureaucratic tension occurs both among ministries and commissions at the level of the central government and between national authorities and local (provincial, municipal, etc.) governments. Because local telecommunications in China are under the dual jurisdiction of local MPT bureaus (i.e., PTAs) and local governments, confusion in management and control often arises. According to the official statement of the division of responsibilities and power, the MPT has the mandate to develop and operate national and international networks, as well as regulate all local telecoms planning and operations, while local PTAs are responsible for intraprovincial public network planning, engineering, development, and management.³¹ Given the MPT's heavy demand on local PTAs and governments to foot more bills for telecoms undertakings,³² this division has increasingly been challenged.

The growing burden of local investment has led to greater local telecommunications autonomy. As more and more local governments come to understand that the availability of modern telecommunications is a prerequisite for economic growth, not just something positively correlated with it, they are inclined to allocate local resources for telecommunications development, in the hope of enhancing communications either to maintain

³¹According to Bill Bien, Office of Telecommunications, U.S. Dept. of Commerce, in 1993 the public MPT network consisted of 9 million direct exchange lines; various provincial networks consisted of 4 million direct exchange lines; and private ministerial networks accounted for 5 million exchange lines.

³²According to You Gong, Chinese central government financing for telecommunications (in percentages of the entire investment) dropped sharply, as follows: in 1978, 90 percent; 1981, 52 percent; 1982, 39 percent; 1990, 8 percent; 1992, 3 percent; and 1993, 2 percent ("An Analysis of China's Telecommunications Investment Since the Economic Reform," *China Posts and Telecommunications Enterprise Management Journal* [September 1994], 15).

economic competitiveness or to catch up with more developed coastal regions.³³ Local PTAs have therefore become more dependent on local governments and local enterprises than on the MPT or other Beijing-based ministries or commissions for funds, logistics, and miscellaneous support.³⁴ As a result, alliances among local PTAs, local governments, and telecoms enterprises officially under the MPT or other ministries, have been strengthened, imposing new concerns and pressures on the central authorities. This tendency toward localization is reflected in (a) requests by local PTAs for more autonomy in network management and control and in contracting with domestic or foreign entities; (b) the greater involvement of local governments in local telecommunications³⁵ and their pressure for a greater voice in local telecommunications development; (c) alliances of local enterprises with or competition against³⁶ local PTAs or MPT-affiliated national companies for component production, financing, or services provision.

4.2.4 Mobile Telecommunications: The Center of the Battle

Pros and Cons of "Mobile." The confrontation between local authorities and the central government, or between MPT and non-MPT telecoms players,³⁷ centers on radio-based mobile telecommunications. Given the geography of China, its population, and telecommunications technology and regulatory status, the role of wireless and mobile radio communications is extraordinary. It is almost self-explanatory that mobile radio units can more easily serve China's large, remote, often rugged locations than fixed-wire landlines can; the enormous demand on what is still a rather undeveloped, overloaded transportation infrastructure must generate a huge and urgent need for flexible radio-based mobile communications networks, which offer time-efficient and cost-effective services that can relieve the burden on public transportation. Mobile communications technology has stimulated

³³According to a news release from *CTC News* in March 1995, Shanghai, Guangdong, Sichuan, and several other provinces had built or were building their own private satellite communications networks.

³⁴Xiaojie Zou reported that local PTAs were relying on their own funding sources to cover 60 to 90 percent of their entire network expansion costs (Dialing into the China Market [unpublished thesis, American University, Washington, D.C., August 1993]).

³⁵Many municipal governments sponsor citywide telecommunications carriers associated with provincial carriers. In major cities these carriers offer voice and/or cellular services; in small towns, they offer basic local service and low-quality long-distance service by using PBXs as local exchanges (Bill Bien, "China Telecommunications Market Assessment," Office of Telecommunications, U.S. Dept. of Commerce, May 1994).

³⁶The Chinese central government has permitted non-MPT enterprises to compete with local PTAs in some telecommunications construction projects or in mobile and value-added service areas through bidding or acquiring licenses from the MPT. By the end of April 1995, 2,200 non-MPT enterprises had been authorized to provide telecoms services, of which 1,871 are involved in radio-paging service, 116 in 800-MHz trunking telephone service, 82 in 450 MHz mobile service, 15 in VSAT service, and 116 in other services (*China Telecommunications Construction* 7, 6 [September 1995], 68).

³⁷Non-MPT players are mostly Chinese enterprises, national or local, affiliated with ministries other than the MPT or with provincial or municipal government agencies.

both a direct demand for mobile functions and an indirect demand for access to the PSTN. For instance, people value paging, because it allows them to send one another numerical codes that represent either a request for a call or a complete message in itself.³⁸

Since 1987, when China began to offer public wireless mobile services on analog networks, the growth has been spectacular in urban areas, where state enterprises, government officials, and an emerging class of entrepreneurs all have a great need for mobile communications. In 1990-95, the average growth rate of subscribers was 186 percent. The development of wireless mobile networks has been impressive: in 1995 coverage grew to 1,500 cities. Paging networks in China have covered more than 2,000 cities and towns, with roaming services nationwide reaching 28 million in 1995³⁹ (second only to the United States⁴⁰) and 100 million expected by 2000. In early 1996 the MPT decided to adopt Motorola's high-speed Flex[®] systems as the national paging standard. At about the same time, Motorola (System A) and Ericsson (System B) analog systems for cellular phones were connected in China (resulting in a 900-MHz analog network with a capacity of 5.3 million lines and 3,700 exchange base stations), which offer automatic roaming across the country and represent the emergence of the largest analog cellular network in the world. In April 1996, cellular subscribers reach 4.57 million⁴¹ (making China one of the top five largest cellular markets in the world), and the figure is likely to climb to 18 million by 2000. To date, the MPT and China Unicom have built and connected GSM communications digital networks in more than twenty-three provinces and cities.

The other side of the boom in mobile communications, however, has been rampant theft and illegal duplication of mobile numbers, which has reportedly caused huge economic losses to the government, business, and individual subscribers,⁴² as well as a potential threat to the national security. A high-prestige Chinese newspaper, *Guangming Daily*, reported in 1995 that at least 100,000 out of 3 million mobile phones in use across the country used pirated numbers, and in most cases legitimate subscribers were unaware of any problem until they

³⁸As "beepers" have developed from merely displaying a caller's phone number to providing a brief message as either numeric codes or English letters, or even updated information over on-line services, the popularity of paging has been rapidly increasing in China. Beijing CATCH Co. has reportedly developed a system by which numeric codes can represent different messages if paging users have a pocket decoding book to refer to (*Communications-Week International* [Sept. 4, 1995], 41).

³⁹Of the 28 million, 17.43 million were subscribers to the MPT, so that 40 percent of the paging services were provided by non-MPT enterprises.

⁴⁰China's paging density in 1995 was 1.6 percent, which remains low compared with 8 percent in the United States, 5.4 percent in Japan, 16.5 percent in Hong Kong, and 16.8 percent in Singapore.

⁴¹By April 1996, GSM digital service users reached 438,000 (out of 45.7 million total cellular phone subscribers). For comparison, in 1995 there were 12.5 million GSM users worldwide.

⁴²Government losses alone were estimated at 12 million U.S. dollars in 1994; "China to Clamp down on Cellular Phone Scam," *Deutsche Press Agentur* (Nov. 1, 1995), 2.

were hit by a huge bill. In Guangdong province, an official investigation found 18,000 numbers pirated, about 15 percent of the total numbers in use. In Beijing, some 14 percent of the numbers were estimated to be duplications.⁴³ A deputy mayor of Shengzhen was reported to have had his phone number duplicated six times by pirates who made calls totalling more than U.S. \$15,000 dollars in one month.⁴⁴ Pirates have stolen phone numbers from mainland China, assembled and programmed telephones in Hong Kong, then smuggled them back across the border. Now, computerized production centers throughout southern China can do all of this in minutes. In spite of the difficulty of tracking down these usually transient operations in order to prove piracy, Chinese authorities have taken stiff measures in an attempt to crack down on the problem. As of October 1995, 876 cases had been investigated, 1,128 people had been arrested, and 96 cloning centers had been closed, and some 1,753 mobile phones confiscated.

MPT and Non-MPT: Eye to Eye. A significant element in China's development of mobile telecommunications is the rapidly growing competition between the MPT (including local PTAs) and non-MPT sectors⁴⁵ in the application of advanced technologies, marketshare, equipment prices, and the collection of service fees. In 1994, the Beijing-based Catch Communications Group initiated the roll out of Motorola's Integrated Dispatch Enhanced Network system (IDEN), but because of resistance from the MPT, which did not want to provide trunk capacity for a prospective rival cellular operator, IDEN was put on hold.⁴⁶ For local telecommunications operators (both MPT and non-MPT), cellular phones and pagers are far more profitable than standard phones,⁴⁷ because revenues and other resources go largely into their own pockets. To maintain competitiveness and squeeze out lesser opponents, the MPT slashed its paging service rates by 20 to 40 percent in large cities, causing fourteen non-MPT paging companies in Wuhan city to file a joint lawsuit against the

⁴³Ibid.

⁴⁴Ibid.

⁴⁵The non-MPT sector includes all telecoms enterprises and dedicated network operators not under MPT jurisdiction, represented by Huaxun Corp., which runs thirty networks in the Beijing area; CATCH Corp, which provides services in about 100 cities; the PLA; and the China International Trust & Investment Corp. As of June 1995, some 2,200 non-MPT affiliated enterprises had been allowed to become involved in telecommunications business, of which 80-90 percent were engaged in paging services.

⁴⁶Motorola's IDEN system can provide digital cellular, radio dispatch, and paging services for about 100,000 subscribers through a single subscriber terminal (Nick Ingelbrecht, "Ameritech to Build Fixed GSM Networks in China," *CommunicationsWeek International*, Sept. 4, 1995, 42).

⁴⁷The MPT regulation stipulates that local PTAs retain the revenues generated from local and rural calls, which has a profit margin of only 2 to 3 percent, while the MPT collects revenues from long-distance calls (25 percent in profit margin) and from international calls (75 percent in profit margin) (Ante Xu, "China's Telecom at the Crossroads," 9).

MPT to halt rate cuts and negotiate a ceiling.⁴⁸ Along with these emerging price wars and conflict in service fee collection, the changing structure of the service subscription offers a good indicator of increased competition. At the same time that the PTAs, the MPT's local branches, All have opened paging services, non-MPT paging stations have mushroomed across the country.⁴⁹ By 1994, the non-MPT paging sector was reported to have gained 42 percent of the subscriptions, a remarkable rise within only a few years. In contrast, in major Chinese cities the MPT sector has been losing the battle to the non-MPT sector (see Table 4-1).

Table 4-1
Number of Subscribers to MPT and Non-MPT Sectors
(Through 1994)

City or Province	Non-MPT Sector	MPT Sector
Guangdong	3,665,000	1,885,000
Beijing	520,500	225,400
Shanghai	428,000	501,900
Tianjin	140,300	148,400
Sichuan	349,000	359,300

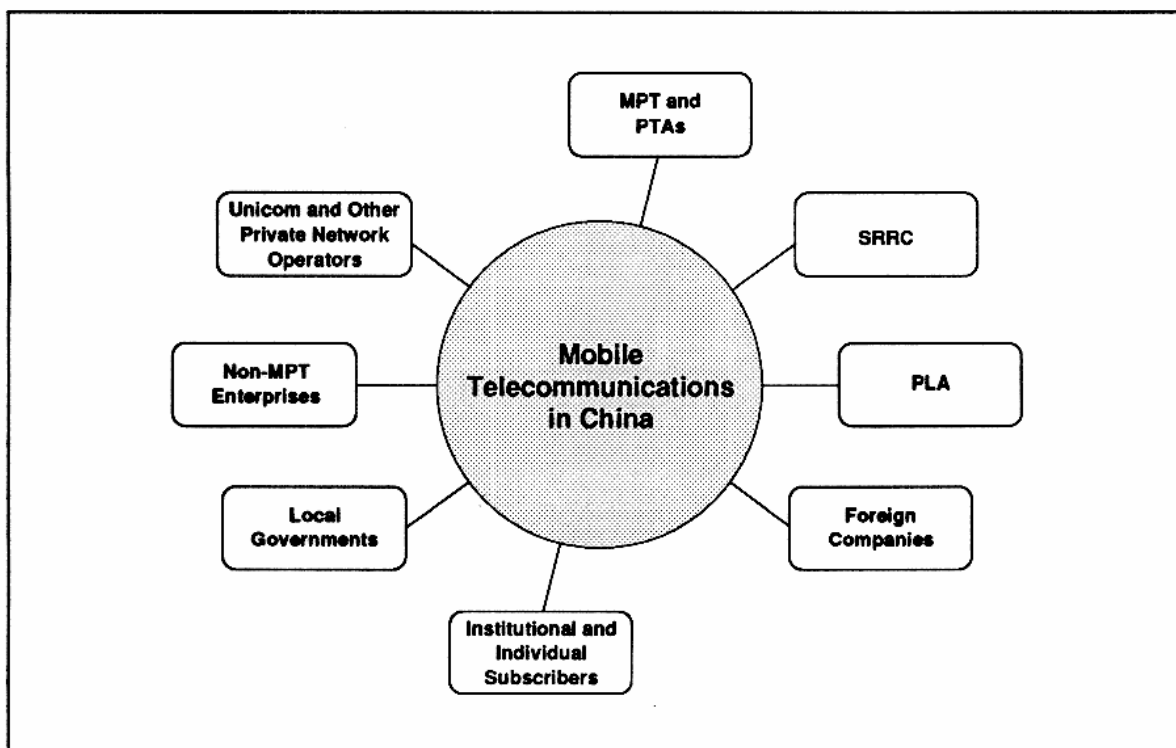
Source: CTC News 1, 9 (May 1995), 1.

A fundamental challenge fundamental challenge facing China's political players in this situation is how to retain control over tariffs, which vary and change rapidly owing to the shift from traditional mobile radios for military and industrial applications to cellular telephone and paging networks for all walks of life. For the government to regulate and manage mobile networks would require not only technological expertise but also a leap in organization and thinking. Because cellular mobile, CT2, and paging involve servicing a market that is hard to control and driven largely by demand, rather than by government command, matters have tended to grow difficult for the government, especially when four forces—MPT, non-MPT, PLA,⁵⁰ and foreign telecoms companies—all are aggressively engaged in this market, each working to increase its own role to its own benefit. (Figure 4-9 sketches the primary stakeholders in China's mobile telecommunications.)

⁴⁸Thomas Belle, "China's Telecoms Ministry Flexes Muscles," UPI, June 21, 1995. *World Daily*, a Chinese-language newspaper, reported on April 15, 1995, a lawsuit regarding the conflict between the MPT and non-MPT sectors concerning the collection of service fees and prices charged.

⁴⁹*CommunicationsWeek International* reported (Sept. 4, 1995) that Beijing alone has some 150 paging operators.

⁵⁰The PLA has the privilege of controlling and using radio frequencies; its business units recently entered into an alliance with domestic and foreign telecoms companies for component production.



MPT = Ministry of Posts & Telecommunications

PLA = People's Liberation Army

PTAs = (Local) Posts & Telecommunications Administrations

SRRC = State Radio Regulation Commission

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Figure 4-9

Primary Stakeholders in China's Mobile Telecommunications

Foreign Firms Mobilized. The major foreign players most active in China's mobile telecommunications market as of early 1995 include two U.S. firms, Motorola (with 60 percent of the radio paging marketshare in 1994) and AT&T, Sweden's Ericsson (with a dominant role in cellular component manufacture and supplies), Japan's NEC and Matsushita, Canada's NovAtel, and Germany's Siemens. Their effect on China's mobile telecoms circumstances is significant because they supply some of the technologies and equipment (through exports from overseas or manufacturing in China) necessary for the development of cellular or paging networks and because their alliances with different Chinese telecoms entities have an impact on political or regulatory decisions and how they are made. In addition, the push by foreign firms to own or operate, or both, mobile telecoms networks in China, as either JVs or on a sole foreign basis, creates pressure on China's telecoms regime. (For a discussion of foreign involvement in China's telecommunications, see Chapter Eight and Table 8-1.)

China Unicom: Tough Competition. Domestically, the key competition against the MPT in mobile telecommunications is China Unicom, which as of July 1996 was two years old and which began mobile telephone services in July 1995.⁵¹ In its effort to gain significant marketshare of mobile telecommunications⁵² in Beijing, Shanghai, Guangzhou, Tianjin, and sixteen other large cities, since establishment China Unicom has invested about 700 million yuan (U.S. \$83.3 million) to introduce GSM systems from Siemens and Motorola, in order to build a mobile telecoms network that will meet the needs of 100,000 cellular phone subscribers in those cities. Unicom plans to open some thirty GSM networks.⁵³

The MPT's Efforts to Maintain Control. To reaffirm its unique position as the unified national planner and regulator for mobile telecommunications, late in 1993 the MPT declared that launching radio paging, radio trunked telephone systems, radio mobile telephones, and domestic VSAT communications all required, as of then, official permission of the MPT or local PTAs (through official approval or business licenses),⁵⁴ and units offering telephone or computer information services, e-mail, EDI, and videotext all must report their business to local PTAs. In May 1994, the ministry issued an official circular citing six points:

1. Mobile phone sets and radio pagers to be used in public networks must be authorized by an MPT network access permit or certificate, and the telecoms devices must be marked with authentic official symbols.
2. The Administrative Division of the MPT is responsible for examination and approval of mobile telecommunications terminal equipment. Arrangements for examination and for network access are to be administered by the PTAs or communications control departments of provincial or city governments.
3. The process of importing mobile phone sets or radio pagers must undergo examination and approval by the MPT. Importers must make formal application to the Administrative Division of the MPT, which will give due consideration for approval or disapproval. Domestic manufacturers of mobile communications equipment or devices must also apply for approval of products and network access.

⁵¹In September 1995, *China Telecommunications Construction* reported that on July 19, 1995, China Unicom, one year after its birth, opened its GSM system mobile telecoms services (6 MHz, using Siemens and Motorola equipment) in Beijing, Tianjin, Shanghai, and Guangzhou.

⁵²China Unicom plans to have 30 percent of China's mobile telecommunications market by the year 2000.

⁵³*CommunicationsWeek International*, Aug. 7, 1995, 30.

⁵⁴The MPT had announced that because existing radio-paging stations and radio-paging equipment were more than sufficient to meet the public needs—that is, China's radio-paging market was becoming saturated—no more applications for licenses to operate interprovincial radio-paging services would be accepted effective July 1, 1995 (*CTC News* 1, 13 [July 20, 1995], 2).

4. Service subscribers whose mobile phones or pagers were obtained from non-MPT channels must undergo the same process of approval prior to being granted access to the public network.
5. The Administrative Division of the MPT and local PTAs are both responsible for supervising and inspecting the performance of mobile service terminal equipment and for taking necessary action when subscribers report service problems.
6. Repairs and maintenance of mobile phone sets can be undertaken only by service stations approved by the MPT or PTAs.

The Struggle for Spectrum. Another focus of the battle among the players is the allocation and use of radio frequencies.⁵⁵ Who gets what and how much is often both a political and commercial issue, and control and allocation of radio frequencies involves a political and economic struggle for among service carriers. Unlike many western countries, where spectrum is now allocated through market mechanisms, such as competitive bidding, in China spectrum is allocated by central government distribution. In attempt to maintain a supreme control and minimize the already emerging frequency conflict, the government has firmly held that radio frequency spectrum belongs to the country and should be centrally allocated, rationally developed, and used according to appropriate charges.⁵⁶ The executive instrument for this mission is the SRRC (see section 4.1.2), which is mandated by the SC and the Central Military Commission to plan, control, and allocate radio frequency resources to different users.⁵⁷ However, the SRRC may encounter difficulties in making frequency allocations (or in enforcing them) should conflicts of interest arise among the MPT, the military (PLA), non-MPT ministries, and enterprises involved in mobile telecommunications, each of which controls certain bandwidths for its own use.

In the 1980s, the SC decided to segregate spectrum for private and public mobile communications: it ruled that the 900-MHz band used by Total Access Communications Systems (TACS; the European cellular standard) would be allocated to public cellular applications; the 800-MHz band used by the AMPS system (the North American cellular standard) would be reserved for private networks⁵⁸ (450 MHz also designated for private

⁵⁵According to Yang Chungqing, Director of China National Radio Monitoring Center, by mid-1995 bands below 1000 MHz were quite crowded in China mobile telecommunications.

⁵⁶In 1989 China instituted a national plan to charge fees for use of radio frequencies. China's plan is modeled on the Canadian Plan, which charges radio frequency users different rates based on frequency band, type of services, time needed, and geographic region.

⁵⁷"The Radio Regulation of the People's Republic of China," issued by the Office of the State Radio Regulation Commission, carried in *China Telecommunication Construction* 6, 1 (February 1994), 2-4.

⁵⁸"Static Interference: China's Telecoms at the Threshold," *Business China*, May 17, 1993.

networks and certain remote applications);⁵⁹ and the 150-MHz band for all paging networks.⁶⁰ The problem with this assignment is that application of technical standards and radio frequencies is seldom separable from political and commercial interests. If the mobile telecoms players can somehow enjoy greater benefits—political, commercial, or both—by not observing the rules set by the top authorities, why wouldn't they choose to do so: For example, some provinces have adopted NMT 450-MHz Nordic Systems for public networks, the Ministry of Petroleum operates a private 900-MHz network, and in 1993 five of the least developed provinces in the west of China accepted AT&T's second-hand analog AMPS systems as gifts for local PTA public network operations. The issue of frequency crossing arose when China Unicom and the Guangdong PTA both applied to use the GSM system for mobile services. The confrontation ended with Unicom's successful access to the frequency resource and possible purchase of GSM equipment from the Guangdong PTA, which was forced to cease using the disputed frequency.⁶¹ A different case that reveals the complexity of this situation was that of the local telecommunications administration (PTA) in Chendu, Sichuan Province, which entered into a JV with a unit of the PLA to build a public digital AMPS system using Hughes Corp. equipment.⁶²

The PLA's control of 800 MHz of spectrum was reaffirmed in September 1993 by a joint statement (Order 128) issued by the SC and the Central Military Commission. The statement strengthened the SRRC's role over allocation of radio frequencies for commercial use. Although it also reassured the PLA of its authority over much of the 800 MHz frequency range, the PLA, however, may still be at odds with the MPT, because the Ministry wants to use the international standard spectrum 860–880 MHz for its CT2 and AMPS mobile cellular services, which conflicts with the PLA's control over 825–845 MHz and 870–890 MHz.

With an eye toward the potential profitability of China's mobile communications market, the PLA has planned to strike its own deals with the MPT through its business entities, Huamei Telecom Co. and China Electronics Systems Engineering Co. with the initial aim of becoming the third commercial cellular network operator competing with the MPT and China Unicom. As a result of the PLA's push, the MPT modified its interpretation of SC Order 128, which originally restricted the PLA-controlled 800-MHz cellular frequencies to private use. In October 1995, the MPT agreed to allow the PLA more extensive interconnection with

⁵⁹Sid Gorham and Achmad M. Chadran, "Communicating on the Go," *The China Business Review* (March-April 1993), 26.

⁶⁰*Ibid.*; also *CTC News* 1, 10 (June 5, 1995), 2. Roughly, 150.725 MHz, 151.35 MHz, and 152.65 MHz are included. In the same month, *CTC News* reported that at least four frequencies at 280 MHz would be used for paging services.

⁶¹*CTC News* 1, 14 (Aug. 5, 1995), 13.

⁶²John Ure, "Mobile Radio Telecommunications in China," *Global Communications* 15, 4 (July 1993).

the public switched telephone network, using the military excess capacity to provide public cellular services.⁶³

Increasingly aware of market dynamics and the growing competition among different players, in early 1995 the SRRC adjusted old regulations and issued new one on the use of spectrum in order to iron out existing and potential tensions or conflicts (particularly between the MPT and China Unicom) and to retain its position as the national controller of spectrum. The main points of the regulations include the following:

- Equipment systems for mobile communications or local radio loops in the forms of PCS, PCN, PDC1.5, DECT, PHS, and various code-division-multiple-access (CDMA) systems operating in 1000-3000 MHz cannot be developed, produced, imported, or sold without prior approval by the SRRC.
- Strict examination and approval are required for new microwave systems operating in the 1000-3000 MHz band, especially in the 1700-2500 MHz range.
- The 905-915 MHz band (for mobile-station transmission) and the 950-954 MHz band (for base-station transmission) were allotted to MPT networks, while the 909-915 MHz (for mobile-station transmission) and the 954-960 MHz (for base-station transmission) were allotted to China Unicom's networks. Further, the 835-839 MHz and 880-884 MHz bands also were allotted to China Unicom, as transmitting frequencies for mobile- and base-stations, respectively.
- Any conflict in use in the 900-MHz frequency public cellular networks will be resolved by trilateral consultations involving the MPT, China Unicom, and the equipment users.⁶⁴

Key Technical Issues. In brief, technical issues in China's mobile telecommunications have been the source of technical competition and regulatory concern; the confusions and problems they have created have involved more than merely technical considerations and debates.⁶⁵ What follows is a list of the key technical issues to date and their implication:

- **Radio Frequency Allocation:**
 - Who gets what and how
 - Efficiency of frequency spectrum utilization

⁶³Adapted from Nick Ingelbercht, "Chinese Army Readies Third Cellular Net After Policy Shift," 8.

⁶⁴Adapted from *China Telecommunications Construction* 7, 2 (March 1995), 58.

⁶⁵For instance, debates on the adoption of certain technical standards have aroused government concern about how to regulate or control telecommunications tariffs under different technical systems, and investors have hesitated and held back money because of uncertainties and risks involved in selecting a technical standard.

- **System Standards: Which to adopt or import?⁶⁶**
 - AMPS vs. NMT vs. TACS analog systems
 - AMPS vs. GSM vs. TDMA/CDMA vs. PDC digital systems
 - AMPS for private networks vs. TACS for public networks
- **Compatibility, Interconnectivity, and Interference (among systems deployed by public or private networks):**
 - Concerns over systems coordination and convergence
- **Interprovince and International Roaming**
 - Technical and regulatory challenges

⁶⁶China Unicom has decided to adopt the European-developed GSM system for its nationwide network, while the MPT has been evaluating GSM, code division multiple access (CDMA), and time division multiple access (TDMA) systems. China has implemented the U.S. IS-54 and Hughes E-TDMA systems on a small scale.

Chapter Five

The MPT Monopoly in China's Telecommunications Industry

5.1 Historical Review

With the establishment of the People's Republic of China in 1949, the Ministry of Posts and Telecommunications came into being with a staff of 100,00 and when there were approximately 20,000 telephone sets in China and limited telecoms and postal resources were in place.¹ In compliance with the P. R. China's political requirements and centrally planned economic system, the MPT was authorized by the State Council to exercise monopolistic control over public postal and telecommunications services. Its officially designated role and basic structure remained essentially unchanged for more than three decades, mainly for three reasons: (a) China's communications were largely traditional and undiversified,² and telecommunications were seen mainly as a message-based service, not a progressive information utility, and so did not require the application of sophisticated telecommunications technology; (b) the political climate predetermined the need for a unified, well-controlled telecommunications system; and (c) industrial and consumer demand for modern telecommunications was not given priority on the national development agenda. The MPT's long-standing monopoly derived from the Chinese socialist political and economic context, rather than from the American concept of a "natural monopoly"³ in the context of a long-established free market.

The officially stated reasons for the MPT's monopoly can be summarized as follows:

- Monopolistic control is necessary for telecommunications, which function as China's nervous system and involve China's sovereignty and security.
- A sole regulator and operator, through unified development implementation and financial arrangements, can best promote, coordinate, and expand universal telecoms services across the nation, extending them to rural and remote areas where such services are badly needed.

¹Ye Peida, "Telecommunications in China," *IEEE Communications* (July 1993), 14, and Chinese Academy of Social Sciences, *Information China* 2 (1989), 583.

²This denotes intensive use of telegram, radio broadcast, newspapers, mail, and official documentation in a top-down information flow or a horizontal transmission of information, organization to organization or person to person.

³U.S. telecommunications went through a period of monopolistic operation prior to the breakup of the Bell System in 1984 into seven regional telecoms holding companies (NYNEX, Bell Atlantic, BellSouth, Southwestern Bell, Pacific Telesis, U S West, and Ameritech), as well as several long-distance and international service providers (AT&T, MCI, and Sprint).

- Effective telecommunications require an integrated local and long-distance network with unified technology and service standards.
- Unified planning, building, and operation of public networks can promote economic efficiency by helping to make full use of the national resources and avoiding unnecessary duplication in constructing the telecoms infrastructure.
- For developing countries, such as China, unified planning and management of telecommunications are both desirable and appropriate because providing telecommunications leads to economic growth.⁴

Between the 1950s and 1970s, China's telecommunications business management was semimilitary and highly centralized; the government looked on telecommunications as an administrative tool, as a nonproductive sector funding for which was cut whenever the central government budget needed to be tightened. Leasing a residential telephone line was a political privilege and a symbol of high social status.⁵ In those years, the MPT had little difficulty controlling telecommunications nationwide. While under strong national control, it was not seen as a most favored or highly empowered ministry.

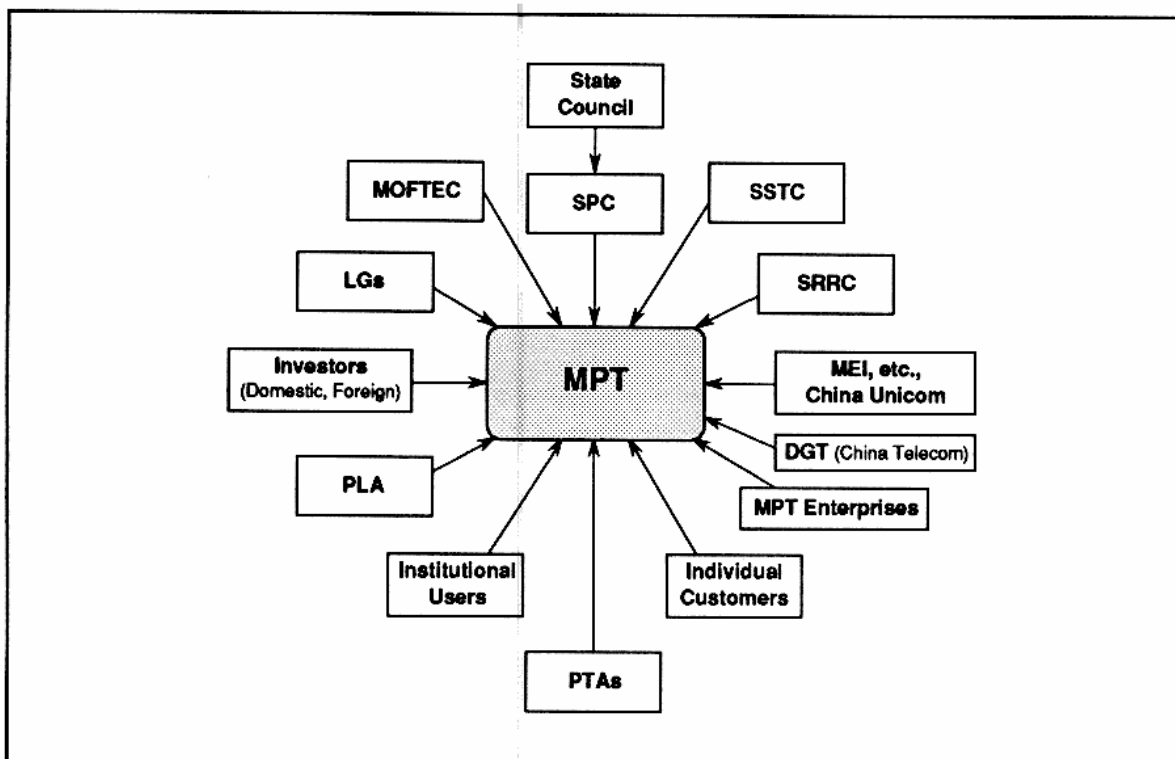
Its monopolistic position was seriously challenged first in the late 1980s, when China was engaged in a nationwide drive for economic reform and modernization. Major forces pressing on the MPT included an urgent need to develop an advanced telecommunications system, thriving market demand for telecommunications services, an acute push by ministerial and large enterprises (state-owned or nonstate-owned) to break into the lucrative telecommunications business,⁶ and the continuing efforts of foreign companies to become involved in both the equipment and services markets (see **Figure 5-1**). As a result, competition was ushered in and the MPT's monopoly as China's sole telecoms regulator and operator was shaken. In an attempt to regain its former position and hold off rivals, since the early 1990s the MPT has taken specific measures, including the following:

- A shift of mission from overall management to macro-level control and leadership (see section 5.3)
- Structural reforms aimed at separating regulatory functions from business management and telecommunications from postal services

⁴Adapted from He Fei Chang, "Lian Tong, A Quantum Leap in the Reform of China's Telecommunications," *Telecommunications Policy* (April 1994), 207.

⁵Ding Lu, "The Management of China's Telecommunications Industry," *Telecommunications Policy* (April 1994), 195-196.

⁶Representative of these forces was the founding of China Unicom by a ministerial and business consortium led by the MEI. Many of these ministries and businesses own and operate private networks.



DGT = Directorate General of Telecommunications (China Telecom)

LGs = Ad Hoc Leading Groups

MEI, etc. = Ministry of Electronic Industry, Ministry of Railways, Ministry of Electric Power, and China United Telecommunications

MOFTEC = Ministry of Foreign Trade & Economic Cooperation

MPT = Ministry of Posts & Telecommunications PLA = People's Liberation Army

PTAs = (Local) Posts & Telecommunications Administrations

SPC = State Planning Commission

SRRRC = State Radio Regulation Commission

SSTC = State Science & Technology Commission

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Figure 5-1

Sources of Pressure on the Ministry of Posts and Telecommunications

- Making way room for competition in such limited areas as value-added services and mobile and data communications, where the MPT maintains its control through a strict system of licensing and registration?
- Reconfirming the relationship between public and private telecoms networks as that of dominant and subordinate throughout the telecommunications system

⁷To tighten control over the telecommunications market, in September 1993 and May 1994, the MPT issued new regulations stipulating that official certificates of ratification or registration are required from those that run businesses handling pagers, 800-MHz program-controlled telephones, mobile and data telecommunications, value-added services, and equipment and services for domestic VSAT satellite communications.

The MPT's structural reforms were based on the principle of splitting off the functions of a regulator from those of a service provider, or, in other words, differentiating the responsibilities of administration from those of business management, so that the MPT can perform better as a national telecoms regulator while the DGT (formerly a department within the MPT) can operate as a national telecoms services provider more efficiently and effectively.⁸ The separation of telecommunications from postal services seems geared to promote profit-seeking by the telecommunications and postal services. According to an MPT spokesman in 1994, the MPT did not regard its DGT restructuring as corporatization but, rather, as giving more power to the operations entities, enabling them to make decisions more quickly and to be more responsive to the market.⁹ In May 1995, however, confusion arose when the DGT claimed it had registered with and been ratified by the State Administration for Industry and Commerce as a state-owned enterprise under the name China Telecom¹⁰ that involved virtually all kinds of telecommunications services, equipment manufacture, network construction, R&D projects, sales, and consulting. As of mid-1996, the precise relationships between the MPT and the DGT and between the DGT and the local PTAs remain unclear. The reorganization steps taken reveal telecommunications policymakers warily feeling their way forward: they are willing to embrace change for the sake of improvement but at the same time are apprehensive of what change will mean for the country's telecommunications regulatory regime.

5.2 The MPT as a Colossal Organization

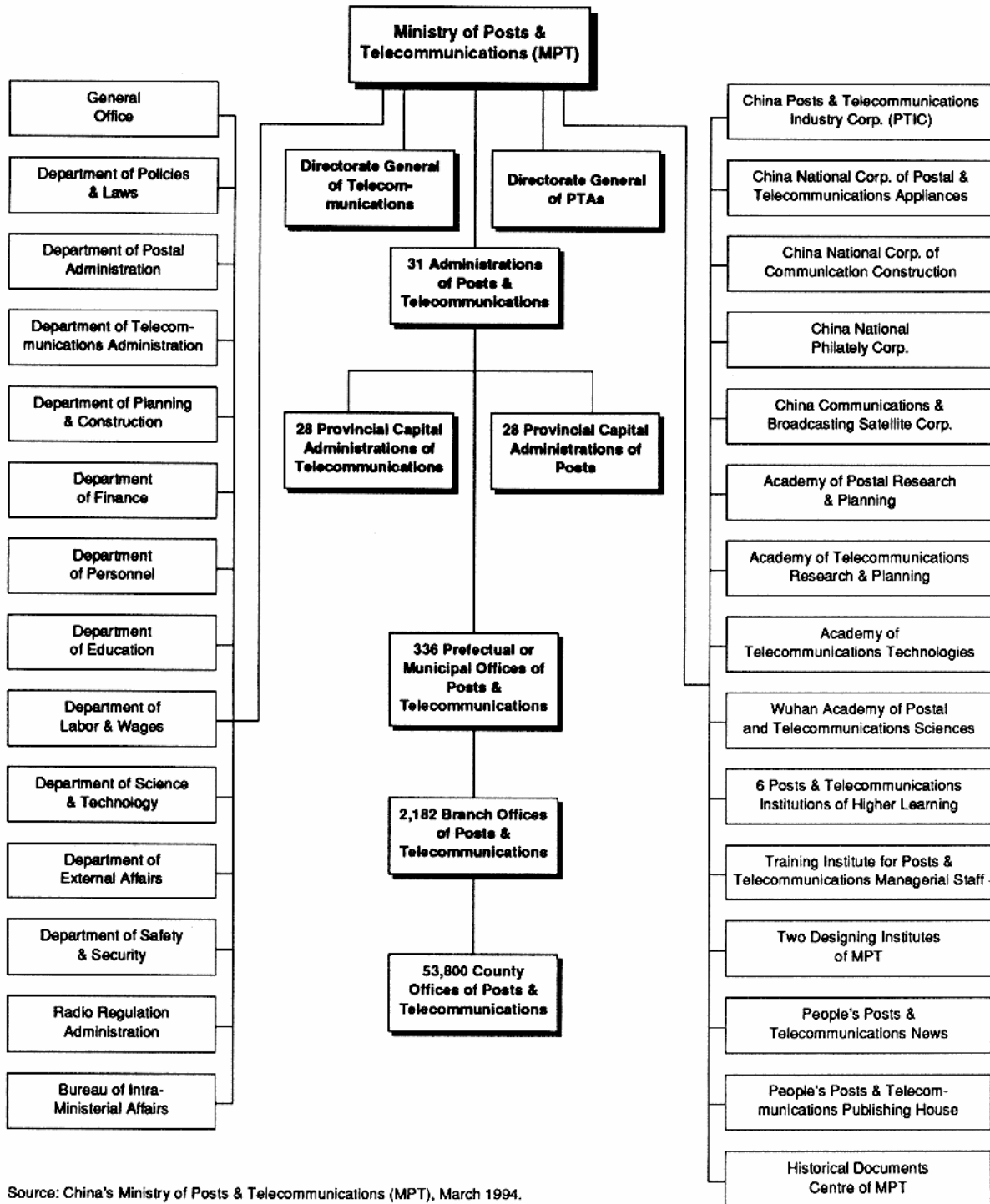
To call the MPT "colossal" is no exaggeration, as even a glance at its complex organizational structure, the number of its employees, and the institutions or enterprises affiliated with it can show (see Figure 5-2). Under the MPT there are fourteen departments and offices endowed with various responsibilities, seven huge corporations (including the DGT and the DGP) with extensive manufacturing facilities in different locations, five research institutes, six bodies of higher education, and a far-reaching network of branches or offices of posts and telecommunications (local PTAs) down to counties and towns in China's thirty-one provinces. In 1994, its employees numbered 1.18 million, compared with 900,000 in 1987.¹¹

⁸According to Wu Jichuan, Minister of the MPT, the independence the restructured DGT enjoys includes separate accounting, management, operations, and construction of the national telecommunications networks (*China Telecommunications Construction* 6, 5 [October 1994], 18).

⁹Nick Ingelbrecht, "China Splits MPT," *CommunicationsWeek International*, April 11, 1994, 4.

¹⁰The new name, "China Telecom," may suggest the DGT's direct confrontation with China Unicom, a telecoms competitor jointly formed in 1994 by non-MPT forces in China.

¹¹"New Policy Making Hierarchy," a report prepared by CSIS, Washington D.C., November 1994, and Ken Zita's *Modernising China's Telecommunications: Implications for International Firms* (London: The Economist Intelligence Unit, Business International, March 1987, Special Report No. 1080), 17.



Source: China's Ministry of Posts & Telecommunications (MPT), March 1994.

Figure 5-2

The MPT as a Colossal Organization

The MPT's organizational structure raises questions of control and management. One issue that frequently arises is the extent to which the ministry's functional departments and offices can effectively coordinate with one other and control their nationwide peripherals. Ties between the ministry's headquarters in Beijing and its numerous organizations across the country are considered loose and weak, and the exact scope within which the MPT has an absolute control seems rather unclear.

The functions and responsibilities of the MPT as a national monopoly have been questioned by Ken Zita, who has suggested that the MPT functions and carries out its responsibilities as the titular head of the telecommunications industry in China, rather than as a centrally planned monopoly. Its role is much that of a middleman, a political clearinghouse between policy formation and the central government.¹² Zita believes that the MPT has absolute responsibility neither for the strategic direction of the industry nor for local plans for implementation, responsibilities significantly performed by the SC, the State Planning Commission, and local PTAs. This view is based on the MPT's cumbersome bureaucratic structure, its power relative to that of other ministries under the SC, and its capacity, both existing and potential, for national control over China's telecommunications.

For addressing the MPT's structural problems, China's economic system, its internal power politics, and the interests of different ministries and factions involved in telecommunications are far more significant than either a technocratic view or a comparison of the MPT's structure with models from other countries, but the Chinese case does seem, to some degree, analogous to one of the four models of the world telecommunications administrations put forward by David Gillick in 1992, despite some important variations. The main characteristics of these four models are summarized in Table 5-1.

Perhaps no one would deny that in how it functions the MPT resembles model 4. Its decisions are generally made under direction of the central government, which sets political priorities. The MPT seldom has power to making policies for strategic issues independently, and the implementation of important policies tends to rest with either central authorities or local PTAs. Thus, the ministry is often looked on as a titular head, not as a real monopoly. William Warwick, Chairman of AT&T China Inc., commented that because the MPT has not adequately separated its regulatory and operational functions, China is heading toward setting up a quasi FCC that would impartially regulate the telecommunications industry and new competitors.¹³ It has also been reported that China is considering dividing the national

¹²Zita, *Modernising China's Telecommunications*, 14.

¹³Nick Ingelbrecht, "China Rethinks Telecoms Approach," *CommunicationsWeek International*, June 13, 1994, 36.

Table 5-1

Four Models of Telecommunications Regulatory Structures

Model	Structure
1. Autonomous semijudicial commission (e.g., U.S.'s FCC)	Organizationally independent from political concerns of the government; less likely to take actions solely to support the interests of government. More transparent decisionmaking process. Higher accountability for actions. Administration dominated by legal procedures. Cumbersome bureaucracy and high financial costs.
2. Independent official supported by separate regulatory office (e.g., U.K.'s Oftel)	A single government appointee given wide discretionary powers supported by very small bureaucracy. No power to issue licenses but in a position to advise license issuer about license modifications. Closed process of decisionmaking that relies on one person with unclear accountability. Sufficient independence from political concerns and overriding dictates of sponsoring ministry. Self-financing based on license fees and relatively low administrative costs.
3. Independent official supported by unit within government ministry (e.g., French telecoms regulator)	Independent apolitical official given statutory responsibilities for virtually all aspects of telecommunications (except issuing licenses) and for recommending to the minister who issues licenses on licensing and wider policy matters. Involves third parties in decisionmaking process, which increases independence and transparency. Relatively low costs for operation.
4. Government ministry (e.g., German telecoms regulator)	Branches or departments within ministry administer the regulatory function on behalf of cabinet minister with statutory responsibilities and powers. Greater accountability to government or to electorate. Political concerns often dictate final decisions. Little genuine independence in decisionmaking. Conflicts often arise over, e.g., interconnection arrangements and price controls, due to political dictates and dissonant priorities among different players.

Source: Adapted from David Gillick, "Telecommunications Policies and Regulatory Structures," *Telecommunications Policy* (December 1992), 727-728.

telecoms operator into eight regional networks to be run by eight different companies,¹⁴ but whether this prospect will eventually come to fruition will depend a great deal on the weight the Chinese central government will give to political implications of decentralization arising from the break-up of the national network operator. In any case, the MPT still bears the following three features:

1. It is essentially subordinate to, or part of, the central government.

¹⁴Kenneth Hart, "China Embraces Internet," *CommunicationsWeek International*, June 26, 1995, 41.

2. Its decisionmaking remains primarily a closed process based on political concerns and interests, not on systematic legal procedures.
3. Disputes or conflicts often occur among the MPT, the local PTAs, and non-MPT sectors.

5.3 The MPT's Mission and Regulation by the MPT

For much of its history, the MPT apparently had a mandate to draft or formulate policies, regulations, and plans directly concerning the manufacture, procurement, deployment, and development of the national postal and telecommunications equipment and services. Its main responsibilities included supervision of policy implementation, monitoring and regulating tariffs and prices for public services, the establishment of technical standards, and planning for posts and telecoms investment. Its jurisdiction included construction and operation of the national long-distance public networks, but not independent private networks owned and operated by other ministries or enterprises. In day-to-day administration and management, the MPT plotted the course of and administered the emerging interprovincial and international trunking systems; set technical interconnection standards; and trained technicians, engineers and scientists. It acted as the industry's bureaucratic bridge, a liaison between the central government and the local authorities charged with control of posts and telecommunications. In addition, the ministry was the appointed mediator with foreign telecommunications players.

The MPT's regulatory functions in China's public telecommunications industry involve five areas:

1. Internal control and management of the MPT concerning organizational structure, its work force and management team, policy implementation, business operations, planning and supervision of revenues and expenditures, productivity measurement and enhancement, assessment and inspection of industry assets, enterprise cost accounting and taxation, labor benefits and relations, and departmental or sectoral coordination.
2. Technological guidance and promotion, which consists of interpreting and regulating technical standards and specifications.
3. Financial control and management to cope with detailed policies for fees for installation of telecommunications equipment and service charges;¹⁵ schemes for profit-

¹⁵The pricing of telecoms installation fees and services has been determined largely by the MPT, by setting price caps which local PTAs use to determine specific prices with reference to costs and local governments' price regulations. Prior to 1980, many telecoms services were underpriced, which caused many local PTAs to operate with deficits. In the late 1980s the SC authorized the MPT to adjust service rates, which increased the average rate of rate of return on investment in the industry from 9 percent in 1986 to 17 percent in 1990, higher than for all other industries in China. The World Bank's calculation of China's telecoms rate of return in 1989, after adjustment for accounting differentials, was 12 percent, which is close to normal for telecommunications by

sharing and distribution;¹⁶ network construction financing and investment structure;¹⁷ and other finance-related matters.

4. The MPT regulates the issuance of operating or sales licenses and of approvals for telecommunications services officially open to domestic competition¹⁸ in two ways: by licensing, which is confined to MPT pre-set quotas, with the licensees' operations subject to time restrictions;¹⁹ and application-and-approval, an administrative measure that although it involves neither quotas nor operating-time restrictions usually requires service providers to have access to telecoms equipment or to the network owned by the MPT or local PTAs.²⁰ According to present MPT regulations, an operator engaging in services open for competition must:

- be a state-owned enterprise or institution or a collectively owned enterprise with the official status as a legal person;
- have the technical and managerial personnel required for operating the network;
- own the necessary facilities and space to provide the service and own communications equipment interfacing with the public networks that comply with the requirements stipulated by the MPT for network access; and
- have the capacity to provide the particular service on a long-term basis.

western standards (Ding Lu, "The Management of China's Telecommunications Industry," *Telecommunications Policy* [April 1994], 197-198.) On Sept. 9, 1994, the MPT stipulated that, effective Oct. 1, 1994, (a) cross-city telephone fees were to be adjusted to be the same as intracity fees, i.e., RMB 0.10 yuan (about US\$0.012) per minute; (b) a quantity discount was to be offered to organizational or institutional callers; and (c) night or holiday calls would be charged at a discount of 50 percent.

¹⁶Revenues generated from long-distance and international calls are collected by the MPT and then, according to a complex formula, reallocated to the MPT and local PTAs.

¹⁷The MPT proposed a domestic joint-investment scheme, which indicated (a) that local government organizations, state-owned enterprises and institutions, and private network operators all are welcome to participate in this scheme; (b) that investors can receive returns at predetermined rates or returns based on the proportion of the investment made by each participant; (c) that investments can be in cash or in kind; and (d) that no investor is allowed to participate in public network operations or management without permission of the MPT.

¹⁸As of June 1996, all services, except VSAT service, opened to domestic competition are in the area of local telecommunications. Special restrictions apply to licensed VSAT operators: (a) designated users of the VSAT service are not allowed to offer services to others through extension of a given satellite channel or to connect their terminals with public networks; (b) licensed VSAT operators are not permitted to provide channels to any entities for setting up sub-VSAT terminal stations abroad; (c) VSAT transmitters must be leased from China Telecommunications and the Broadcast Satellite Corporation, not from overseas sources; and (d) private VSAT network operators must apply for licenses if they lease out their VSAT terminals to other clients (*Post and Telecommunications Enterprise Management* 70 (February 1994), 15.

¹⁹Operation licenses are valid for five years, with renewal mandatory on expiration.

²⁰According to the MPT Provisional Regulation on Decentralized Telecommunications Services effective Nov. 1, 1993, and still current, China's licensing regulation applies to specified telecoms service areas, such as radio paging, the 800 MHz trunked telephone service, the 450-MHz radio mobile communications service, and domestic VSAT service. The apply-and-approve regulation applies to telephone information service, computer information service, e-mail, EDI, and videotex service.

5. Through its control or implementation of regulations of foreign involvement in China telecommunications, the MPT, on the SC's behalf, has repeatedly and publicly endeavored to rule out foreign involvement in China's telecommunications network management or operation, including in international telephone resale or call-back services.²¹

Increasingly competitive and complex, since 1990 the telecommunications situation has modified or extended the MPT's traditional role as a monopoly. The ministry's intended focus has shifted from microlevel managerial domination to macro-control over the national communications industry.²² Yet, the long-held principle of exercising unified planning and management using the MPT as the mechanism was reaffirmed for the stated purpose of maintaining a national integral telecommunications system.

The MPT's extended functions, performed under the auspices of the SC, are threefold:

1. To provide general guidance and direction for planning and development of private networks, to regulate the operation of private networks, and to coordinate public and private networks
2. To regulate the national telecommunications market, by monitoring and studying market trends and by issuing licenses or permits to qualified service providers or equipment manufacturers; and to maintain market order and protect the interests of government organizations and individual consumers
3. To review and approve telecoms projects that involve foreign participation, to exert control over MPT projects that require foreign investment or technology transfer; to represent China as a member of international telecoms organizations, sign intergovernmental agreements or treaties concerning posts and telecommunications, and promote economic and technical cooperation with foreign counterparts.

²¹Ibid. The MPT's policy statement continues: "No foreign organizations, individuals, solely foreign funded enterprises, or Sino-foreign joint ventures shall invest in, operate, or participate in the joint operation or management of telecommunications services in China." The MPT made a special announcement in *China Daily* (Friday, May 19, 1995, 3) prohibiting foreign companies from doing international telecommunications resale business in China: "In accordance with relevant regulations set by the Chinese government, the Ministry of Posts and Telecommunications is the sole international telecommunications operator in China. No companies or individuals, including any reseller, are allowed to be engaged in international telecommunications operation in any form in China. Recently, we have found that some foreign companies are running advertisements in China and are promoting international call back service. This is in strong violation of China's regulation governing the operation of international telecommunications services.... [A]ny resale of international telecommunications services in China must be stopped and users of the call back service should stop their application immediately. Otherwise, we will take necessary measures." The penalties, according to the MPT source, would range from severe warnings to fines to cutting phone lines. Call-back services give Chinese subscribers access to U.S. phone lines when calling from China. U.S. rates for most countries are much lower than the rates set by the MPT, which charges RMB 26.25 yuan (US \$3.13) per minute to call from China to North America (*CTC News* 1, 11 [June 20, 1995], 3).

²²This shift means that the MPT wants to maintain control over the national posts and telecommunications more by implementing rules and regulations than by directly operating or managing national networks and services.

5.4 MPT Planning

The MPT conducts planning for China's national PSTN, within strategic guidelines of the SPC and the SSTC for overall developmental and technical issues. The MPT, however, does not have planning or operational control over provincial and local PTAs, which make their own development plans for local networks and then go through a formality of approval by the MPT. Less affluent or unsophisticated regions draw on the expertise of local PTAs or more developed neighbors for guidance in telecoms planning and operation. MPT planning is generally grouped into four categories: fundamental planning; development planning; annual investment; and project planning.

Fundamental planning establishes a unified network structure and related criteria for the national network system. It addresses all technical details, including unified network architecture, exchange code assignment, subscriber numbering, control signalling, network synchronization, grade of service targets, and call completion standards. Because planning must stay abreast of emerging technologies, the content and planning are both constantly reviewed and updated. Direct responsibility for fundamental planning rests with the MPT's Department of Science and Technology, but overall planning is conducted by the MPT's Academy of Posts and Telecommunications Sciences in Wuhan.

Development planning is aimed at ensuring that telecoms construction programs meet China's economic and social requirements. It focuses on construction for long-distance, urban, rural, private, packet-data, wireless mobile, and other nonvoice networks. The architecture built by fundamental planning provides the basis for development planning. The MPT's Department of Planning and Construction, as well as the Academy of Telecoms Research and Planning, assume responsibility for national development planning, while planning departments of local PTAs carry out provincial and local development planning.²³

Annual investment planning is performed interactively. The MPT drafts preliminary investment targets for the provinces, municipalities, and large MPT enterprises, on the basis of the current national five-year plan and a breakdown of the possible investment needs of these entities. Next, different levels of telecoms planning authorities put the MPT's plans along side their actual development capacities and come up with adjusted figures, which are sent back all the way up to the MPT. Then, the MPT revises the plans and submits them to the SC for final approval. Since 1990, this MPT planning process has been modified, because local PTAs and other telecoms entities have been given increased responsibility and autonomy for investment and network construction.

²³Adapted from Wan Siding, "An Overview of Telecommunications Planning in China," *IEEE Communications* (July 1993), 19.

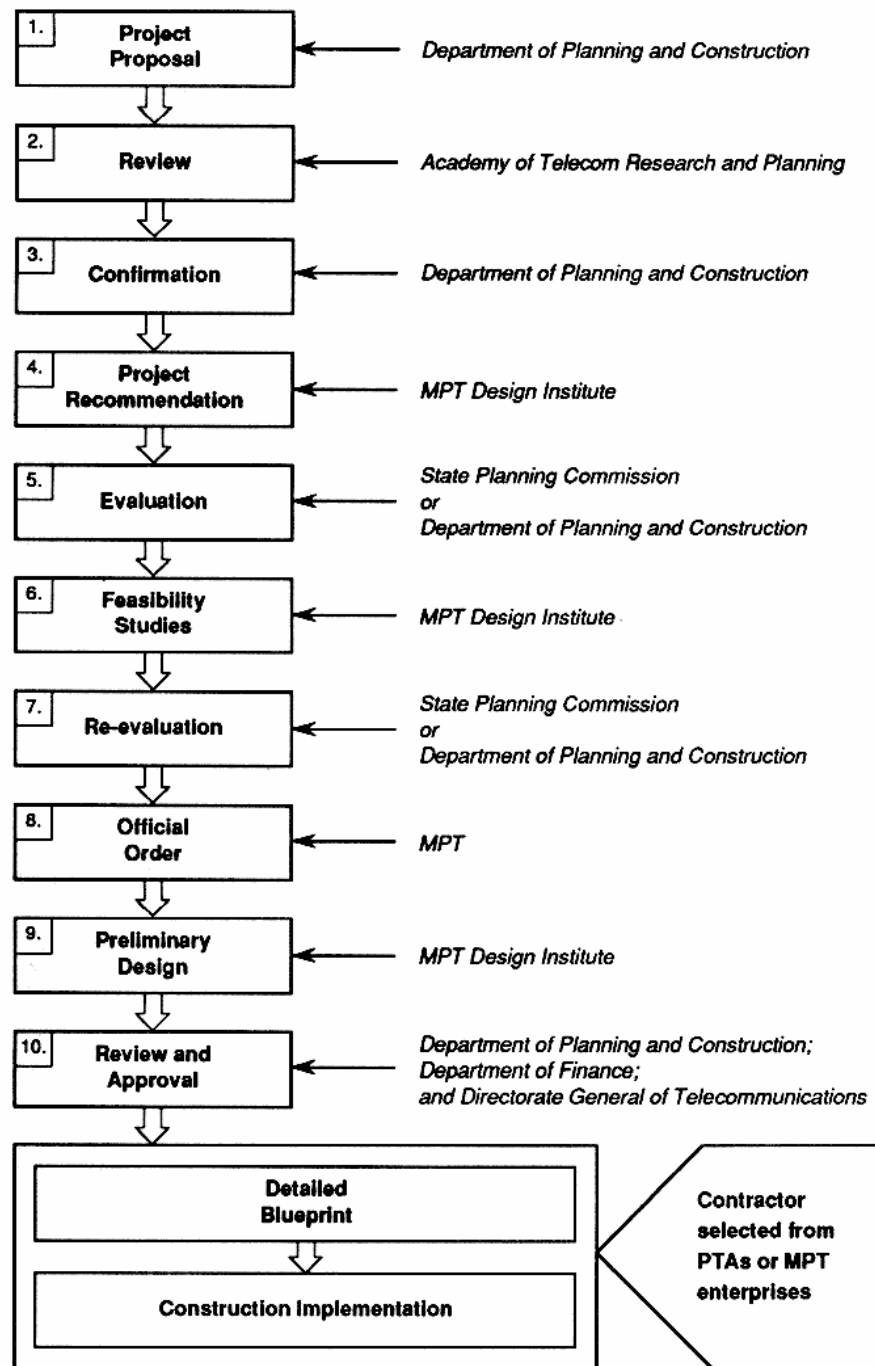
Project planning (see Figure 5-3) is undertaken for large-scale or medium-size projects for construction of interprovincial or international networks. According to the SC's 1994 mandate, telecommunications projects requiring an investment of more than RMB 50 million yuan (approximately U.S. \$6 million) must be approved by the SPC, while provincial PTAs are authorized to ratify projects requiring an investment of up to RMB 20 million yuan (approximately U.S. \$2.5 million). This distinction seems to indicate that projects requiring RMB 20 to 50 million (a gray range) fall into the MPT's sphere of power for approval. Project planning is usually initiated by the Long-Term Planning Division of the MPT's Department of Planning and Construction. Proposals then undergo review by the MPT's Academy of Telecoms Research and Planning prior to confirmation by the Planning Department. The MPT's Design Institute is entrusted with responsibility for preparing project recommendations which are sent for evaluation either to the MPT's Planning Department or, if a large project, to the SPC. When this has been done, the MPT's Design Institute is requested by the Department of Planning to conduct feasibility studies. The results of the studies is submitted to the Department of Planning or the SPC for re-evaluation. After all these procedures have been completed, the MPT will officially declare the beginning of project design and issue orders to the Design Institute for preliminary designing. If importing equipment or other supplies is involved, the MPT's Department of Planning is responsible also for preparing technical specifications, inviting tenders for procurement, and signing purchasing contracts with appropriate parties while the preliminary design is in process.

The preliminary design is jointly reviewed and approved by the MPT's departments of planning and finance and its DGT. Detailed project blueprints and actual implementation of the construction are undertaken by project contractors selected from provincial PTAs or MPT enterprises through a process of tender invitation and open bidding.²⁴

5.5 The MPT vs. Local PTAs

China's national public network of telecommunications, i.e., long-distance trunk routes, international direct dialing, and packet switching, is controlled exclusively by the MPT in Beijing. Local network management and development, however, operate independently, with planning and procurement decisions made by local PTAs which, because of their dependence on local government for funding and logistical support, have closer ties to local government than to MPT headquarters. Apparently, there are two tiers of telecoms monopoly in China: the MPT's monopoly of the industry in terms of overall planning and regulation, and the monopoly held by local PTAs of local facilities and services.

²⁴*China Telecom 2000*, a report prepared by IGI Consulting, Inc. (1994), Vol. 1, 80-83.



MPT = Ministry of Posts & Telecommunications

PTA = (Provincial) Posts & Telecommunications Administrations

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Figure 5-3

MPT Project Planning: Ten Major Phases

Technically, China's public telecommunications network system consists of five distinct but interrelated components: (a) a national long-distance (*interprovincial* and international) network, (b) an *intraprovincial* network, (c) a network for provincial capitals, (d) a prefectural or municipal network, and (e) a county network in rural regions.²⁵ The telecommunications tariff is usually determined with reference to three categories of calls: (a) long-distance calls, covering inter-, intraprovincial, and any other calls excluded from local or rural calls; (b) local calls, defined as calls within a metropolitan area and between a metropolitan area and its suburbs or calls between suburbs of a metropolitan area; and (c) rural calls, made in remote regions away from major urban areas.²⁶ Under MPT rule, all revenues generated from long distance calls go to the MPT's Department of Finance, and a proportion of them, calculated by a complex formula, is reallocated to local PTAs as revenue sharing;²⁷ revenues derived from local and rural calls are retained in full by local governments. According to MPT sources, the current (1995) profit margin from domestic long-distance calls is 25 percent, international calls 75 percent, while that from local calls is only 2 to 3 percent.²⁸ The rate of return from long-distance and international services also is significantly higher than that from local and rural services.

This technical and financial arrangement has caused problems and created tension between the MPT and the local PTAs. Local PTAs are increasingly unhappy that a substantial portion of the revenues generated from long-distance calls (intra- and interprovincial) is held by the MPT, while they are required to undertake heavy investment burdens for network construction and maintenance. There appears to be a trend toward local PTAs becoming forging stronger ties to the local governments and local telecommunications enterprises or nontelecoms businesses,²⁹ and together they are striving for greater autonomy for their operations and development. This trend seems stronger in large cities such as Beijing, Guangzhou, Shenzhen, Tianjin, and Shanghai, where the economy is growing faster and is geared more toward market competition.

Another factor complicating the relationship between the MPT and local PTAs is increasing foreign involvement. To meet the goals of local PTAs, to expand and upgrade their telecoms networks and facilities for greater competitiveness and profitability, local PTAs are

²⁵Pressure on the MPT is growing to reorganize these five components into three—interprovincial, intraprovincial, and local.

²⁶Description based on Ante Xu's "China's Telecommunications at the Crossroads."

²⁷Local PTAs in poorer provinces receive some financial aid from the MPT through an MPT national subvention plan.

²⁸Ante Xu, "China's Telecommunications at the Crossroads," 9.

²⁹It was reported that some local PTAs were constructing cable systems jointly with local branches of the Ministry of Television, Film, and Radio ("Breaking Up Is Hard to Do," *Business Times*, May 12, 1994).

inclined to make every possible effort to deploy foreign investment and technology. In a wave of joining hands with foreign telecoms players, local PTAs, as well as non-MPT entities, are entering into vigorous competition not only with the MPT but also with one another. Their enthusiastic campaign to forge ties with overseas sources in order to attract foreign funding, set up joint ventures for manufacture, to import advanced equipment on a large scale, or even to cooperate with foreign companies in network management and service provision all offer a crucial challenge to the MPT's conventional regulatory structure. The key concern is to what extent, technical and financial, local PTAs really are authorized to join with foreign companies and to what extent the MPT will tolerate the local PTAs' initiatives to extend their hands abroad.

Chapter Six

Head-On: The MPT Meets the MEI

6.1 The Roots of Rivalry

China's telecommunications industry appears to be dominated by the MPT not only in policymaking, regulation, and equipment manufacturing but also in network construction and service provision. Since 1993, the MEI has confronted the MPT in telecoms equipment manufacturing and, more recently also in network construction and service provision. China's industrial policy has stressed central planning and industrial self-sufficiency, which resulted in a vertical separation of resources and a redundant overlap of development among different industrial ministries. Unified industrial planning was more wished for than realized. For decades, starting in the 1970s or even earlier, both the MPT and the MEI had strong interests in telecommunications technology: the MPT was interested in securing its exclusive monopoly of national telecommunications, while the MEI was ambitious to provide telecommunications equipment supplies on the basis of its facilities for electronics production and research and its affiliation with China's military as a military electronics and communications equipment contractor. Both ministries manufactured telecommunications equipment, and each competed against the other for financial and technological resources. In general, the MPT's manufacturing plants produced analog systems, while the MEI produced digital switching equipment, optical electronics, and other more advanced components.

Four large telecommunications companies are affiliated with or directly under the MPT: the China Posts and Telecommunications Industry Corporation (PTIC), the China National Postal and Telecommunications Appliances Corporation (PTAC), the China National Communications Construction Corporation (CCC), and the China Telecommunications and Broadcast Satellite Corporation (TBSC).

The PTIC, founded in 1980, consists of ten enterprise groups in different industry sectors, such as telecoms power supply, microwave, telephone switching, fiber-optic transmission, and rural telephone systems; each group is largely self-contained, with its own manufacturing, research, and marketing forces. The PTIC has twenty-eight factories with a total of 50,000 employees, twenty-two of which produce telecommunications equipment and components while the rest produce postal or other equipment and parts.¹ Two of the largest JVs between China and a foreign entity in telecommunications manufacturing, the Shanghai

¹*China Telecom 2000*, a report prepared by IGI Consulting, Inc. (1994), Vol. 1, 52; *CTC News* 1, 15 (1995), 2.

Bell Telephone Equipment Manufacturing Co.² and Chendu Essex Cable, come under the umbrella of the PTIC.³

The PTAC is the MPT's equipment procurement and logistics arm, with approximately 2,000 employees working for ten regional firms in ten major Chinese cities. These firms perform the functions of equipment procurement, inventory, warehousing, distribution, and inspection. The PTAC is the sole organization authorized by the MOFTEC to import telecommunications materials and equipment from abroad. It is responsible for making overseas purchases upon requests from thirty provincial PTAs and for coordinating the PTAs to meet their annual requirements for supplies for development and procurement of equipment and components.

The CCC is charged by the MPT with the responsibility for constructing China's national telecommunications networks. It has approximately 7,000 employees, half of them engineers and technicians. Local network construction is handled by seventy-one local MPT-licensed construction companies, which report to the provincial PTAs. The CCC oversees the operation of its six engineering bureaus, in Beijing, Xian, Wuhan, Baoding, and Zhengzhou, each with distinctive technical strengths, such as the toll system, cable, pipeline, switching, or shortwave and microwave transmission.⁴

In 1985, the SC created the TBSC to provide domestic satellite communications services, and in 1990 the TBSC came under the jurisdiction of the MPT, with an official mandate to provide VSAT voice and data services as well as satellite mobile communications services.

The counterparts of the MPT's business centers in the MEI are this ministry's electronics manufacturing and R&D facilities. Given the mandate to modernize China's electronic industry and promote the country's informatization, the MEI has become one of the priority ministries under the SC. Its strategic goal is, through its 106 factories and its R&D institutes, to build a stronghold in the areas of design and the manufacture of electronic components, computers, and telecommunications systems. Electronic components include microprocessors, ICs, and memory devices, all vital to the production of computers and telecommunications systems such as digital switching equipment, management information

²This is a joint venture of the PTIC and the Bell Telephone Manufacturing Co. of Belgium, a subsidiary of Alcatel of France, which is engaged in the production of advanced program-controlled switchboards and other telecoms components. The venture has been highly regarded by both Alcatel and the Chinese government for its success in China.

³In 1994 the PTIC Group's sales reached RMB 12.2 billion yuan (U.S. \$1.45 billion) (*CTC News* 1, 15 [1995], 2).

⁴Adapted from *China Telecom 2000*, Vol. 1, 54-55.

systems, and integrated networks. The MEI designs and manufactures⁵ telecommunications components and equipment for switching, microwave transmission, satellite, data processing, mobile communications, and optical systems.

Theoretically, the role of the MPT, as mentioned frequently here, has been defined as that of China's telecommunications regulator, network constructor, and service provider, while the MEI has been primarily involved in the manufacture of telecommunications equipment and components. But the reality proves different: for a long time the MPT has been competing against the MEI in equipment manufacturing; and the MEI has struggled not only for the manufacturing front but also for the provision of network services. This MPT-MEI rivalry has openly intensified since the founding of Ji Tong, an MEI-controlled communications corporation with about thirty big state-owned enterprises as shareholders, whose official mission is to upgrade China's information status by implementing the so-called Golden Projects for data transmission and communications and since the establishment of China Unicom as the second national telecoms network operator.⁶

Three factors may account for the intense ministerial rivalry. First, the MEI is armed technologically with great expertise and many comparative advantages in manufacturing and R&D for digital telecommunications equipment. Second, the MPT's domain is limited to the regulation and management of public networks. More than thirty established or emerging national private networks and over 3,000 local private networks are independently owned and operated by about twenty different ministries or large state-owned businesses. Comprising almost 40 percent of the country's total capacity,⁷ these networks are well placed to challenge the MPT's monopoly. And third, although the MEI does not itself have any private networks of its own, it maintains close alliances with of them⁸ and is politically placed to speak on their behalf.

⁵The MEI, for instance, has control over the Beijing Telecommunications Equipment Factory, Anhui No. 1 Telecommunications Apparatus Factory, the Changzhou Control Apparatus Factory, and the Hebei Telephone Sets Plant. See Ken Zita, *Modernising China's Telecommunications: Implications for International Firms* (London: The Economist Intelligence Unit, Business International, March 1987, Special Report No. 1080, 37).

⁶Broadly speaking, the "Golden Projects" include the Golden Bridge, the Golden Customs, and the Golden Card linking various ministries and industries and some national VANS projects and manufacturing ventures (see section 4.1.2). Ji Tong plans to develop a wide range of pager, cordless phone, and data-services markets, some of which may be linked to the MPT's backbone network.

⁷John Ure, "Telecommunications, with Chinese Characteristics," *Telecommunications Policy* (April 1994), 184.

⁸MEI products are purchased and used by many of these entities as well as by the military. The ministry is a bigger producer of central office and PBX equipment than the MPT, which often sources system components from the MEI (Zita, *Modernising China's Telecommunications*, 23).

6.2 Pressure of the Private Networks on the MPT

Some Chinese ministries and large state-owned organizations such as Aerospace and Airlines, Transport (roads, rivers, canals), Energy Resources (oil fields, mines, the electricity grid), Railways, the Bank of China, the Xinhua News Agency, and the PLA, are authorized by the SC to develop their own fixed-wire or radio-based networks. In 1992, China's total network capacity was 32 million lines, 19.26 million run by the MPT for public services and 12.74 million for private or specialized users. By 1995, the MPT's public networks included twenty-two main fiber-optic systems and twenty-three large satellite earth stations; the private networks, mainly fiber-optic systems, digital microwave systems, and VSAT systems, are a substantial presence in China's telecommunications scene.⁹ The premise for building private networks is the acknowledgement by government and business organizations that the MPT's telecommunications services were insufficient, costly, and often unreliable, and particularly in the areas of data transmission and value-added services, the MPT lagged behind these organizations' soaring demand.¹⁰ Further, many of these organizations, given that their representation in the central government is at least equal to or even stronger than that of the MPT, can by-pass the MPT and directly lobby the SC for approval of network construction. Private networks have been developing across the country, with frequent updating of technology. Digital technology, fiber-optic systems, and satellite transmission systems have increasingly been adopted by new private networks.

In the face of the growing number of private networks, the MPT has argued that competition would damage the national interest, because China, with its very low teledensity and poor long-distance facilities, needed, in the MPT's view, to concentrate its limited technical capacity and investment on improvement of universal basic services. Besides, according to this argument by the MPT, competition from private networks would raise the issues of technical standards and network interconnections that would only increase the difficulty of achieving the goal of building a nationally integrated telecommunications network. The MPT, which, technically, is responsible for screening construction of private networks, holds that a new private network should be built only when the MPT's public networks cannot meet the specific needs of an applicant; those attempting to use private networks should first approach the services offered by the MPT's public networks, and not take the initiative of constructing their own networks. Private network operators are only

⁹Adapted from Ure, "Telecommunications, with Chinese Characteristics," 184.

¹⁰A consensus reached by these organizations was that "If you need to run high-bandwidth, real-time multimedia applications, it is best to build your own network" (*CommunicationsWeek International*, March 6, 1995, 9).

allowed to provide services to outside users on the condition that the MPT's services are not available to those users.¹¹

Since 1990, however, the pressure to liberalize telecommunications services has forced the MPT to adopt a more amenable attitude toward market competition. It accepts in principle that a market mechanism may function to help China reallocate telecommunications resources, stimulate network development, drive down prices, and improve service quality. Its revised strategy as of 1995 is not to reject outright other ministries' endeavors for private or go-it-alone networks but to encourage them to develop joint schemes with the MPT. Since 1993, radio-based mobile communications, value-added services, and satellite telecommunications have been conditionally¹² opened to competition by non-MPT sectors. Private networks have meanwhile become more active and eager to get into this soaring market. Two issues have persisted since the rise of private networks: (a) the considerable surplus capacity that operators want to put into the market for profit and (b) the financial arrangements and technical difficulties standing as barriers to interconnection of the private networks and the MPT's public networks as well as among the private networks themselves.

6.3 China Unicom: MEI's Flagship to Combat the MPT

The issues discussed in section 6.2 mirror both the MEI's ambition to play an important role in the telecommunications services sector and to realize vertical integration of equipment manufacturing and network operation and the desire of private network operators to team up with the MPT for technical and logistics support as well as to benefit from a coordinated network system. These ambitions and desires correspond, to certain extent, to the top leadership's strategic reorientation in line with which a second national telecommunications network is allowed compete with the MPT on a limited and guided basis,¹³ for the following purposes:

- to speed development of China's telecommunications,
- to use telecoms resources, e.g., the surplus capacities of the private networks, more effectively in order to provide comprehensive, high-quality services for the growing market, and
- eventually to interconnect private networks of different departments with one another, and with the MPT's public networks, to form a unified national communications system.

¹¹Based on Zixiang Tan, "Challenge to the MPT's Monopoly," *Telecommunications Policy* (April 1994), 176-177.

¹²The MPT and local PTAs regulate these competing services through licensing or administrative approval.

¹³This limited and guided basis means that the competition should be restricted and regulated in terms of business and service areas, as well as technological structure and standard.

In 1994, the central government gave China Unicom a green light by endorsing efforts of the MEI and two other powerful ministries (MR and MEP) to make this corporation into China's second network operator. According to the official mandate, China Unicom is to begin operations by undertaking four basic responsibilities: (a) renovation of existing private networks, to provide basic and long-distance services to the general public; (b) establishment of services in urban areas where MPT services are limited or unavailable (complementary function); (c) provision of wireless mobile services; and (d) provision of value-added services. China Unicom is also slated to work out plans for interconnecting private networks with the MPT's public networks. Despite the government's open advocacy of competition, it still assertively guards the MPT's conventional role as overall planner, regulator, and supervisor of China's telecommunications.

The MEI has, however, not restrained its impulse to challenge the MPT. It has instead publicly claimed that, "as a legitimate national communications enterprise, the United Communications Corporation (China Unicom) should share equally with the MPT in the nation's communications' resources, such as radio frequencies, the numbering plans, and cable channels."¹⁴ It has endorsed China Unicom with extensive plans for forthcoming development above and beyond the official mandate, which include additional private network construction, possible international network connections, production of several telecommunications network components, operation of satellite communications, and data-network construction. The specific objectives the MEI has set for China Unicom are provision of 10 percent of the domestic local and long-distance service, 30 percent of mobile communications service by 2000, and establishment of China Unicom's own national network by 2005. On the company's development agenda are a planned investment of RMB 300 billion yuan by the end of this century, expansion of its shareholder base and its markets, and development of financial resources.

In its first year China Unicom experienced impressive growth, expanding to more than thirty branches nationwide, compared with four when the corporation was founded in July 1994; four SDH synchronous long-distance fiber-optic lines linking Beijing with Shenzhen, Harbin, Chongqing, and Fuzhou were completed; and the four pioneer branches (Beijing, Tianjin, Shanghai, and Guangzhou) invested RMB 700 million yuan (U.S. \$84.3 million) to develop and offer urban telephone services with a capacity for 100,000 users.¹⁵ China Unicom completed installation of a digital cellular telecommunications system (GSM) in

¹⁴He Fei Chang, Director of Telecommunications Division, MEI, "Lian Tong (China Unicom): A Quantum Leap in the Reform of China's Telecommunications," *Telecommunications Policy* (April 1994), 210.

¹⁵"China's Telephone Monopoly Ends with New Service," *Reuter World Service*, July 20, 1995.

Tianjin, the first Chinese city to benefit from digital cellular phone service.¹⁶ It established and put into operation sixteen more GSM mobile telecommunications systems around July 1995 in Beijing, Shanghai, Tianjin and Guangzhou.¹⁷ Other projects this MPT competitor has been working on include improvements to special-purpose private networks, construction of switching centers, development of land-based cellular networks and mobile satellite communications services, and creation of value-added services.

Along with its ambitious business development plans and activities, China Unicom has been viewed as flexing its muscles for expansion of its territory at home and abroad. Its strategy to compete with MPT is, among other things, to apply the most advanced technologies to its networks and provide services at lower rates.

As a first step toward integrating telecommunications and television broadcasting¹⁸—an emerging communications service that the MPT, MEI, and Ministry of Radio, Film, and Television (MRFT) are all struggling to control—in 1995 China Unicom set up the Dongfang Satellite Corporation, a project based on an alliance of the MEI, MRFT, and Defence Science and Technology Industry Commission. The MPT still has a monopoly on satellite communications, with a stake in several satellites through the TBSC.

Unicom's eagerness to acquire international help was manifested in its announced intention to seek foreign investment and technology and its move to set up overseas relationships. During a visit to the United States, Zhao Weichen, Chairman and CEO of China Unicom, said that, in terms of technology, Unicom needs U.S. hardware, software, network building technology, network management expertise, control and billing technology; joint equipment manufacturing arrangements and joint R&D efforts would also be appropriate options for consideration.¹⁹ Early in 1994 Unicom sources indicated that it might grant

¹⁶Compared with ordinary cellular phones, digital cellular phones allow greater confidentiality, i.e., to guard against telephone number piracy and line crossing and to provide higher quality communications.

¹⁷"Communication Unicom to Provide Cellular Phone Service for Tianjin," Xinhua News Agency, April 20, 1995; *CTC News* 1, 14 (Aug. 5, 1995), 12.

¹⁸The Dongfang Satellite Corporation expects to launch a communications satellite in 1998 to transmit telephone traffic and television programs. According to Dean Olmstead, managing director of Hughes Asia-Pacific (Hong Kong), satellites are essential to China Unicom, because they would give the company an instant nationwide network. Merrill Lynch Asia telecoms analyst Adam Quinton said that Unicom's plans to launch a satellite might be an interim solution for its new network while more cables were being laid, or it might be a convenient long-term solution to the lack of telecommunications in remote areas of China (Dusty Clayton, "Giant Step for Unicom," *South China Morning Post*, Business section, June 20, 1995, 4).

¹⁹"China Seeks U.S. Help in Expanding Communications Infrastructure," *Defence Daily* (Phillips Publishing, Inc.) 185, 2 (Oct. 4, 1994), 16. In July 1995, Zhao Weichen reiterated that Unicom's strategy was to tap foreign resources to build China's second communications network: "We understand that overseas cooperation is essential to our development in terms of capital, technology, and management" (*CommunicationsWeek International*, Sept. 4, 1995, 42).

dividends or equity stakes to foreign companies in exchange for collaboration in manufacturing PBX switchboards, digital cellular telephone, modem for data communications, fourth-generation fax machines, and construction of B-ISDN and public data-communications networks.²⁰ As of May 1995, Unicom had signed many MOUs with foreign firms and entered into tentative JV or cooperative relations with some twenty-three foreign telecoms companies,²¹ of which the Bell Atlantic Corp., Singapore Telecom, Mitsui & Co., Siemens, Motorola, and NYNEX Network Systems reportedly have made concrete commitments in the form of investment, joint manufacture, technology transfer, or component sales.

Early in 1995, Unicom joined hands with the GTE Corp.,²² reportedly forming a long-term strategic alliance²³ that may lead yet-to-be-determined projects related to China's second network construction and joint efforts in telecommunications R&D. The JV company, headquartered in Beijing, will assist China Unicom with technological and network management support for its telecommunications projects at home and abroad. It will also conduct research and develop new technologies and products for Unicom's telecommunications networks. To compete with the MPT in mobile communications services, Unicom negotiated with the ministry to establish a national radio paging company, and several of Unicom's branches have attempted to access foreign advanced technology. In July 1995, for example, its Daqing Branch signed a contract with Northern Telecom²⁴ to purchase a 900-MHz digital cellular telephone network with the GSM standard, which will significantly enlarge the branch's local network capacity and improve its service quality.

6.4 Forging Ahead, Through the Waves

Despite rapid advances, Unicom's route to success has been neither smooth nor easy. The fledgling company has faced formidable obstacles in its head-on contest with the MPT. Lack of experience or preparation as a telecoms operator has plagued the company since its

²⁰Pyramid Research, Inc., May 1994.

²¹Two issues of *CTC News* (1, 9 [May 20, 1995], 3, and 1, 14 [August 1995]) reported that Unicom had signed thirty-nine MOUs and letters of intent with foreign firms of the United States, Canada, Japan, the United Kingdom, and France.

²²GTE, the largest U.S.-based local telephone company and the fourth largest publicly owned telecommunications company in the world (on the basis of 1993 revenues of U.S. \$20 billion) has operations in South and Central America, Mexico, and Canada, in addition to the United States (PR Newswire, Jan. 16, 1995).

²³An official MOU was signed on Jan. 16, 1995, at the Diaoyutai State Guest House, in the presence of China's Vice Premier, Zou Jiahua, and Henry Kissinger, former U.S. Secretary of State.

²⁴Northern Telecom, a Canadian company, is one of the world's most broadly diversified developers of communications products, systems, and networks. Its strength lies in three key market segments: enterprise networks, wireless networks, and carrier networks. In 1994, its revenues reached U.S. \$8.9 billion and its employees numbered approximately 57,000 worldwide ("China Unicom Buys GSM Digital Cellular Network," Canada Newswire, Financial News section, July 20, 1995).

inception. Limited expertise and a lack of points of sales or maintenance in China's telecoms marketplace also have proved a bottleneck. How Unicom will "graft" its second network onto the MPT's public networks remains a serious political and technical issue. Under pressure from the SC, the MPT disguised a reluctance to accept Unicom's interconnection with a stated willingness to offer assistance. Yet the ministry has remained apprehensive about the practicalities involved in making the new dual system work and concerned about the technical difficulties involved in achieving an interface between parallel networks. Given the telecommunications regulatory environment in China, Unicom cannot resort to legal rulings or protection whenever conflicts arise regarding network interconnection with the MPT.²⁵

Two major weapons the MPT can use to delay or hinder Unicom's interconnection are: (a) connection fees and revenue sharing schemes and (b) technical barriers. Regarding connection fees and revenue sharing, the question is a how much to charge that would be both affordable by Unicom and profitable to the MPT and how much to redistribute to Unicom as income for service provided using MPT facilities. The financial stake is crucial to Unicom and the MPT, as in the parallel case of internal revenue sharing by the MPT and local PTAs. The technical barriers involve access to local loops, access codes, numbering planning, points of interconnection, and billing principles and procedures.

In addition to using such weapons,, the MPT has made efforts to subsume local PTAs and its other enterprises into a corporate structure headed by the DGT, its newly created business management center, as a means to organize and prevent them from allying with Unicom.²⁶ For Unicom to compete successfully with the MPT, it would need not only to provide new capacity for new customers but also to lure existing MPT customers away with promises of lower prices and better service, and to do so Unicom needs access to local networks and facilities operated by the MPT's local PTAs. If those PTAs were prohibited, in one way or another, from forming alliances with Unicom, the newborn second operator's chances will be quite limited.

Yet external competition with the MPT is not a greater or more critical challenge to Unicom's success or failure than its own internal weaknesses. The consortium is under the jurisdiction of the SETC, cosponsored by the MEI and two other powerful ministries, has

²⁵According to Ante Xu, out of an attempt to discuss and arbitrate interconnection disputes, a multilevel procedure was created that involves different bureaucratic bodies and officials of the SC, MPT, MEI, and Unicom ("China's Telecommunications at the Crossroads," 12).

²⁶This move met with stiff opposition from local PTAs, who have gained some autonomy and are reluctant to be reined by the DGT (China Telecom). Guangdong PTA, for instance, claimed that, because it has invested in upgrading and improving its networks, the MPT should not dictate policies or interfere in its internal operations (Geoffrey Crothall, "Battle for Consumers Looms with Start of Second Telephone Network," *South China Morning Post*, July 25, 1994, 4). The MPT has attempted to transform private networks into public ones by offering PBX operators financial incentives, such as discounted service and installation fees.

thirteen or more large state-owned enterprises as shareholders, and it has support from the SC, the SPC, and many other top leadership organizations, all of which makes it appear that Unicom is associated with strong political representation and solid financial resources and has important leverage against the MPT, but this high-profile situation is accompanied by a burdensome cost: it could easily plunge Unicom into constant bureaucratic wrangles due to different or conflicting political and economic interests, so that it would stand to and lose its structural integrity, its independence in business decisionmaking and management, and its comparative advantages in the marketplace. Another valid concern is the strength of the coalition of the MEI, MR, MEP, and other private network operators: will Unicom be in serious trouble if these parties battle one another when their own political or financial interests are at stake?

Unicom's weakness is reflected by its management team, primarily composed of electronics engineers and political figures, who lack experience in business management and telecommunications. Key executives are very likely to have been drawn from MEI departments and ministry-affiliated enterprises, but whether they can collaborate with one another and coordinate with such diverse shareholders to manage and develop this new company remain to be seen. Limited working capital and a lack of sufficient government funding have kept Unicom on a short leash, preventing it from quickly realizing its ambitious plan to start network operation at the same time that the rigid official ban on foreign participation in network ownership and management has put on hold Unicom's strategy of turning to foreign resources for investment and management assistance.

Chapter Seven

Financing for China Telecommunications Development

7.1 Money Matters: An Overview

Between 1978 and 1993, China invested a total of RMB 76 billion yuan in the telecommunications industry. Although the growth of capital investment accelerated quickly (the average growth rate for 1990–93 was 93.8 percent; in 1993 it increased to 148.7 percent), the central government's budgeted investment dropped sharply, from 90 percent in 1978 to only 2 percent in 1993,¹ which resulted in a rapid change in the investment structure characterized through diversification of funding sources and brought about the following specific and significant changes:

- the central government's policy on the strategy for funding telecommunications was reformulated,²
- domestic and foreign loans are encouraged, and
- locally raised (self-raised), that is, funds raised by PTAs or local governments are not just permitted but required to sustain China's telecommunications development.

Table 7-1 shows major sources of funding for China's telecommunications in selected years between 1978 and 1993, indicating this trend toward diversification.³

The year 1990 marked an important turning point: China's total investment for telecommunications construction began to soar as a result of the huge increase in locally raised funds and loans from both domestic and foreign sources. Locally raised funds come

¹Since the mid-1990s, the investment focus of the central government has been on infrastructure, transportation, highways, and power supply.

²The promulgated guideline for this policy change has been implementation of a risk-and-return financing mechanism in China's telecommunications enterprises at all levels, as opposed to ordinary government support, in which risks and returns are not an essential concern for telecommunications enterprises. The driving forces behind this policy change may have been the shortage of funds available to the central government to invest (a budget constraint), the enormous market demand for telecommunications services, and increasing local pressure for decentralized control of telecommunications.

³Shanghai telecommunications provides an example of local financing diversification. Its investment for 1986–90 can be broken down as follows: 10.6 percent from government fiscal expenditure, 22.4 percent from the operating profit of the Shanghai PTA, 27.9 percent from subscribers' installation fees, 13.3 percent from domestic bank loans, 3.5 percent from commercial users, and 22.3 percent from foreign investment. See Wu Changgeng and Zhang Xuan, "An Analysis of the Seemingly High Profit in Telecom Industry," *P&T Economy* 18, 1 (1992), 6–9.

mainly from installation fees,⁴ telephone service revenues,⁵ equipment depreciation, and annually allocated funding for innovation and development from local PTAs and local governments. Foreign loans are primarily concessionary loans or low-interest loans made by foreign governments or international monetary organizations, such as the World Bank and the Asia Development Bank.⁶ Other financing options were limited to supplier credit, term-repayment plans, and Build-Transfer-Operate schemes being considered by the MPT and other Chinese telecoms entities.

Table 7-1
Investment Structure of China Telecommunications
(1978-1993)

	1978	1981	1982	1990	1992	1993
Total Investment*	4.14	7.80	9.16	59.84	161.49	404.16
% of China GNP	0.115	0.148	0.176	0.332	0.677	1.303
State Budgeted Input*	3.72	3.71	3.60	4.76	4.76	6.50
% of Total	90	52	39	8	3	2
Locally Raised Funds*	0.41	3.08	5.49	40.17	122.02	299.33
% of Total	10	48	60	67	75	74
Domestic Loans*			0.029	3.95	10.92	51.85
% of Total			0.4	7	7	13
Foreign Loans*			0.048	10.21	21.50	40.98
% of Total			0.6	17	13	10
Other Sources as % of Total				1	2	2

*In 100 million yuan.

Source: Adapted from You Gong, "Analysis of China Telecommunications Investment Since the Country's Economic Reform and Opening to the Outside World," *Postal and Telecommunications Enterprise Management* (September 1994), 15-16.

⁴China's telephone installation fees (1993 to present) are very high, ranging from RMB 3000-5000 yuan (approximately U.S. \$400-600) and in 1994 comprised almost 48 percent of the total network investment (Ante Xu, "China's Telecom at the Crossroads," 6).

⁵Ibid. Telephone service revenues consist of locally collected income and the MPT's redistributed profits. In 1993-95, the reinvested portion of the service revenues accounted for about 20 percent of the total network investment.

⁶In 1994, the MPT stated that between 1983-93, U.S. \$5.67 billion from various sources had been used for telecommunications development. In March 1995, another MPT source claimed that about U.S. \$3.9 billion had been used in 1991-95, \$1 billion and \$500 million of which was in foreign loans received in 1993 and 1992, respectively.

The MPT, Unicom, and local PTAs all are pushing to enlarge the base of sources of financing, all eager to expand their networks and telecoms services. Chinese partners are increasingly requesting foreign firms to provide favorable terms in order to win business contracts. Installment payment plans are a preferred means of financing equipment purchases. The average interest rate on these plans is about 3 to 4 percent, paid in Chinese currency to Chinese banks. Leasing arrangements are also increasingly used, although their rates are often considered as too high for local PTAs or other telecoms firms in spite of the attractive prospect for the buyers of eventual ownership of the equipment at the end of leasing period.⁷

In 1990-95, annual investment in China's telecommunications directly fueled the industry's dramatic growth (see Table 7-2).⁸ Estimates of funds to be invested between 1996 and 2000 imply both the government's ambition to continue telecommunications development and a significant financial shortfall in realizing this official vision.⁹

Table 7-2
Fixed Assets Investment in China Telecommunications
(1991-2000)
(in U.S. \$Millions per Year)

1991	1992	1993	1994	1995	1996-2000
1,024	1,929	4,810	8,214	10,840	60,240*

*Projected total for the five-year period.

Source: CTC News 1, 5 (March 1995), 7, and MPT report (January 1996).

7.2 Diversification: A Way of Seeking Money

Diversification of financing has two meanings: (a) that the sources of funds can be as varied, broad, and comprehensive as possible, provided no foreign investment will lead to direct foreign ownership or operation of the telecommunications networks; and (b) that investment tasks for telecommunications development are distributed among and undertaken

⁷Leasing rates are usually set one to two percentage points higher than the London Inter-Bank Offered Rate. Leasing has commonly been used for cellular network construction, because capital inflows are rapid enough to make the investment cost effective (Alexandra Rebak, "High Hopes, Shallow Pockets," *The China Business Review* [March-April 1996], 10).

⁸Telecommunications growth in China was 31 percent in 1991, 42.3 percent in 1992, 59 percent in 1993, and 50.2 percent in 1994 (CTC News 1, 5 [March 20, 1995], 7).

⁹According to the ITU, China's telecommunications funding requirements are larger than those of any other country ("All Aboard China Express," *CommunicationsWeek International*, Oct. 24, 1994, 16).

by the central authorities (including the MPT), local PTAs, and local governments. Roughly, the central authorities' funding goes to important national projects, such as fiber-optic transmission systems, construction of national and international backbone networks, and satellite communications facilities, while provincial governments, local PTAs, and city administrations are responsible for funding construction of intraprovincial, cross-city, suburban, and rural networks. Local funding is also needed for expanding switching capacity and the number of phone lines and for improving land-based systems as well as other local services.

The central government is aware that, to meet growth targets set for 2000¹⁰ and beyond, the equivalent of at least U.S. \$10 billion will need to be invested annually beginning in 1996, posing a serious demand for both local and external financing.¹¹ These targets may bolster expectations for further decentralization in approaches to and alternatives for financing, such as encouragement of innovation in various types of funding, greater flexibility in negotiating lending terms, favorable repayment schedules, vendor selection, equipment acquisition, and increased autonomy in tapping foreign funds and developing Sino-foreign cooperation.

According to Chinese policy, in the mid-1990s foreign investment in telecommunications equipment production and supplies,¹² as well as in engineering, design, product development, research, and education, is more than welcome,¹³ but investments are still not permitted to lead to foreign equity ownership of or management stakes in networks. Schemes of profit- or revenue-sharing and equity-linked leasing are under discussion,¹⁴ to enlarge the scope of alternatives for foreign investors and to assure or enhance their returns. China's significant shortfall in funding telecoms expansion obviously requires large overseas financial input, but its ban on foreign equity and management involvement continues to keep many external funding sources at bay.

¹⁰Growth targets include doubling network exchange capacity, expanding long-distance trunks, raising national teledensity, promoting the growth of mobile networks, and upgrading overall telecoms technology.

¹¹MPT estimates show that U.S. \$6 to 7 billion in foreign capital (12 to 14 percent of the total investment planned) will be needed for the 1996-2000 development.

¹²According to Wu Xiaolong, Director General of Planning for the MEI, some 4,800 foreign-backed electronics companies operated in China in 1993, representing U.S. \$4.1 billion in foreign investment, 20 percent of which was committed to telecoms equipment production (*CommunicationsWeek International*, Oct. 24, 1994, 18).

¹³Prior to 1994, foreign capital was used mainly to fund importing telecoms components and equipment, to balance foreign currency payments in international communications, and to make up deficits due to limited domestic investment.

¹⁴Under an equity-linked lease agreement, foreign telecoms companies can lease equipment to Chinese telecoms enterprises for a fixed rate of return, but unless current government policy is relaxed, neither the option to convert to equity stakes nor the right to exercise management control is available.

A general framework proposed for further financing diversification under scrutiny by the government, enterprises, and academe that attempts to restructure China's telecommunications financing using all possible sources to meet its large investment needs for coming years embraces the following elements:

1. Conventional allocation of funds from the central government and the MPT, which will make up a very small proportion of the total investment
2. Locally raised (self-raised) funds:
 - Local government allocated funds
 - Reinvestment from the telecoms industry profits
 - Sponsor equity
 - Institutional financing¹⁵
 - Public equity¹⁶
 - Issuance of bond by local PTAs or telecoms enterprises
 - Customer financing (e.g., prepayment for telephone installation)
 - Use of equipment financing
 - Expansion of domestic credit
3. Funding by loans and international sources
 - Policy loans¹⁷ from domestic development banks
 - Loans from commercial banks
 - Quasi-government support¹⁸

¹⁵Since the early 1990s, some state-owned enterprises or organizations with a cash surplus or access to credits have invested in telecoms network construction or operations. Such so-called investment by leaseback is a form of loan made for the telecoms industry in China.

¹⁶The Shanghai Bell Telephone Manufacturing Corp., a subsidiary of the MPT's PTIC, offers a good example of local efforts to raise funds in this manner. On Aug. 17, 1994, the *South China Morning Post* reported that the company would soon issue stock to absorb foreign funds for two ventures and for two new production lines requiring about U.S. \$25 million in capital investment, marking the start for China of selling shares to foreigners in its telecommunications industry. According to the Chinese policy on stocks in the 1990s (and the policy may change before 2000), B-share is issued only for foreign investors, A-share for domestic investors. Shanghai Bell, which manufactures mainly fiber-optic equipment, digital terminal equipment, program-control (automatic switching) exchanges, and electronic components, issued A-shares in 1993. According to the *South China Morning Post*, the Shanghai Trust and Investment Corp., a subsidiary of the People's Construction Bank of China, was to be the lead underwriter, and Hong Kong-based Crosby Securities Ltd. was to act as international coordinator for the deal. Other PTIC subsidiaries, such as the Chengdu Cable Co. and the Hangzhou Telecom Equipment Co., among others, reportedly are to follow suit.

¹⁷In China, projects in line with government development policies and priorities are entitled at certain times to receive loans on favorable terms called "policy loans."

¹⁸Intergovernmental aid with low interest rates and long repayment durations.

- Loans from international monetary organizations and foreign government¹⁹
- Foreign export credit financing and foreign supplier financing
- Use of other financial instruments

To explore feasible and effective ways to finance telecommunications development on a project-oriented basis, the government has been considering using three approaches.

Financed Leasing. In this approach, money is raised by leasing firms from either domestic or overseas sources to pay for equipment needed by telecommunications enterprises. The equipment purchased is then leased to the enterprise, which is responsible for paying the leasing fees. At expiration of the leasehold, the enterprise is entitled to ownership of the equipment. The advantages of this arrangement for telecoms enterprises include easier procedures for operation, negotiable repayment terms, a stable flow of payment in Chinese currency, and alternative places to invest. The disadvantages are mainly the higher cost to the lessee from tariffs and periodic leasing charges, which are usually set one or two percentage points higher than the London Inter-Bank Offered Rate (LIBOR) because of interest rate differentials and commission costs. Financed leasing has been used in China in roughly the years 1990-95 for the development of mobile telecommunications networks involving some U.S. \$400 million.²⁰

Payment by Installment. In this approach telecoms enterprises are required to inject only a small amount as an initial down-payment when purchasing telecoms equipment; the balance, including the pre-set interest (usually 5 percent), can be paid in installments based on the progress of the project or the date of equipment delivery. This arrangement involves Chinese financial intermediaries, to make foreign funds available for lump-sum payments for the equipment purchased, to collect installment payments, and to handle the exchange of Chinese currency paid by the telecoms equipment buyer and foreign currency required by the equipment supplier abroad.²¹

Investment Foundation. China plans to set up a telecommunications investment foundation to raise funds by issuing securities in world stock markets or by borrowing money from a variety of foreign sources. If successful, this approach would help establish a stable,

¹⁹On October 28, 1994, the Xinhua News Agency reported that China had used credit loans (also called interest discount credits), which are similar to concessionary or soft loans, provided by Japan, Sweden, Spain, Canada, Belgium, France, Australia, Germany, Norway, Finland, the Asian Development Bank, and the World Bank for construction of 18 million-line local telephone switchboards, 1.6 million long-distance telephone lines, 25,000 km of optical cable trunks, 15,000 km of microwave telecoms trunk lines, and 18 satellite ground stations.

²⁰Explanation of financial leasing adapted from "Modes of Financing in China," *CTC News* 1, 6 (April 5, 1995), 1-2.

²¹*Ibid.*

long-term source of international capital to fuel the growth of China's telecommunications.²² Other types of financing institutions for funding the telecommunications industry are also under discussion.

7.3 Investment Recovery

Worldwide, the key concern of investors is how to recover an investment and how to increase their benefit from an investment. China is certainly no exception. Current (1993-96) practices for recovering investments (in cash or in kind) for the telecommunications industry differ from pure loans in that refund rates, terms, and the time frame all are determined by negotiation among the parties involved, in proportion to the size of investment. Refunds²³ can be made in a variety of ways, depending on the nature of the specific project.

Fixed Refund Term and Fixed Refund Rate. The rate of return is agreed on with reference to international long-term interest rates, but it is usually 1 to 2 percent higher than the international average rate, to cover the interest risk.

Fixed Refund Term but Floating Refund Rate. The rate of return is subject to readjustment based on the LIBOR or U.S. Treasury Bond rate plus 0.5 to 1 percent to cover interest risk.

Floating Refund Term but Fixed Refund Rate. "Floating refund term" refers to a prior arrangement that the refund can be made either progressively or based on the portion of the project in operation or in proportion to the size of the project. If in a progressive manner, refund is made in several stages, each later stage requiring a higher percentage of the refund than the previous one. The objective of this mode is to spread or alleviate the refund burden on telecoms enterprises.

Build-Operate-Transfer (BOT) and Build-Lease-Operate (BLO). The government is reportedly considering these two models of international practice. BOT, the model recommended for some of China's infrastructure projects, is, for now, not useful for telecommunications because of China's nonforeign operation policy. The government is trying to revise this model into a Build-Transfer-Operate (BTO) version, according to which foreign contractors would assume responsibility for the entire project, including designing, financing, and construction and would deliver the completed facilities or networks to the Chinese side for operation; BTO would retain the advantages of BOT while allowing the costs of

²²Ibid.

²³In China, the term "refund" is often ambiguous: it can mean either the rate of return on an investment or the repayment of interest and principal on a loan.

construction to be recouped in profits from operating revenues. The difference between the BTO and BLO models is that operation of the completed facilities or networks falls into Chinese hands through transfer or leasing. In the BLO scheme, the Chinese side takes over ownership of the facilities or networks at the expiration of a predetermined leasing period. The essence of the BTO and BLO models is that foreign companies are permitted to build telecommunications facilities or networks, but their returns on investments are made by collecting agreed-on transfer fees, periodical payments for leasing, or shares of revenues or profits, not through direct operation or management stakes.

7.4 Issues Related to Financing

China in the mid-1990s is at an unusual historical moment distinguished by a jarring dialectical battle between economic freedom and political authoritarianism, between the pull toward decentralization and efforts for centralized control, and between rising market forces and a long-held socialist ideology, with no consensus within the top leadership of a policy mixture that would best serve the competing agendas of economic development and stability. Accordingly, the policies and regulations for telecommunications development and measures of financing often appear unclear, uncertain, even inconsistent, making for a confusing climate for investment.

China's optimistic estimates of telecommunications growth for the coming years (1996-2000) are based on optimistic expectations of achieving an annual investment of over U.S. \$10 billion, about 14 percent of which will need to come from overseas sources. Funding this ambitious growth is not without problems, particularly at a point when some favorable policies such as low-interest loans and low income taxation for the industry have been terminated (as of late 1994, Chinese telecoms enterprises were required to pay a 33 percent income tax, far higher than the 10 percent tax imposed prior to then),²⁴ when other infrastructure industries, such as power stations, energy industry, and transportation, have been given a higher investment priority than telecommunications, and when the pressure of high inflation has tightened overall domestic financing.

A major source of funding, installation fees and service revenues have been crucial to China's telecoms investment. The question arises whether, given their vulnerability to such variables as industry cost structure, pricing policies, the introduction of new technologies and services, and, most important, the entry of competition, their current momentum can be

²⁴Ante Xu, "China's Telecom at the Crossroad," 6. Installation fees and service revenues are very important sources of reinvestment for China's telecommunications.

sustained.²⁵ The present (1993-96) strong demand for telecoms services may help continue the current high installation and service charges to sustain a significant reinvestment base,²⁶ they and this base may be gradually reinforced by falling equipment costs coupled with rising domestic manufacturing, which together will enhance the industry's profitability. China's revenue per line (as of 1995) is fairly low—lower than in many Asian countries²⁷—mainly because of the relatively low connection rate and underuse of exchange capacity. This low revenue per line may make room for increasing revenues if higher use and better efficiency are achieved. The service price cut²⁸ and the decreased installation fees²⁹ brought about by emerging competition will probably offset some revenue growth, possibly shrinking this important reinvestment base.³⁰ Another factor that may weaken the MPT's ability to refinance national projects is the dispersal of revenue sources between MPT and non-MPT sectors.

Revenues from mobile telecommunications are another lucrative source for local reinvestment. The high sales price of cellular and CT2 phones in 1993-96, and pagers as well as registration fees³¹ and plus service charges³² tend to act as cash cows for quick income.

²⁵China's 1995 target for telecoms business volume was set at RMB 74 billion (U.S. \$8.8 billion) and service income at RMB 70 billion (U.S. \$8.3 billion). (*CTC News* 1, 16 [Sept. 5, 1995], 3). Actual figures exceeded the targets: in 1995, RMB 87.3 billion (about U.S. \$10 billion).

²⁶In 1995, installation fees ranged between RMB 4,000 and 6,000 yuan (U.S. \$500-750); long-distance and international telephone and fax transmission services were very expensive, approximately two to three times higher than U.S. rates.

²⁷According to the ITU, in Asia, China was at the bottom of the list in 1991, with just U.S. \$316 per line, while Singapore was at the top, with more than U.S. \$1,000 per line.

²⁸In 1994, the MPT lowered its sales price for mobile phones by up to 50 percent and cut service charges for CHINAPAC and DDN by up to 80 percent in order to maintain its old customer base and lure new users (Ante Xu, "China Telecoms at Crossroads," 6). Network access fees for mobile telephones were reduced from RMB 3000-5000 (U.S. \$357-595) to RMB 2000-3000 (U.S. \$238-357); start-up fees for some new facilities on local program-controlled telephone networks were exempted, as were monthly fees of RMB 100 (U.S. \$11.9) if the fax and phone number were the same (*CTC News* 1, 12 [July 5, 1995], 7).

²⁹*CTC News* (1, 16 [Sept. 5, 1995]), as well as other sources, reported that the Zhejiang provincial PTA cut mobile telecoms installation fees by 50 percent in August 1995, from RMB 10,000 (U.S. \$1,190) to RMB 5000 (U.S. \$595). The Kunming City PTA cut the wired telephone installation fee from RMB 4600 to 3600 yuan, and the Beijing PTA waived start-up charges and fixed monthly fees previously imposed on some telephone services it offered. Reductions in installation fees occurred also in other cities.

³⁰Unless the government sets price floors or makes regulations to forbid price fixing, price wars may force MPT operating revenues down.

³¹In 1995 in China, the purchase and registration costs for a cellular phone reached up to U.S. \$4,000. The price of a cellular phone is between RMB 7000-19,000 (U.S. \$843-2289). The price of a cordless phone ranges from RMB 900 to 1500 (U.S. \$109-181). Subscriber registration fees range from RMB 3000-5000 (U.S. \$362-602.4). The price of a pager can be as high as U.S. \$100-175 (for an alphanumeric set) and U.S. \$350 (for a Chinese-character display), compared with U.S. \$40 for a basic pager in the U.S. market. Paging service fees in China are about U.S. \$2-3 per month for alphanumeric sets and U.S. \$4-5 for Chinese-character displays, lower than the U.S. charge of \$6-7 per month (exchange rate September 1995: RMB 8.3 = U.S. \$1.00).

In Shenzhen, China's pioneer economic zone, for instance, in 1994 the payback period was only six months for the cost recovery of the mobile project construction, mainly because of the high charges imposed by the PTA.³³ Again, this source of funds is subject to significant fluctuation with maturity of the market and increased competition. If local operators (PTAs and non-PTAs) have different priorities for reallocating their earnings, they may not have incentives to reinvest heavily in telecommunications infrastructure.

China's position for acquiring soft loans from international monetary organizations and foreign governments has been weakened. In 1992, given China's high profitability in the telecoms sector, Organization for Economic Opportunity (OECD) countries agreed to discontinue intergovernmental soft-loan funding for China's telecoms projects. Termination has had a strongly negative impact, because the soft loans had provided considerable funds underpinning telecoms development since the mid-1980s.³⁴

Obstacles to financing by stock issues include the irregularity of transaction processes in the absence of an effective regulatory framework, opacity of market information (plus manipulation of insider information), political interference, and confusing stock classifications, ranging from so-called public shares, state shares, legal-person shares, A shares, B shares, to shares reserved for employees of the issuing entities. The preponderance of state and legal-person shares³⁵ has brought the market under the influence of the state or certain controlling groups, rather than allowing fair and just competition. For overseas investors, the potential risks are even higher because of the issue of the Chinese currency convertibility and strict government control of foreign exchange.

The shortfall in telecoms financing has led to a popular strategy called "operation in debt," or, figuratively, "borrowing money to buy hens, then repaying the debt with eggs." Both the MPT and local PTAs view telecoms equipment sales and services as capable of generating significant revenues quickly, so they are tempted to borrow as much as possible for construction and operation, in the hope of repaying their debts with their prospective earnings. The debt load carried by China's telecoms industry has until recently consisted of foreign

³²In 1995, the base fee for monthly cellular service ranged from RMB 50 (Kunming) to RMB 250 (Beijing) (U.S. \$6-30), and local calls cost RMB 0.4 per minute. According to Candee Wilde's prediction, high paging penetration rates in China's major cities will drive revenues up to between U.S. \$1.2-1.5 billion annually by 1999 (*CommunicationsWeek International*, Sept. 4, 1995, 41).

³³John Urc, "Telecommunications, with Chinese Characteristics," *Telecommunications Policy* (April 1994), 187.

³⁴Adapted from "All Aboard China Express," 17.

³⁵On Sept. 15, 1995, *The US-China Tribune*, a Chinese newspaper, reported that legal-person and state shares constituted up to 75 percent (20 percent and 55 percent, respectively) of the total stock in the Shenzhen Stock Exchange.

government concessionary loans,³⁶ bank lending, and company or product financing, which are primarily used for basic telecoms construction (including plant and CO installation) and to improve telecoms systems. To balance borrowing and repayment, the MPT has issued recommended debt guidelines for local PTAs which are based on type of network and pace of network growth. Major cities such as Beijing, Tianjin, Shanghai, and Guangzhou, for example, given their huge subscriber base and potential earning ability, may accumulate debt up to 40 percent of the total investment; coastal provinces must keep their debt ratio below 30 percent; and less developed regions with rudimentary telecoms systems must maintain a debt ratio below 10 percent because their ability to generate profit is very limited.³⁷

There are two problems with the debt management: to finance the purchase of expensive, state-of-the-art equipment or components from abroad needed to meet development goals, the MPT, local PTAs, and non-MPT enterprises are constantly under pressure to borrow from both domestic and foreign sources; uncontrolled heavy debt load is liable to go beyond safety limits and ruin the debt balance. To meet China's telecoms growth target for 1995-2000 will require a large sum, but these five years are when China will be at the peak of its foreign debt repayment. With its foreign debt reaching U.S. \$100 billion in 1994, China became the world's fifth largest debtor nation.³⁸ Its deteriorating debt-service ratio (principal and interest repayments as a percentage of export earnings) has kindled serious official concern, which may lead to a clamp-down on enterprises and institutions that raise capital abroad. The MPT and all other telecoms enterprises may also be hit if they insist on borrowing from overseas in order to buy hens.

³⁶This type of loan for China telecommunications was discontinued in 1992.

³⁷Adapted from Lin Sun, "Funding Telecom Expansion," *The China Business Review* (March-April 1993), 32.

³⁸According to the *Financial Times* (London), March 27, 1995, in 1995 China was to repay U.S. \$12-\$14 billion in principal and interest.

Chapter Eight

Foreign Stakes in China Telecommunications

8.1 Why Is China a “Hot” Place to Get Involved In?

China’s appeal for foreign telecoms players is that it appears to be a land of strategic values. This has been the case particularly since 1979, when the country ended its closed-door policy. In the view of many foreign companies, they cannot afford *not* to get into the China market, for the following reasons:

- China is a large landmass with 1.2 billion consumers, all lined up to buy telecoms products and services.¹
- China’s economic growth has been nearly 10 percent over the past ten years, a momentum likely to continue.
- On the basis of reported total GNP, China is among the top five economies in the world.²
- In 1994, the United States, the world’s largest market, was China’s third-largest trading partner, and China was ranked seventh for the United States.
- The Chinese have a great tendency toward purchasing; their actual capacity to buy goods, in spite of a limited income, is greater than estimated by those overseas.³
- China has a rather undeveloped telecommunications and information infrastructure, but its telecoms equipment and services market is virtually the largest in the world.⁴

¹However, 70 percent or more of the population is in rural and remote regions, a significant part of whom live below the poverty line in a self-reliant, preindustrial mode of life and probably are not eager for telephone services.

²China’s per capita GNP remains very low, in 1994 about U.S \$400.

³A controversy exists in regard to real purchasing power in China, because different means of calculation produce markedly different results. Some Western economists use the low cost of housing and health care in China to support an argument for higher real income there, but these costs have been undergoing change. Besides, Chinese people in urban areas usually need to spend almost half their monthly salary for food, compared with only 5 to 10 percent of income Americans spend on food. Any comparison of real purchasing power between the Chinese and people in developed countries becomes very complex because of numerous uncontrollable variables involved.

⁴China expects to continue expanding fixed and mobile networks faster than any other country. It is poised to become one of the world’s largest customers of fixed wireless network equipment, mobile communications systems, and fiber-optic synchronous digital hierarchy (SDH) transmission systems. Its potential demand for telecoms services also is the greatest in the world. Bob Allen, Chairman of AT&T, predicted that China would remain the world’s single biggest telecoms infrastructure market through the first quarter of the next century. See Ure in *Telecommunications in Asia* (Hong Kong: Hong Kong University Press, 1995), 218.

- China has an abundant pool of relatively cheap labor available for foreign firms to tap into.⁵

The list may keep growing, but some of these reasons may turn out to be either irrelevant or useless stereotypes. Juergen Oberg, Siemens's executive director for telecommunications in Asia, may have been right in saying that cost is a good reason to enter China: "If you want to remain a global player, you have to be in China. You will not be able to cut costs in the long run if your market does not include China."⁶ Costs, in a broader sense, may also mean opportunity costs, that is, foreign companies will have to pay a heavy price for delayed entry into the China market. Other justifications for foreign companies to gain a foothold in China as soon as possible include the aggressive telecoms expansion taking place,⁷ the present low switching capacity, teledensity, and technology status (particularly in rural and remote areas), the weakened central control over provincial or local telecoms operations, the growing competition among different players, and China's arduous campaign for foreign investment⁸ in telecoms development and its aggressive search for overseas partners, which may give foreign firms important leverage.

To gain first-mover advantages, foreign companies such as France's Alcatel of Belgium, Canada's Northern Telecom, Sweden's Ericsson, and Japan's NEC have been early birds in entering the China telecoms market. Their early arrival indicated timely strategic efforts that assisted them in acquiring better strategic competitive positions, which are reflected by marketshare, profitability, and technological dominance. The usual advantages of early or timely entry include economies of scale, higher productivity at lower costs owing to the effects of learning and experience, brand preference and customer recognition, lower-cost access to financial capital, raw materials, and distribution channels. Intangible but more important advantages, however, are establishing barriers to lock out rivals and developing a close relationship with the Chinese government and business partners. Early-mover mentality may explain why many telecoms companies have made moves into China: they simply cannot afford to lose their places in the fastest growing market.

The bottom-line inducement remains the expectation of huge profits to be made in the lucrative Chinese market. As China carries out its ambitious plans to replace aging equipment

⁵China's abundance of cheap labor is accompanied by problems of productivity, specific skills required, and qualified managerial personnel.

⁶Rahul Jacol, "Asian Infrastructure: The Biggest Bet on Earth," *Fortune* (Oct. 31, 1994), 148.

⁷According to the *Financial Times* (Oct. 3, 1995, 27), China's telecoms investment for expansion in 1994 was reported as U.S. \$7921.1 million (128.4 percent of the revenue), which is only lower than that of Japan (\$23,481.1) and that of the United States (\$23,346.8).

⁸China needs around U.S. \$7 billion (of a total capital requirement of U.S. \$50 billion) in foreign investment for telecoms development in 1996-2000.

and expand telecoms networks into its vast unserved areas nationwide, it is likely to purchase from overseas sources more than U.S. \$30 billion-worth of switches and transmission equipment between 1996 and 2000.⁹ AT&T has estimated that by 2000 it will earn as much revenue from the China equipment market as from the U.S. domestic one.¹⁰ By then, the China telecoms market will be worth U.S. \$50 billion in total, and by 2010 it will climb to U.S. \$55 billion.¹¹ Such profit-making potential offers the world great business opportunities,¹² because China's market demand for foreign technology and equipment includes traditional areas (digital switching equipment, lower speed fiber-optic cable, wireless networks and terminal equipment, satellite communications equipment) and new areas (high-speed fiber-optic cable, digital data-communications networks, value-added services networks, mobile communications systems, e.g., paging and digital cellular networks, and network management and support systems).

8.2 Who Are Most Actively Involved? What Do They Do?

With the opening in May 1995 of a Beijing office by Telstra of Australia, the latest foreign player, more than seventy overseas telecoms entities have, in one way or another, approached or involved themselves in China in a vast array of activities, from manufacturing fiber-optic cable and electronic switching equipment, producing cellular phones and paging systems, and supplying all kinds of communications devices and components, to providing technological support and consulting services for network construction and systems management. The most active big foreign players are AT&T, Motorola, Northern Telecom, Alcatel, Siemens, Ericsson, NEC, Fujitsu, and Nokia, many of which have formed JVs ventures with Chinese partners¹³ or established operating branches in China. Leading the way in investment and JVs are Motorola, which committed some \$300 million in investment by the end of 1994 while indicating that another \$1.2 billion would be invested by 2000, and AT&T, with \$150 million committed and nine JVs set up. Northern Telecom, Ericsson, and

⁹"U.S.-China Meeting Ends with Pact for Business Development," *Common Carrier Week* 12, 13, March 27, 1995.

¹⁰Interview by Lisa G. Baltazar and Philip Y. Ting with Chris Padilla, AT&T, Jan. 28, 1994. Clem Doherty, of McKinsey Ltd., Australia Branch, predicted that China's telecoms equipment market demand in 2000 would be as large as 20 to 30 percent of the world market demand (*Electronics*, Feb. 8, 1993, 11).

¹¹"Property Accord Is Key," *Communications Daily* 15, 57, March 24, 1995, 3.

¹²Even if the present (1996) Chinese policy of barring foreign operators from network equity ownership and management control were maintained, foreign operators would still have significant roles to play in equipment supplies, technology transfer, co-construction, managerial consulting, or such innovative schemes as BOT, BTO, and BLO.

¹³By late 1994, more than forty joint ventures had been established in China by these foreign companies in the production of program-controlled telephone exchanges, fiber-optic, mobile communications, and digital microwave facilities (Xinhua News Agency, Oct. 28, 1994).

Alcatel have each committed more than U.S. \$100 million for several JVs. Table 8-1 lists high-profile foreign companies vigorously involved in China's telecommunications and summarizes key business activities implemented or envisioned.

Numerous foreign vendors actively engaged in market competition for telecoms equipment or component supplies include the following:¹⁴

- General DataComm: APEX and Vision network systems, ATM standard, DDN equipment, LAN router
- Andrew International Ltd.: VSAT system, Heliac coaxial cable, cellular and microwave equipment
- RAD Data Communications: SPS-2 PBX, network devices
- AsiaSat: satellite communications equipment
- Ascom Timeplex: T-1/E-1 voice, data and video transmission equipment
- Macroview Telecom: X.25 Public Data Network equipment, Packet Assembler and Disassembler (PAD), High-Level Data Link Control (HDLC), Systems Network Architecture (SNA)-Synchronous Data Link Control (SDLC), STM equipment, and Simple Network Management Protocol (SNMP) system
- Benefon Oy: mobile telephone
- Aerospatiale: satellite communications equipment
- Tainet Communications System Corp. International: 28.8 kbps-2 Mbps digital transmission manager, modem series, data communications test system
- SR Telecom: SR 500 voice and data system
- Anritsu: EF111A call simulator, SDH-SONET Analyzer, FX7003 IC phone, optical time-domain reflectometer
- OKI Electric Industry Co. Ltd.: ADPCM Transcoder TC2000
- European Telecom Group: mobile phone, E-TACS, AMPS, GSM systems equipment
- Pirelli Cavi SpA: fiber-optic cable, fiber-optic amplifier
- Orbitel: cordless phone system
- Vtech Communications Ltd.: ASR satellite receiver, ASC cable/teletext receiver
- SAGEM SAT: URBICOM microwave radio systems for cellular networks
- China Hewlett Packard: communications testing and analysis systems
- Allen Telecom Group: mobile, cellular, trunked, and PCN communications network systems and equipment
- CLI Compression Labs, Inc.: video communications systems and equipment
- Dassault: "Easynet" mobile local communications loop systems, CT2 system
- Panasonic: pager series
- Toshiba: portable wireless phone, e.g., TCP-800
- Hayes: modem series, 300-288 kbps

¹⁴Based on advertisements or the "News in Brief" section in *China Telecommunications Construction*, 1994-95.

- Boston Technology: CO ACCESS 600 enhanced service system sold to Changsha PTA for value-added and virtual telephone services

Table 8-1

**Foreign Companies Involved in China Telecommunications
(As of 1995)**

Foreign Player (By country)	Key Business Activities or Expectations
Telstra, Australia	To set up JVs to develop satellite system technology; to build fiber-optic links and GMDSS stations, and digital data networks.
New Bridge Network, Co., Canada	Supplies ATM (LAN), TDM, frame-relay, and bridge-router systems, as well as DDN network backbone and equipment.
Northern Telecom, Canada	JVs. Supply and manufacture of PABXs, fiber-optic and fiber-optic-SDH transmission systems, cellular phones, and microwave network equipment. Manufacture and sales of DMS digital switching systems, using CCS7 (basis for advanced intelligent network services). Designs and supplies ICs and large central office switching systems. Selected by MPT as exclusive supplier for CHINAPAC DPN-100 network construction. Established an advanced telecoms research center in Beijing P&T University.
Nokia, Finland	JVs. Manufacture of digital cellular telecoms equipment, transmission and switching equipment, and fiber-optic cable; handles distribution, marketing, and services for mobile phones and networks; delivers complete mobile network system (GSM). Provides SDH, ATM, GSM, PCS systems.
Alcatel, France	JVs. Supply and manufacture of SPC-1240 system, large CO digital switching systems (50 percent of the China's marketshare in 1994), optical fiber, and PABXs. Operates Shanghai Bell Telephone Equipment Co., a highly successful JV. Plans to expand business to Guangdong and other locations in China.
Siemens, Germany	JVs. Manufacture and sales of digital switching gears, transmission equipment, PABXs, digital mobile phone systems (GSM), fiber-optic cable.
Hong Kong Telecom (cable and wireless holdings)	Aims to become hub of international telecoms traffic to China. Provides mobile roaming services to many Chinese cities. Installed more than 100 analog international private-leased circuits connecting Hong Kong and major cities in China. With MCI and Guangdong PTA, offers MCI Global Private Network Services. Plans to invest in and build high-speed fiber-optic cable highway linking Hong Kong, Guangzhou, and Beijing. Plans to build mobile telephone network in Beijing.
Fujitsu, Japan	JVs. Manufacture of SDH systems, switching equipment, transmission equipment, communications software, circuit boards, and other telecoms equipment.

NEC, Japan	Ten JVs since 1989 (seven already in operation) to produce semiconductors, switching systems, digital transmission equipment, digital radio-pagers, software for Unix workstations and microcomputers, 900-MHz mobile phones, IBM-compatible computers, and HJC-ICS PABX. Supplies NEAX61, CP101E digital switching systems, VSAT, SDH fiber-optic transmission systems, cellular systems (PHS). To penetrate China's market, Japanese government helped with concessionary loans.
NTT, Japan	JVs to invest in and help design and build cellular networks in Jiangsu and Zhejiang provinces.
Philips Ltd., Netherlands	Licensed three of its local manufacturing affiliates in China (partners of a single JV with Philips) to produce SOPHO digital PBX equipment and ICs. JV to pursue product development and after-sale services, in addition to manufacture, marketing, and sales.
Singapore Telecom	JVs to invest in and construct China's nationwide radio-paging network, provide technical support, training, operations, and personnel; assist China Unicom in building local telephone and GSM mobile networks.
Samsung, South Korea	Invests U.S. \$100 million to set up its first overseas production base in Suzhou to make semiconductor units (e.g., ICs).
Ericsson, Sweden	JVs. Manufacture and sales of PABXs, cellular systems, AEX digital switching and PBX systems, radio-telephone exchange, loop-transmission system, and base-station facilities. Significant cellular marketshare in China.
British Telecom, U.K.	Initially focused on providing such services as e-mail. Has long-standing bilateral agreement with MPT to carry traffic between China and Hong Kong, involving provision of international packet-switched services over public data network and international private leased circuits between China and U.K.
GPT (Gec Plessey Telecom), U.K.	Supplied 540 ISDX business communications systems for government, industry, and academe. In May 1995, GPT won £40 million SDH transmission contract (for data, video, multimedia [nonvoice traffic]) involving laying 1,500 km (Wuhan to Shanghai) of most advanced fiber-optic submarine cable. GPT to provide network management system, EM-OS, and submarine cables. Sells switching systems, base stations, and videoconferencing equipment.
Ameritech, U.S.	Provides expertise in systems management, fiber-optic transmission, and value-added services, e.g., three-way calling; invests in and helps build GSM and fixed networks in Shanxi province.
AT&T, U.S.	JVs. Manufacture and marketing of fiber-optic cables, digital switching systems (e.g., 5ESS-R-2000 switch), digital transmission equipment, mobile communications systems, copper cable products, and PCS products; technology assistance in design, engineering, and installation of network systems and voice, data, video, and e-mail transmission. In 1995, operates nine JVs. Business relations extended to CSPC, MPT, and local PTAs. Enjoys highest business growth.
Bay Networks, U.S.	Offices in Shanghai and Guangzhou. To increase sales agents and systems integrated agents. Supplies routers for China's frame-relay networks.
BellSouth, U.S.	JV with Jitong to provide technical assistance in network design, planning, and engineering services for Golden Bridge project and Unicom's networks.

GTE, U.S.	Beijing office set up in March 1995. Signed MOU for long-term technical and network (fixed and cellular) management support for China Unicom. To give due priority to technology transfer and technical training.
Hughes Network Systems (General Motors), U.S.	JV. Supplied VSAT networks and more than 4,000 satellite earth stations; built cellular network in Chendu; won contract to join Golden Customs Project (Golden Gate).
IBM, U.S.	Technological support for China's "information superhighway." To invest U.S. \$100 million and carry out JV with MEI-led Jitong Communications Co. to design and build value-added data network (regional networks plus national backbone) to serve three Golden Projects (government data network, point-of-sale and bank card verification system, and EDI system for Chinese customs authorities). Venture with Jitong will also cover establishment of software development center in Shanghai and customer services in Beijing, Guangzhou, and Shanghai. Plans to introduce IBM PowerPC platform into Chinese market and develop appropriate Chinese-language software.
Motorola, U.S.	JVs. Production and marketing of paging systems (e.g., FLEX), cellular equipment and network, switching systems, base stations (e.g., Nucleus), customized two-way radio products, CT2 network systems, PCS, radio packeted-data communications system, and semiconductors. Enjoys highest market share (radio pagers, 60 percent in 1994) and growth in pagers and CT2s. Established good product reputation and company image by intensive promotion and localized production strategies. As of mid-1995, some 200 Motorola mobile communications systems installed in twenty-three provinces.
NYNEX, U.S.	Network assistance (design, engineering, planning, and feasibility studies) for China Unicom; conducts network feasibility studies for interconnecting private networks in China.
Scientific Atlanta, U.S.	Supplies equipment for building ground stations for satellite communications and VSAT SATCOM equipment.
Sprint, U.S.	Provides packet-switching systems and global Internet interconnection services. Major business partners include China Unicom, the MPT's DGT, China's Aviation Administration, and MR. Signed MOUs to enter long-term technical and network management support for China Unicom.

ATM = asynchronous transfer mode; CCS7 = Common Channel Signaling system 7; CO = central office; CP = control process; CT, CT2 = cordless telephone, CT second generation; CSPC = China State Planning Commission; DDN = digital data network; DGT = Directorate General of Telecommunications; DMS = data management system; DPN = digital private network; EDI = electronic data interchange; GMDSS = Global Maritime Distress and Safety Shore stations; GSM = Global System for Mobile Communications; ICs = integrated circuits; JVs = joint ventures; LAN = local area network; MEI = Ministry of Electronics Industry; MOU = Memorandum of Understanding; MPT = Ministry of Posts and Telecommunications; MR = Ministry of Railways; PABX = private automatic branch exchange; PBX = private branch exchange; PCS = personal communications system; PHS = personal handy-phone system; PTA = Post and Telecommunications Administrations; SDH = synchronous digital hierarchy; SPC = stored program control; TDM = time division multiplexing; VSAT = very-small-aperture terminal

8.3 What Are the Trends?

Since 1990, foreign involvement in China's telecommunications market has undergone transformation from conventional equipment and components sales by direct distribution channels or intermediary agents¹⁵ to more diversified activities. Many foreign firms seem to have understood that, to establish a stronghold in China, they needed to adopt new business strategies based on other considerations than the single factor of immediate profitability. To secure a solid competitive position in a marketplace significantly different from those of developed countries, foreign players need to find new ways to channel and allocate corporate resources and to match or accommodate business objectives to China's regulatory and market requirements for telecommunications development.

Unlike the environment of the mid-1980s, the market of the mid-1990s requires foreign firms increasingly to face new competitive forces, such as the threat of entry posed by both international and domestic players, fast-paced technological innovation and obsolescence, growing access for consumers to product and service alternatives, and the Chinese government's and enterprises' increased bargaining power and economic leverage in negotiating with overseas companies. Foreign moves in China's telecoms market are reflected by the trend toward localization, growing competition, and technology transfer.

8.3.1 Localization

Joint Ventures. JVs are business alliances¹⁶ with Chinese partners to gain competitive advantages of (a) wide access to China's domestic market, (b) economies of scale for lower costs, (c) use of local resources such as marketing expertise, distribution networks, tendency to lower cost, tax incentives, and financing support, and (d) timely business adjustments to market and policy changes. JVs help foreign firms establish close relationships with the Chinese government and various organizations, which are essential to doing business successfully in China. Partnerships in foreign alliance have been extended by MPT-controlled departments and local PTAs to non-MPT forces, including government ministries, China Unicom, Jitong, local enterprises or government agencies, and the military. Alliances involving different foreign firms and Chinese entities, called cross-alliances, also have emerged.

¹⁵Supplying telecoms equipment and components through exports has proved disadvantageous in costs, prices, market information, and development. Exporting also can often be affected by bilateral political relations and corresponding trade policies.

¹⁶In the western world, strategic alliances, in the broadest sense, can include second sourcing, cooperative marketing, distribution ties, licensing, subcontracting, product development agreements, teaming agreements, technology exchange, financial participation, equity purchases (buy-outs), mergers and acquisitions, hostile takeovers, and JVs.

Localized Manufacture.¹⁷ Here, “localized” refers to the type of products, site of production, and use of a local work force and materials, plus specific marketing strategies suited to the conditions of China’s domestic market. For example, Motorola decided to manufacture a series of radio products specially designed to meet the needs of Chinese users. AT&T plans to make an important shift from simple assembly to full-fledged local manufacture of the 5ESS (R)-2000 switching systems. Northern Telecom, Alcatel, NEC, and Ericsson are among the many foreign companies leading the way in committing large financial and technological resources to set up localized manufacture facilities in China. The business structure for localized manufacture may include Sino-foreign JVs, cooperative ventures, wholly foreign-funded ventures, and licensing agreements. Equipment manufacturing JVs tend to help foreign partners in policy and regulatory areas, when loopholes exist in policies for component import, taxation, and other issues relevant to domestic companies. Localized manufacture receives considerable official support, because it tends to be one of the most effective means for technology transfer. Currently (1995–96), the government has strongly recommended and encouraged localized manufacture of 900-MHz digital cellular communications equipment, synchronous fiber-optic, and microwave communications systems and instruments, ATM and SDH transmission systems, as well as DXC and network management (NM) equipment, and satellite earth stations (Telephony Earth Stations [TES]) and data stations (Personal Earth Stations [PES]).

Localized Promotion and Penetration. In addition to localized manufacture, quite a few foreign firms have paid attention to the ways they promote their products and services and their corporate images and reputations in China. Localized promotion and penetration reflect the approaches taken by foreign companies to associate business tactics with the cultural values, consumer tastes, and sociopolitical preferences of the Chinese. To make their corporate credibility, advanced technology, and the superb quality of their products and services both convincing to the Chinese public, to help that public become receptive to them, AT&T, Motorola, and Ericsson have done exceptionally well in exploiting Chinese cultural values for promotional purposes, as illustrated in ingenious advertising based on themes important to the Chinese, such as human relationships and behavioral norms, technology “at one’s fingertips,” chess playing, and long-standing faith, trust, and respect.

Localized penetration has been an important business strategy for many foreign players, who have become aware of opportunities emerging from regional and provincial economic dynamics, power decentralization, and competing development agendas. Direct business

¹⁷Sources of SPC switching equipment for China are: (a) homemade products such as HJD-04, 700,000 lines in service, and DS-30, 50,000 in service—home-production capacity, estimated to be 3 million lines in 1995 (about 300 domestic manufacturers in operation); (b) imported products, mainly from Alcatel, NEC, Fujitsu, Ericsson, Northern Telecom, Siemens, and AT&T; (c) products made locally by joint ventures with Alcatel, Siemens, NEC, Northern Telecom, and AT&T (*CTC News* 1, 18 [Oct. 5, 1995], 1-2).

relationships with local PTAs or non-MPT sectors in the form of equipment and system supplies or JV arrangements for manufacturing or network construction offer foreign firms the advantages of being able to get around some bureaucratic and regulatory obstacles, stay in touch directly with the changing marketplace, and effectively target and serve specific customer needs.

The donation of funds or facilities is another way to establish a welcome and recognized foreign corporate image in China, because the giveaway can build a positive attitude in the Chinese government and people toward a donor that cares about helping China in both technology development and public well-being. Good examples are AT&T's donation on July 1, 1995 of U.S. \$150,000 to the Hope Foundation, a health care and educational organization, for construction of a children's medical center in Shanghai; Intel's donation of U.S. \$250,000-worth of computer workstations to Jiaotong and Fudan universities in Shanghai; and Advanced Micro Devices Company's (AMD) donation of a communications lab to Qinghua University in Beijing.¹⁸

8.3.2 Growing Competition

The entry of more players has intensified and extended competition in China's telecoms market. The MPT and local PTAs battle with the non-MPT players (government ministries, China Unicom, Jitong, the military, and other local enterprises) for financial resources, marketshare, technological advantage, and overseas collaboration. Foreign companies have been forced to compete with one another and with their Chinese counterparts, just as they have been faced with competition in the form of strategic moves by rivals jockeying for position and to gain "competitive edges," moves reflected in product manufacture, marketing, price cut, in issues related to technology standards and specifications, and in the heated contest to establish JVs and other forms of alliances with Chinese partners in different political and geographic territories. In business negotiations, foreign firms are more willing to offer favorable terms so as to beat down other foreign competition. The ability to provide better financial terms seems increasingly to be a deciding factor in winning (or losing) a contract.

Foreign competitors active in China can be categorized roughly into three groups, depending on corporate size, market position, and business operations. First, large companies such as Alcatel, AT&T, Ericsson, Motorola, NEC, Northern Telecom, and Siemens, which have both huge manufacturing facilities and diverse service capacities. Strategically, these companies hold high stakes in China and are in the forefront of business activity there.

¹⁸Adapted from two issues of *CTC News*, those of 1, 12 (July 5, 1995), 14-15, and 1, 9 (May 20, 1995), 15.

Second, smaller companies that are manufacturers, service providers, or equipment vendors. Their stakes in China are less crucial, and their strategies tend to focus on the Chinese niche market. Third, new entrants, such as British Telecom, IBM, NTT, NYNEX, Singapore Telecom, Sumsung, and Telstra, which do not yet have an established position in China but are nevertheless threatening to other foreign players because of their financial strength and technological resources.

Foreign competition has extended from traditional areas of market penetration in equipment manufacture and supplies to the more diversified domains of product variety and quality, distribution channel, marketing strategy, project bidding, technology introduction, technical support, managerial assistance, and approaches to forming coalitions with Chinese sectors. In the lucrative network service areas, foreign players seem more than eager to compete against one another should Chinese regulations ever be relaxed, but their preliminary efforts are focused on the regulatory "gray areas" of value-added and managed data network services.

8.3.3 Technology Transfer

Two factors account for the importance to China of technology transfer by foreign companies. First, intense competition among foreign players and between foreign and Chinese entities to establish strategic positions in both the domestic and export markets and to create JVs or other types of alliances with Chinese enterprises or government organizations has placed great pressure on foreign companies to agree to stringent technology transfer arrangements. Second, the government has strongly implied that technology transfer is a prerequisite to be exchanged for access by foreign companies to China's telecommunications market.

Concerns critical for foreign companies are (a) that some of their advanced technologies are crucial to their competitive advantages in the marketplace and therefore cannot be given away; and (b) whether they can commercialize their technologies in a country that has a weak legal framework without forfeiting their hard-earned knowledge, techniques, and property rights. The compromise at present (1995-96), except for technology transfers specified in contracts,¹⁹ seems to be a package of indirect mechanisms for technology transfer to the liking of the Chinese side offered by foreign companies. These mechanisms include:

¹⁹For example, in 1995, AT&T signed a contract to have its technology for making 0.9 submicron ICs transferred to the Huajing Electronics Group Company under the MEI. Foreign firms that agree to transfer advanced technology to China are assumed to be willing to stake current competitive advantages on the hope for the establishment of a long-term mutually beneficial relationship with China.

- Technical assistance in network design, planning, engineering, and maintenance²⁰
- Joint R&D activities such as joint research, establishing research labs, and exchanging data and research literature
- Cooperation in network construction or equipment installation
- Consulting and after-sale services
- Running technological seminars, workshops, and training sessions²¹

8.4 What Are the Key Stakes?

8.4.1 Contextual Factors

Many of the problems, difficulties, and frustrations foreign firms commonly experience in China derive from a broad socioeconomic and political context. Political uncertainty²² and inconsistency due to the system and transitions in leadership can significantly influence the direction of China's overall economic development and policies toward foreign activities there. Legal and regulatory inadequacies offer foreign companies only limited legal protection in case of business or property disputes, and underdeveloped financial, banking, and communications systems leave them with restricted access to local financial support (e.g., working capital) or resources for timely information. The most annoying source of trouble, however, is an obstinate bureaucracy, rooted in a centuries-old political tradition, which is generally manifested in the administrative structure, official formalities and procedures, and often confusing and ambiguous rules and regulations governing business activities.

8.4.2 Goal Conflict

Foreign firms entering China's telecoms market usually have in mind a clearly defined and profit-oriented goal: to establish a competitive strategic position in order to beat out rivals and cash in on China's huge domestic market. Access to market, cost-benefit ratio, sales volume and growth, profit margin, and returns on investment are, without exception, high priorities. China, on the other hand, has different strategic interests and objectives. What China wants most and therefore most highly encourages are foreign capital to fuel development, advanced technology, and management expertise. This situation seems like two persons asleep in the same bed but having different dreams: one dreams of selling products

²⁰Ameritech, NYNEX, Sprint, IBM, and BellSouth are among many foreign firms very active in this area.

²¹In March 1995, Motorola signed a contract with the MEI to offer telecoms skill-training programs in China. AT&T, Motorola, and GTE are reported to be the most aggressive in their efforts to provide training, education, and technical services for China.

²²In October 1995, preferential policies for so-called special economic zones in coastal regions where economies were booming began to be seriously challenged and debated in Beijing, possibly signaling changes in economic policies.

and services for big profits, the other of getting financial and technological resources in order eventually to hold off outside products and services.

8.4.3 Purchasing Preference

Foreign vendors supplying telecoms products to the Chinese market often come on the issue of "what they want to buy, and who decides." Cognitive, emotional, and behavioral components all affect Chinese perceptions of a foreign product (quality, to a large extent). As a general rule, the order of priority for Chinese buyers evaluating a product is quality, durability, functionality, and external features (e.g., size, color, shape, weight, and other physical and esthetic factors). The same process of evaluation is also applied to foreign or imported products. The typical buyer's perception of source countries and their products has a substantial impact on the eventual purchasing performance. That is, the quality of a foreign product is evaluated according to (a) the product quality in general and (b) the effect of country-of-origin as a determinant on preconceptions of a foreign country's products and foreign brand names. Aggressive and appropriate marketing, however, and advanced engineering may reduce the perceived distance between the foreign product and the Chinese consumer, change an established image of the foreign product, and therefore promote the buyer's confidence and propensity to buy.

Chinese industrial purchasers, according to research by Erdener Kaynak,²³ rate Japan at the top for electronic and telecoms equipment, the United States second, Germany third, and Switzerland fourth, or, in other words, these countries enjoy the country-of-origin advantage when supplying electronic and telecoms products to China. Yet Alcatel, Ericsson, and Northern Telecom's remarkable success there may be explained, aside from their advanced technologies, by their appropriate business strategies and their China-oriented approaches adopted for business activities there.

In China, two groups of people are important to decisions about whether to accept or reject foreign products. The first group consists of general managers and chief engineers working with the MPT, local PTAs, and other telecoms-related enterprises. Responsible persons at foreign trade offices or departments who make decisions on purchases of foreign goods and technologies also are included in this group. The second group are staff personnel from local Chinese regulatory agencies, planning organizations, and administrative bureaucracies, who retain certain jurisdiction over the flow of commodities and technologies.²⁴

²³Erdener Kaynak, "How Chinese Buyers Rate Foreign Suppliers," *Industrial Marketing Management* 18 (1989), 193.

²⁴*Ibid.*, 188.

8.4.4 Issues Specific to the United States

U.S. telecoms firms used to have a disadvantageous competitive market presence in China because of political and financing barriers. The position seems to have improved since 1994, when restrictive policies on telecoms equipment export to China were largely lifted. The following factors create barriers specific to the United States:

1. U.S. business risks related to cyclic Sino-U.S. political tensions and annual renewal of Most Favored Nation (MFN) status;
2. Small U.S. concessionary financing packages and other subsidy support for U.S. corporations striving to enter the China telecoms market; and
3. Stringent U.S. policies controlling export of high technology to China.

Many variables, such as human rights, the trade balance, and protection of intellectual property, are sources of potential disputes and confrontation between China and the United States. Political tensions or conflicts between these countries clearly impair the interests of both sides, not only in economic terms but also in relation to world stability and development. Annual MFN status renewal creates recurrent uncertainty for both U.S. and Chinese businesses. U.S. exporters and investors remain concerned about whether their export prospects or investment climate will be affected by changes in tariffs and other trade barriers, while Chinese enterprises remain wary of business instability in dealing with the U.S. firms. All these variables, which cause Sino-U.S. relations to fluctuate, are usually uncontrollable and unpredictable and will hold back or discourage U.S. companies from implementing long-term business strategies in China.

Unlike Japanese, Canadian, and European companies, whose home governments offer China large concessionary loans (tied aid) in payment for purchases of telecoms equipment or services from donor nations, U.S. firms have had only limited access to government concessionary financing (and in the case of China, U.S. Export-Import Bank Lending is, as already said, tied to the problematic annual MFN renewal), because China is not eligible under the Foreign Assistance Act to receive financial assistance from the Agency for International Development (AID), which administers U.S. bilateral economic assistance programs. Lack of government support in entering the China market has been a disadvantage for many U.S. telecoms companies relative to Japanese, Canadian, and European competitors.

The third factor, stringent U.S. restrictions on the export or transfer to China of telecoms technology, is based on official U.S. concern that such telecommunications technologies might have sensitive dual-use capabilities involved in command and control, logistics, and intelligence monitoring. This national security philosophy has kept the United

States significantly more restrictive than other members of the Coordinating Committee for Multilateral Export Controls (COCOM),²⁵ which by 1994 had already shifted to focus on commercial interests. On April 4, 1994, the Clinton administration, fearing that more nations would open their gates for telecoms equipment export to China and seeing no threat to U.S. national security because most of the telecoms products to be liberalized were already available internationally, decided to relax licensing requirements on the export (to all countries except North Korea) of nearly all civilian telecoms equipment²⁶ and computers that operate up to 1,000 MTOPs.²⁷ This regulatory change is likely to help U.S. telecoms firms become more competitive in the international market that includes China.

8.4.5 Pitfalls of Alliance

For the tactical purpose of market penetration in China or for forming strategic coalition with Chinese partners to acquire long-term benefits, foreign telecoms firms have increasingly joined hands with various Chinese entities for business alliances in the form of JV manufacture, licensing arrangements, collaborative research, marketing cooperation, and technological assistance and support. Their efforts to create alliances, however, are accompanied by apparent or potential issues and risks. Apart from the problems of selecting the right partners and locations, planning for management teams and a labor force, and negotiating specified and joint rights and responsibilities, more complicated issues have made implementing alliance larger pitfalls.

Decisionmaking processes and the coordination required for partners to reach agreements may often be unwieldy and bureaucratic because of the different management structures of the partners involved. Cross-ownership and cultural differences may deprive the partners of the flexibility necessary to take timely management actions to adapt to a changing business environment. Cultural differences are frequently reflected by different attitudes toward operation and management problems, such as allocating financial resources, production planning, and approaches to cost-profit accounting. The most difficult part of the Sino-foreign alliance seems to reside in efforts to establish trust, flexibility, and commitment on both sides, even though these values have been widely recognized as the keys to success. Business relationships, which the Chinese look on as cornerstones of business transactions, often appear

²⁵COCOM was a cold-war era multilateral regime charged with controlling the export of military-related technologies from member countries, including most NATO countries and Japan. Prior to disbanding as an organization on March 31, 1994, COCOM agreed to end controls on sales of most high-technology equipment to China.

²⁶Telecoms equipment that can be exported without restriction includes high-speed, fiber-optic cable, synchronous transmission equipment (e.g., SDH or SONET), advanced cellular phone base-station equipment, and software for telecoms network management.

²⁷"US Liberalizes Export Controls for China," *The China Business Review* (May-June 1994), 4.

too ambiguous and bothersome for foreign companies with Anglo-Saxon-oriented cultures to nurture; these foreign companies tend to hold a narrow, opportunistic view of business relationships, which they usually define in strictly financial terms.²⁸

Another difficulty involved in alliances is concern about illicit technology transfer or release of valuable information to potential competitors, resulting over time in a shift of power once the weaker side has improved its skills and got hold of new products and technology through a process of learning and absorbing. This problem seems very difficult to control in an environment of collaborative management and joint operation. Direct access by local partners to distribution channels and customers often adds to this concern, because such access may increase the importance of the role of local partners as the alliance progresses. This is one of the reasons why the exit clause for ending or renewing alliance agreements must be seriously considered.

8.4.6 Breakthrough: A Difficult Puzzle

Network operation and equity ownership in China's telecommunications appear to be most important in stimulating the interest of foreign firms, but, as of 1996, officially, foreign participation remains restricted to technology transfer and assistance, in addition to equipment manufacture and supplies. Efforts toward breakthroughs have met constant resistance from the central government and the MPT, which maintains that:

foreign companies are welcome to invest in China's telecoms projects and get their fair share of returns according to the terms agreed, but this has to be under the preconditions that they will not hold equities or be involved in the operation or management of telecommunications business. It is impossible to predict when China might consider opening its telecommunications and information sectors to foreign operators.²⁹

Justifications for its policy offered by MPT Minister Wu Jichuan included (a) concern for national sovereignty; (b) concern that foreign operation and management could compromise state and industrial or commercial security; (c) lack of any precedent in any other country that allows foreigners fully to operate a country's national communications network; and (d) a network management system is still premature³⁰ for joint Sino-foreign operation.³¹

²⁸Adapted from Vanessa Houlder, "Today's Friend, Tomorrow's Foe," *Financial Times*, Oct. 2, 1995, 10.

²⁹Speech by Wu Jichuan, Minister of MPT, at China Summit, Beijing, April 1995 (*South China Morning Post*, Business section, April 12, 1995, 14).

³⁰In official usage, "premature" denotes underdevelopment.

³¹*Ibid.*; also Giles Hewitt, "China Restricts Role for Foreign Telecoms Firms," *Agence France Presse*, Financial pages, April 11, 1995 [NEXIS].

However, China's regulatory consistency has been challenged and it has been complicated by the top leadership's plans to explore and experiment with new ways of using foreign investment, which might offer greater opportunities for foreign penetration in China's telecommunications as well as by the existence of certain gray areas where the rules of the game are not well defined. Three crucial questions have been raised:

1. Can implementation of various revenue-sharing schemes such as BLT, BLS, or BLO exclude foreign participation in equity ownership or network management? (See section 7.3.)
2. Do these proposed initiatives indicate or imply circumvention, or fundamental change in interpretation, of the rules and regulations regarding the role of foreign firms in China's telecommunications?
3. Will foreign firms be able to nibble at or entrench themselves in equity ownership and the service-operation market in China's telecommunications, given the dynamics of and confusions in China's regulatory structure?

The following instances reported in the media in mid-1995 may provide a window for speculation.

- AT&T sought to be the front-runner to build and operate a \$1 billion broadband telecoms network in Pudong, a special development district of Shanghai where telecommunications services are badly needed because of the rapid growth of commercial and financial activities. To this end, Pudong authorities went directly to Beijing for approval, which angered the Shanghai telecoms administration.³²
- Huamei, a military-controlled company, joined hands with the U.S. company SCM International and Brooks Telecommunications to finance and build a prototype fiber-optic data network in Guangzhou. The operation started in April 1995, and as of July services were being extended to cover Guangdong province.³³
- Singapore Telecom signed contracts with various subsidiaries of the MPT and the Beijing Municipal government to build a nationwide paging network. Singapore Telecom claimed to hold equity ownership stakes in the network. Its investment will be recovered via a percentage of future profits.³⁴ Singapore Telecom also agreed to invest U.S. \$300 million to help build local telephone networks and GSM mobile systems in Shanghai and Suzhou, marking the first time an overseas operator has invested in major fixed network

³²"China's Telecoms Industry: Hung Up," *The Economist* (July 22, 1995), 62.

³³*Ibid.*

³⁴*Ibid.*

projects. Singapore Telecom will be repaid by China Unicom, the network operator, with a guaranteed amount within a set period of time.³⁵

- Hong Kong Telecom concluded the first phase of a U.S. \$300 million agreement with the MPT to build a fiber-optic cable linking Beijing and Hong Kong and to expand the Beijing GSM network.³⁶

- In March 1995 Japanese government signed a U.S. \$5 billion frame agreement with the Chinese telecoms authorities that called for a consortium of Japanese companies to carry out BLT telecoms infrastructure projects in the Yangtze Delta. As planned, the arrangement will permit equity-like returns for overseas operators as well as some management participation.³⁷

- Mitsui will be the first Japanese company to enter the Chinese telecoms business by setting up a JV with China Unicom to offer cellular services in Shanghai. In return for financing, Mitsui will receive a portion of the revenue.³⁸

- The U.S. firms Sprint, NYNEX, GTE, Bell Atlantic, and BellSouth reached agreements with China Unicom and Ji-Tong to help set up equity-type JVs, install alternative long-distance networks, upgrade existing telecoms systems, or provide other kinds of technology support.³⁹

- Ameritech will help build and operate GSM and fixed networks in Shanxi province by establishing a JV with China Unicom's Shanxi Branch. Ownership of the network is to remain with the JV partners until Unicom repays Ameritech's investment, which is expected within seven to eight years. Ameritech's initial 80 percent stake in the venture will gradually be reduced to 49 percent over the 25-year term of the agreement. It will retain control by providing the venture's chief executive and chief financial officers, as well as providing financial and management advice directly to Unicom.⁴⁰

Media reports of foreign firms's business advances due to China's policy "liberalization" in telecommunications almost always draw a similar, brief conclusion such as "The deal circumvents China's ban on direct foreign involvement in telecoms equity investment and

³⁵Nick Ingelbrecht, "Lian-Tong [China Unicom] Deal to Extend Singapore Role in China," *CommunicationsWeek International*, June 26, 1995, 3.

³⁶Ibid.

³⁷The Yangtze Telecom Development Plan includes the installation of more than 2 million digital exchange lines in Shanghai and a 2.4 Gbps fiber-optic network connecting the city of Shanghai with the cities of Nanjing and Hangzhou. An additional 70,000 lines will be installed in Nanjing and 30,000 in Hangzhou. See Nick Ingelbrecht, "Japanese Takes Initiative on \$5bn Chinese Net Plan," *CommunicationsWeek International*, April 10, 1995, 3.

³⁸[News release] *The Nikkei Weekly*, June 19, 1995, 25.

³⁹Ibid.

⁴⁰Nick Ingelbrecht, "Ameritech to Build Fixed GSM Networks in China," *CommunicationsWeek International*, Sept. 4, 1995, 42.

network management or operation stakes. It serves as a sign that China is on the way to a change in or relaxation of its strict policy grip on foreign players.”

The issue that draws attention is that the government has shown no interest whatsoever in surrendering stringent control, even though it is constantly reviewing the situation and slowly edging toward experimentation with BLT, BLO, and BLS options in an effort to dig up and use foreign funds and technology. Unclear distinctions between telecoms network equity and ownership of production facilities, and between “*help build-construct-provide*” and “*build-construct-provide*” have caused confusion, even though the distinction appears to be merely a matter of semantics. No wonder foreign firms and the Chinese government both are often puzzled by such unclear, invented terms as equity-like, equity-type, near-equity, management support, or operation assistance, which could amount to stakes in operations and could be critical to foreign investors and Chinese policymakers alike.

Ambiguities, as opposed to semantic distinctions, tend to stimulate operational innovations. For example, foreign carriers may take technology cooperation as an initial step toward gaining a foothold in network management, or treat non-equity investment as “loans which are paid back at interest rates calibrated to the profits booked by the Chinese partner.”⁴¹ As of the mid-1990s, the trend seems to be that foreign firms are gradually allowed to enter into network equity arrangements, even though network operation or management remains a “no-no.” Ambiguities also provide foreign players with a wide spectrum of access to local and non-MPT sectors which may be in a position to conduct deals on a fairly independent basis.

8.4.7 Understanding, Not Assuming

Another important, but often ignored, source of confusion is the way Chinese telecoms policies and regulations are reviewed and looked at abroad. Foreign companies could find themselves in a cloud of darkness if they take things for granted or if they are unaware of the possibility of being misled by distorted policy interpretations or hot-headed media services. To understand means to investigate carefully and acquire knowledge of:

- The fundamental political structure of the Chinese government
- The organization and functions of the MPT and grassroots PTAs
- Non-MPT ministries and enterprises, which have significant stakes in telecommunications
- Decisionmaking processes at different levels
- Regional and local differences and dynamics, as these are related to telecommunications infrastructure and services development

⁴¹*The China Business Review* (September 1994).

- The emerging telecoms players (e.g., China Unicom and Ji-Tong) and the changing market conditions
- Actual and exact messages and information delivered by official regulations and laws, or unofficial sources, not mistranslated, misrepresented, or biased signals or information⁴²

8.5 Case Studies: What Can Be Learned?

The experience of AT&T, Alcatel, and Northern Telecom in China, though limited in scope and depth, offer a perspective of how and why some foreign companies are successful in China while others are not. Their business approaches and strategies may provide important inspiration or lessons for other foreign players.

8.5.1 AT&T

The following chronology summarizes significant events in the relationship of AT&T and China.⁴³

- | | |
|---------------|---|
| 1918 | AT&T's International Western Electric (IWE) had a telephone equipment facility in China, but seven years later, for U.S. \$29,306,543, it sold IWE to International Telegraph and Telephone (IT&T, which was taken over by European conglomerate Alcatel in 1987). |
| 1937 | AT&T opened correspondent relations with China, which continued until 1949, when the Chinese Communist Party took over the country. |
| 1979 | China invited AT&T to examine the possibility of establishing a joint switch manufacturing venture with China National Post and the PTIC, the manufacturing arm of the MPT. AT&T declined. |
| 1980-
1985 | AT&T's competitors, such as Alcatel, Philips, Cable & Wireless, Spar Aerospace, Ericsson, and Siemens, established footholds in China by signing agreements with the Chinese government to become involved in sales or manufacturing of optic fiber systems, standard copper cable, PBXs, microwave radio, etc. |
| 1985 | AT&T opened its first representative office in Beijing. |

⁴²To foreign firms, the issue of translation from Chinese to English seems problematic, because it affects the accuracy and appropriateness of the message communicated. The use of two or more translated sources for reference, in order to double-check or reconfirm the accuracy of the content translated, would help minimize translation errors. When a policy statement is made that is, intentionally or not, ambiguous, the ambiguity may need to be tolerated.

⁴³Data from William Warwick, "A Review of AT&T's Business History in China," *Telecommunications Policy* (April 1994), 265-274.

- 1986 AT&T made its first sales of 5ESS(R) switches, network equipment, and fiber-optic cable to the Hubei PTA, the MR, and the Xinhua News Agency. It also began installing an intercity fiber network for the Guangdong PTA.
- 1989 AT&T Network Systems International (50 percent share) formed its first JV with the Shanghai Optical Fibre Communications Corp. (28 percent share) and the Shanghai Telecommunications Equipment Factory (22 percent share), to produce and sell digital transmission equipment in China. Following the Tian Anmen Square Incident, China State Council Directive 56 limited the number of approved switch JVs to three,⁴⁴ shutting AT&T out of China's switch market.
- 1991 The AT&T and Shanghai Telecommunications Equipment Factory jointly formed AT&T of China Ltd., a manufacturer and vendor of SLC/120(R) network access systems.
- 1992 AT&T Network Systems International formed its third JV with three large Chinese telecommunications enterprises to produce fiber-optic cables. These JVs brought AT&T's investment to close to a total of U.S. \$20 million. AT&T's management acknowledged the company's unique strength in combined capabilities for further developing its business in China and dispatched a small team of management heads to meet informally with Chinese officials from the SPC to present the idea of comprehensive cooperation with China to help in the country's telecommunications development. AT&T's effort received a positive response from SPC Vice-Chairman Ye Qing, who appointed a team of Chinese counterparts to work with the AT&T team. Jiang Zemin, the Chinese top leader, asked to meet with the head of the AT&T delegation, Vice-Chairman Randall Tobias. An eight-member team from the SPC then conducted extensive meetings with the AT&T business units in the United States and visited Bell Labs and various AT&T manufacturing facilities there.
- 1993 Vice-Chairman Ye of the SPC signalled the seriousness of his intent by personally visiting AT&T's facilities in the U.S. By the end of his visit, the Chinese and U.S. teams prepared a draft note outlining proposed areas of cooperation, including specific technologies, training provisions, and rough timetables for the phases of work, which laid the basis for the MOU soon signed by Vice-Chairman Ye and AT&T Vice-Chairman Randall Tobias. In July, AT&T China, AT&T's business unit, was established, with the mission to coordinate various AT&T business units involved in the MOU and to offer complete solutions to Chinese customers by drawing on all of AT&T's capabilities. AT&T China reports directly to AT&T Chairman Robert Allen. In October, the U.S. and Chinese governments concluded a Market Access Agreement, in which China agreed to remove restrictions on market entry for U.S. firms in a number of sectors, including telecommunications, and State Council Directive 56 was erased from China's books.

⁴⁴Namely, Shanghai Bell Telephone Equipment Manufacturing Corp. (Alcatel), Beijing International Switching System Corp. (Siemens), and Tianjin Electronics & Communications Industry Co. (NEC).

1995 In August, a source⁴⁵ reported that AT&T had expanded its cooperation with Chinese partners to nine JVs⁴⁶ and set up regional offices, in addition to its Beijing headquarters, in five cities: Shanghai, Guangzhou, Chengdu, Wuhan, and Shenyang. AT&T planned to set up its largest overseas switching-system factory in China.

This chronology offers a number of strategic implications.

Learning from Mistakes. AT&T lost a strategic opportunity in 1979, when, after having been closed to the outside world for three decades, China was just ready to open its door. China's recognition of and its initiative toward modernization made the country rethink its development agenda. As a result, telecommunications infrastructure was one of the areas given a high priority for development. With telephone networks and manufacturing facilities lagging far behind developed countries, the central government decided to reach out to absorb foreign advanced technology to upgrade China's manufacturing plants and expand its network capacities. AT&T was then selected as an initial JV partner to produce a newer generation of switches, but it declined this invitation for several stated reasons:⁴⁷

- To prevent "military critical" technology from export to China, to ensure western military supremacy.
- Concern about China's stagnant production, low economic growth, and unclear management styles and practices, in the aftermath of the Cultural Revolution of 1966-76.
- AT&T's involvement in the fifth-year of legal proceedings brought against it by the U.S. Department of Justice, and its fight against MCI for U.S. domestic long-distance marketshare.

Regardless of the reasons given, AT&T's decision to turn down China's offer proved a strategic mistake.⁴⁸ The price it paid for the mistake was loss of first-mover advantages, especially in equipment manufacture,⁴⁹ product marketshare,⁵⁰ and the establishment of

⁴⁵"AT&T Announces Joint Venture to Manufacture Digital Switching Systems in China," PR Newswire, Financial News, Aug. 3, 1995.

⁴⁶AT&T's eight previous JVs were reported to have involved an investment of U.S. \$150 million from AT&T's side (PR Newswire [on-line], Aug. 3, 1995, 2).

⁴⁷Warwick, "A Review of AT&T's Business History in China," 267.

⁴⁸Ibid.; AT&T acknowledged this decision had been a mistake.

⁴⁹For example, in 1983 Alcatel's Bell Telephone of Belgium joined hands with a Chinese partner in Shanghai to produce digital switches. The venture gained more than half of China's switch market.

relationships essential for doing business in China. Between 1980 and 1985, while AT&T held back, many of its international competitors entered JV arrangements and established favorable positions in China, most notably Alcatel in Shanghai, Siemens in Beijing, and NEC in Tianjin, all taking the plunge into making high-tech switches well before AT&T swung around and opened its first representative office in Beijing in 1985. Thus, before AT&T changed its strategy, it lost at least five years to its competitors.

What Counts: Vision, Commitment, and Action. Fortunately, AT&T's blunder in 1979 seems to have been remedied to some extent by its management's recognition since 1985 that China should be regarded as of strategic importance and that persistent efforts to obtain a stronghold there will pay off in a big way. Imminent business necessity and long-range strategy both have driven AT&T to refocus attention on the emerging market outside the United States. Its management has come to see intensified competition in both equipment sales⁵¹ and long-distance services provision, at home and abroad, as alarming signals that ignoring a huge international market such as China would be fatal to its future.⁵² In 1994, William Warwick, Chairman of AT&T China, claimed that AT&T has bet heavily that China will continue on its path of economic reform and, with potential business estimated in billions, AT&T was fully committed to being in China, with China, and for China.⁵³ As a result, AT&T moved quickly to regain its lost chance. Hesitation has been replaced by aggressiveness, and commitment has been manifested in action. By August 1995, AT&T had set up nine JVs in China, the latest one a U.S. \$100 million project involving five Chinese partners⁵⁴ to manufacture 5ESS(R)-2000 switches; the capacity of the venture was reported to be one million lines per year. AT&T's earlier JVs involved facilities to make fiber-optic cable, digital transmission systems, and copper cable products. As of August 1995, AT&T had opened five offices in five major Chinese cities (Shanghai, Guangzhou, Chendu, Wuhan, and Shenyang), in addition to its headquarters in Beijing (see the chronology of AT&T in China, in section 8.5.1). In the 1990s the company has enjoyed strong business growth and

⁵⁰AT&T has kept its marketshare of digital switches and stored program-control exchange smaller than that of competitors such as Alcatel, NEC, Ericsson, Northern Telecom, and Siemens.

⁵¹Warwick, "A Review of AT&T's Business History in China," 267: in the mid-1980s, AT&T was far behind its overseas competitors: only 1 percent of its equipment sales revenue came from outside the United States.

⁵²Ibid. AT&T's access to the China market both as a equipment supplier and as a manufacturer plays a significant role in achieving its required growth of 5 to 10 percent a year.

⁵³Ibid., 274. In 1994, Warwick commented that "We are determined we are going to do it right. If you are going to be successful in infrastructure in the rest of the world, you have to be in China. Our goal is to be a leading player by the turn of the century." See also Mark Clifford, "Third Time Lucky?" *Far Eastern Economic Review* (April 7, 1994), 48.

⁵⁴The five Chinese partners are: Hisense Electronic Corporation of Qingdao Electronics and Instrumentation Industrial Company, Shangdong Posts and Telecommunications Administration, Qingdao Posts and Telecommunications Bureau, China International Trust and Investment Corporation, and China Electronics Corporation (PR Newswire, Aug. 3, 1995).

has diversified its business relations from the central administration, such as the SPC and the MPT, to local PTAs and the non-MPT sector. AT&T foresees its becoming one of the two or three major equipment vendors in China, with a minimal marketshare of 20 to 30 percent, by the end of the century.⁵⁵

Gains from Political Initiatives. AT&T's political initiatives have been carried out in both the United States and China.

In its home country, AT&T fought hard to advocate relaxation or elimination of export controls on telecommunications sales to China prior to the lifting of the COCOM rules in March 1994. China's Most Favored Nation (MFN) status has also been an important factor affecting AT&T's China business strategies and practices. The stake involved in the MFN status annual renewal is very high, because it has a great impact on Chinese customers' perception of AT&T's accountability as a dependable equipment supplier and on AT&T. If MFN for China were to be revoked, AT&T's sales to China would drop sharply, causing the company to suffer not only a heavy business loss but also to face a creditability crisis. In the early 1990s, AT&T sold China more than \$100 million per year in telecommunications equipment; for 1993-97 the estimated sales in that market amount to \$1 billion.⁵⁶ Exports from AT&T's factories in the United States to customers and JV facilities in China could reach \$200 million per year by 1997, which, by standard U.S. government export-job ratios, accounts for 2,000 jobs in the United States alone.⁵⁷ This ability to create jobs may explain why AT&T has lobbied vigorously in the U.S. Congress and the White House in "China's favor."

In China, AT&T's active approach to political authorities has also produced fruit. Between late 1992 and early 1993, AT&T effectively launched a political initiative to the SPC,⁵⁸ China's most important decisionmaker under the SC, by having a management team meet with SPC officials and present them the idea of comprehensive cooperation encompassing all of AT&T's capabilities. The initiative was an immediate hit: the SPC responded positively and quickly, appointing a team of Chinese to work with the AT&T team, and the Chinese top leader asked to meet with the head of the AT&T delegation. The initiative also led to a number of bilateral study tours.

The most important outcome, however, was the signing of the milestone MOU by the Vice-Chairmen of the SPC and AT&T in February 1993, which fit into AT&T's globalization

⁵⁵Revised from Clifford, "Third Time Lucky?" 48.

⁵⁶Data from Warwick, "A Review of AT&T's Business History in China," 273.

⁵⁷Ibid.

⁵⁸What is significant is that AT&T did not approach the MPT but instead went directly to the SPC.

strategy, geared to achieve 50 percent of the revenues earned abroad by the year 2000.⁵⁹ The MOU marked the beginning of a long-term comprehensive partnership between AT&T and China and established an advisory board composed of members of AT&T and the SPC to oversee general implementation of the agreement and find out new opportunities for joint endeavor. China's obligations, defined by the MOU, were to organize relevant ministries and agencies, mainly the MPT and the MEI, and to identify specific Chinese partners. With these ministries or agencies—the working-level Chinese counterparts of individual AT&T business units, as designated by the MOU framework—AT&T will register JVs, negotiate business deals, and obtain official approval.

Use of Comprehensive Business Capabilities. One of the few telecommunications giants in the world, AT&T derives its unique strength from its combined capabilities, but this strength is like a two-edged sword, giving the company distinct cutting-edge advantages in China. AT&T's strong and versatile technology base and its expertise in management of large networks give it great appeal to China as an exceptional partner to meet the country's urgent needs for advanced technology and network construction support. AT&T's strategy of using its combined technological strength in China has put the company in an advantageous position to compete with other foreign firms involved there that offer either equipment manufacture or service expertise. This business strategy, however, has faced a new challenge from AT&T's management's decision, in September 1995, to restructure the company by splitting into three separate sectors, telecoms services, equipment manufacturing, and computing. Although AT&T reaffirmed that its investment and business plans in China will not change, the degree to which its combined capabilities will still benefit operations in China has become an issue to be addressed.

AT&T's management is aware that the MOU is just a license to compete in China, not a guarantee of success there; the accord has yet to be translated from an ambitious wish-list into real business activities. Despite AT&T's recent move to reorganize, the company will more than likely go ahead with the MOU framework and undertake cooperation with its Chinese partners in ten major areas of potential business operation, including 5ESS(R) digital switch manufacturing, very-large-scale integrated (VLSI) circuit manufacturing, network management, R&D with Bell Labs, fiber-optic transmission systems manufacturing, wireless and cellular equipment manufacturing, customer premises equipment manufacturing, technical training programs, systems integration, and network services offerings. AT&T has also

⁵⁹Warwick, "A Review of AT&T's Business History in China," 274: in 1992 approximately 25 percent of AT&T's total revenue was earned from outside the United States.

considered technology sharing, or transfer,⁶⁰ as a constructive tool for strengthening ties with the Chinese government and enterprises and to consolidate its market position in China.

AT&T China as a Strategic Business Unit. Before the MOU was signed in 1993, some twenty business units of AT&T⁶¹ were able to enter China and other countries independently, with responsibility for their own profits and losses. As a result, overlap representation or business scrambles by various AT&T units appeared a source of concern. Coordination and synergistic application are at times lost. To address the issue of coordination of the AT&T business units operating in China, and to offer complete solutions to the Chinese customers drawing on AT&T's comprehensive capabilities, AT&T reorganized the way it has approached China by setting up AT&T China, a strategic business unit, in July 1993. As of the mid-1990s, AT&T's management holds that the establishment of AT&T China was essential for the company's overall success and the fulfillment of the MOU; "the potential of combining the business units in new and powerful ways outweighs the risk of an untried organizational structure; and the geographic focus and Beijing-based management allow AT&T China to make decisions close to the customer."⁶²

AT&T China is the first instance of AT&T applying a global and yet local strategy, which means investing significantly at the local level in China to make AT&T a more global company. Its new management structure stimulates unit managers to think about combining resources for customer solutions.⁶³ Unlike usual corporate reporting procedure that go from field through regional business unit heads, to business units at AT&T headquarters in New Jersey, AT&T China reports directly to the AT&T Chairman. Since its formation, AT&T China, with its increasing presence and business in China, has embarked on building up its corporate infrastructure,⁶⁴ which requires functional expertise in manufacturing, logistics, purchasing, localization, quality control, marketing and sales, installation and maintenance, human resources, financing and financial management, business planning and development, and public relations in both China and the United States.⁶⁵

⁶⁰AT&T will transfer technology related to the design and manufacture of components to be made in China. But sources say management will proceed with caution, given concerns over such issues as the scale of JVs or the speed at which AT&T technology will be transferred.

⁶¹For example, AT&T Network Systems, AT&T Global Information Solutions, and AT&T Communications Services.

⁶²Warwick, "A Review of AT&T's Business History in China," 272.

⁶³Adapted from Warwick.

⁶⁴Ibid. AT&T China employed about 350 people in 1993, mostly Chinese nationals.

⁶⁵Revised from Warwick.

8.5.2 Alcatel

Alcatel of Belgium's flagship in China is the Shanghai Bell Telephone Equipment Manufacturing Co. Ltd. (Shanghai Bell for short). More than ten years of efforts since 1983 paid off remarkably well for the company:⁶⁶

- Sales revenues⁶⁷ since the mid-1980s reached RMB 14.28 billion yuan (U.S. \$1.7 billion), with a profit of RMB 4.64 billion (U.S. \$0.55 billion) realized. (Figures for 1994 were RMB 5.1 billion yuan [U.S. \$614 million] and RMB 1.5 billion yuan [U.S. \$180 million]. Sales per employee climbed in 1994 to U.S. \$410,000, exceeding the industrial average of the developed countries.)
- The tax contribution to China since the ten-year operation (1984-94) was RMB 1.89 billion yuan (U.S. \$230 million), five times the original investment made by the Chinese partner.
- A cumulative total of 10.37 million lines of S-1240 switching systems were manufactured by 1994, with over 9 million installed at 1,742 exchange sites across China. In 1994, 4.45 million lines⁶⁸ were produced, almost 15 times the preliminary planned production capacity of 300,000 lines per year. Since 1993, Alcatel switching systems produced in Shanghai have met over 40 percent of China's switching equipment needs.
- By 1994, 66.5 percent of the components for S-1240 switching equipment were made in China, lowering production costs by two-thirds.
- To honor Shanghai Bell's outstanding achievement, the government put the company first on its list of the ten best Sino-foreign JVs for five years running, on the basis of a national assessment of revenues, sales per employee, investment, tax contribution, and degree of domestic production and sourcing. Further, Shanghai Bell won awards from two Chinese business publications as one of the most successful JVs.

Shanghai Bell is a three-way U.S. \$28 million (initial investment) Sino-foreign JV.⁶⁹ The PTIC, the MPT's equipment manufacturing arm, holds a 60 percent share, while the venture's foreign ownership comes from a 32 percent holding by Alcatel Bell, Alcatel's Belgian subsidiary in Antwerp, and from the Belgian government, which holds the remaining

⁶⁶Adapted from *CTC News* 1, 15 (Aug. 20, 1995), 13.

⁶⁷Sales record: 1990, U.S. \$81 million; 1991, U.S. \$128 million; 1992, U.S. \$229 million. After-tax profit for 1991 was U.S. \$18 million. See Michael Westlake, "Millions Calling," *Far Eastern Economic Review* (April 8, 1993), 48.

⁶⁸One may speculate that this figure includes the output of Alcatel's Pudong plant.

⁶⁹The contract for this venture was first set to run from 1983 to 1998, then extended fifteen years, to 2013.

8 percent.⁷⁰ By 1993, Shanghai Bell had acquired U.S. \$100 million-worth of equipment and fixed assets.⁷¹

Apart from Shanghai Bell, other Alcatel subsidiary plants are in operation in Guangdong and Pudong. The Pudong plant,⁷² regarded as the world's largest switching manufacturer, was constructed in Pudong's high-tech development zone across the Huangpu River from Shanghai. The investment for the Pudong plant amounted to up to U.S. \$150 million, which is entirely financed by Shanghai Bell with no new equity added.⁷³ The Pudong plant was estimated to be able to turn out 4 million lines of digital switching systems per year by 1995.⁷⁴ If so, Alcatel will be able not only to serve a majority of the market needs in China (estimated at more than 10 million lines per year after 1995),⁷⁵ but also to make significant exports outside China.

As a multinational corporation, Alcatel is technically headquartered in the Netherlands, with operational control residing in France and individual corporate concerns or interests spread out in 110 countries. Its operating subsidiaries or branches in France, Belgium, Germany, Spain, and many other parts of the world all are in a position to compete with one another for business opportunities in China. Initiatives launched by different business units to enter China tend to twist the company's overall strategy and interests. To coordinate the activities of various business units, in 1993 Alcatel, like AT&T, established Alcatel China Ltd. in Beijing.

Commentary. Alcatel's success in China is due to the company's strategic vision, which has been translated into early entry, persistent efforts, emphasis on partnership, aggressive investment, technology strength, and localized manufacture with technology transfer. Alcatel has managed to build up a large-scale sales and service network in China and has worked hard to stabilize the software for its S-1240 system, its main product in China, which copes particularly well with peak loads. The S-1240 system is a very desirable feature for China, considering the country's heavy phone traffic is carried by a limited number of phone lines. Alcatel's E-12 and E-10 exchange systems, and its 1,000 System 12 digital stored program control (SPC) switches have also become very popular among Chinese customers.

⁷⁰Data from Jack Gee, "China's Telecom Boom," *Electronics* (Feb. 8, 1993), 11.

⁷¹Westlake, "Millions Calling," 49.

⁷²The contract for Pudong plant's lease is for fifty years.

⁷³Westlake, "Millions Calling," 49; also Jack Gee, "China's Telecom Boom," 11.

⁷⁴Gee, "China's Telecom Boom."

⁷⁵*Ibid.*

Financial incentive is another source of the advantage Alcatel enjoys. France has been among China's largest donors of bilateral aid, generous with concessionary financing for telecommunications purchases. This status favors Alcatel with access to government soft loans, which have significantly helped the company become involved in China and beat out competition from other international firms that do not benefit from government financial assistance. Alcatel subsidiaries elsewhere also have tapped the host governments of many countries for soft loans to break into the China market. Its Spanish subsidiary, Alcatel Standard Electrical, for instance, obtained nearly U.S. \$50 million from Madrid to sell SPC systems to Sichuan and Shanxi provinces in China.⁷⁶ Alcatel's Belgian subsidiary, the Bell Telephone Equipment Manufacturing Corporation of Belgium, in May 1993 won a U.S. \$60 million contract backed by the Belgian government with a loan of 250 million Belgian francs, to supply SPC digital long-distance switching and postal automation equipment to China's PTAC.⁷⁷

Further, Alcatel holds an important political advantage. Because of its multinational nature, Alcatel can present a neutral face in a given situation by picking an appropriate company from its repertoire to bid for sensitive contracts. For example, when China took action against the French government and French companies because France had sold Mirage fighters to Taiwan, Alcatel's JV operations and its equipment sales in China never became direct causes of concern. But such political neutrality can be threatened or compromised through no fault of Alcatel were China's actions against a particular European country to become part of a possible joint retaliation by the European Union (EU).⁷⁸

Problems Faced. Not all is rosy or easy with Alcatel. In 1986, a year after starting operation, Shanghai Bell encountered problems in marketing its S-12 technology, and the high costs of imports posed a heavy burden for the company. Bell then rang a negative value in 1987 in 1987. The next year saw a considerable turn: the company achieved the basic sales volume it needed to survive, and a price increase added to the positive tone of the year. Between 1989 and 1993, things became healthier, Shanghai Bell was able to pay 30 percent of its profits in dividends.

A qualified work force seems to be another problem for Alcatel. Experienced, motivated, well-trained engineers are increasingly difficult and expensive to find because of fierce competition from Siemens, NEC, AT&T, and others that have formed JVs with the Chinese for local manufacture of telecommunications equipment. Job turnover and job

⁷⁶Lincoln Kaye, "Long March from Chaos," *Far Eastern Economic Review* (June 4, 1992), 54.

⁷⁷Xinhua News Agency, May 18, 1993.

⁷⁸Point of view adapted from Michael Westlake, "Long Spoon Shortens," *Far Eastern Economic Review* (April 8, 1993), 48.

hopping for higher compensation have become frequent and common, forcing Alcatel to fight to retain its pool of human resources. The problem is compounded by Alcatel's need to expand rapidly: if demand were allowed to outstrip growth, competitors could muscle in and take over marketshare.

Expanded product options and possible substitution have begun to threaten Alcatel's established market position. Alcatel must continually improve its technological superiority and differentiate its products and services from those of the competition to maintain a firm hold in China. In its joint operations with the Chinese partners, it also faces the problem of illicit or unauthorized technology acquisition or transfer, which seems to be a hard fact of life for foreign companies.

8.5.3 Northern Telecom (Nortel)

Canada's Northern Telecom stands out as one of the top suppliers of PBX, CO-switching systems, and data-communications equipment in China. A leading global manufacturer of telecommunications equipment, its major products include network management systems, DMS digital switching systems, Meridian PBXs, Norstar key systems, digital cellular mobile telecommunications switches and radios, Companion wireless business, and public personal communications systems, Proximity digital wireless access products and a wide range of fiber-optic transmission and cable products.⁷⁹

Northern Telecom's extensive presence in China was established with many years of market-penetration efforts based on the management's strategic vision of China. Since its first sale in 1972, the company has intensely pursued the China market, with remarkable payoffs between the late 1980s and early 1990s, in the form of contracts for major sales and the establishment of manufacturing JVs. As an equipment vendor, Northern Telecom has conducted its China business through two different channels. Its public network equipment, including DMS systems and digital microwave radios, are sold directly to China's local PTAs and other enterprise clients, which run the public telephone networks. Private network products (e.g., PBXs), in contrast, are supplied through the company's JV sales forces and distribution channels, or by using the PTAs as sales agents. To strengthen its market position, Northern Telecom has set up several after-sale service centers in various parts of China.

After tough initial negotiations with China's MEI⁸⁰ and see-saw battles with Sweden's Ericsson for the right to become China's largest PBX manufacturer, in 1988 Tong Guang

⁷⁹In 1994 Northern Telecom generated revenues of U.S. \$8.9 billion. Its current work force is 57,000 worldwide (Canada Newswire, March 6, 1995).

⁸⁰The problems and concerns that occurred in these negotiation are used as in a Harvard Business School case study.

Nortel, Northern Telecom's flagship JV, was established in Shekou, Shenzhen, Guangdong province, with the China Tong Guang Electronics Corp., a business entity under the MEI. Northern Telecom owns 55 percent of the venture, while the MEI, through Tong Guang Electronics, indirectly owns the balance. The venture overcame problems and as of the mid-1990s was performing successfully. By year-end 1993 and 1994, it had installed 700,000 and 1 million lines, respectively, with profits at 10 to 12 percent of sales,⁸¹ beating Northern Telecom's corporate average. The initial U.S. \$6.5 million investment was expected to be repaid by 1994.⁸² Northern Telecom also operates JVs in Beijing, Shenyang, Xian, and Shunde. Its largest venture, Guangdong-Nortel Telecommunications Switching Equipment Ltd., undertakes R&D, design, manufacturing, sales, and service for Nortel's leading DMS SuperNode family of digital switching products.

Northern Telecom's notable business achievements in China include the following:

- On 1991, delivery of a 3,000-port packet switching network to the Guangdong PTA.⁸³
- In 1992, sale of data switches to provincial PTAs in Anhui, Fujian, and Liaoning; the initial configuration offered 8,000 access ports, which was doubled when the other provinces came on-line.⁸⁴
- In 1992, winning a U.S. \$9 million contract from the MPT to be the exclusive supplier of DPN-100 data-packet-switching equipment and software for installation in Beijing and other provincial capitals where the backbone of CHINAPAC, China's first nationwide data communications network,⁸⁵ was to be constructed.⁸⁶
- In June 1993 (three months after AT&T signed an MOU with the SPC), signed an MOU with the SPC in which Northern Telecom agreed to invest U.S. \$100 million over the next two years, in order to capture 10 to 15 percent of the switching market in China. The MOU laid the foundation for establishing manufacturing JVs.⁸⁷

⁸¹Sales in 1994 were predicted to grow by 40 percent to some U.S. \$55 million.

⁸²Data from Mark Clifford, "North Star over China," *Far Eastern Economic Review* (April 7, 1994), 50.

⁸³Xiaojie Zou, *Dialing into the China Market* (unpublished thesis, American University, Washington, D.C., August 1993), 40.

⁸⁴Bob Johnstone, "Great Leap Forward," *Far Eastern Economic Review* (April 8, 1993), 57.

⁸⁵Two heavy users of CHINAPAC are the Bank of China and the Ministry of Energy. The bank plans to use the network for internal and external transfers of funds and to hook up its nationwide automatic teller machines at different branches.

⁸⁶Johnstone, "Great Leap Forward," 57.

⁸⁷Nortel News Release, June 18, 1993.

- In 1993, installed Meridian SL-1 PBX systems, which have a very large institutional customer base, such as the China National Petroleum Corp., the Ministry of Foreign Affairs, and the Capital Steel and Iron Co.⁸⁸
- In 1993 formed a JV in Guangdong to undertake production, marketing, sales, and service of the DMS SuperNode switching system products.⁸⁹
- In July 1994, established an advanced telecommunications research center on the campus of Beijing University of Posts and Telecommunications as one of Northern Telecom's joint research initiatives in China.⁹⁰
- In roughly 1994-95, set up two VLSI circuit JVs in Shanghai to design, manufacture, and supply ICs⁹¹ for Northern Telecom's DMS manufacturing JV in Guangdong and other electronic manufacturers in China.
- In 1995, awarded contracts worth U.S. \$50 million by the Jilin, Yunnan, and Chongqing PTAs for the purchase of DMS digital switching systems (CCS7 standard) to support operations of 500,000-subscriber capacity networks in three areas.⁹²
- In 1995, signed an agreement to set up the Shenyang Nortel Telecommunications Corp., a JV with Liaoning Posts and Telecommunications Scientific Research Institute to produce high-capacity SDH transmission systems for voice, data, and video communications. Northern Telecom will invest some U.S. \$6 million for a 55 percent stake in the venture, and the Chinese partner will hold 45 percent of the ownership.⁹³

Whys and Wherefores. A number of factors have contributed to Northern Telecom's success in China.

First and foremost has been the recognition by Northern Telecom's management that China is the company's largest overseas market, so that a future-oriented strategic commitment should be made by all means. This commitment has been uniquely expressed by Arthur MacDonald, Chairman of Nortel China:

Northern Telecom's strategy is to be a full member of the Chinese telecommunications supplier market. When we go into it, we try to bring the whole depth of our organization to that market. The Chinese

⁸⁸Ibid.

⁸⁹"China's Leading Telecoms Organizations Award Network Expansion Contracts to Northern Telecom," Canada Newswire, March 6, 1995.

⁹⁰*Financial Post*, April 1, 1995.

⁹¹Ibid.

⁹²"China's Leading Telecoms Organizations Award Network Expansion Contracts to Northern Telecom," PR Newswire, March 6, 1995.

⁹³"Northern Telecom Signs Deal with China," *The Financial Post*, Jan. 21, 1995, 1-22.

are trading market access and share for technology transfer. We are committed to helping them with that. Our goal is to extend advanced telecommunications services throughout China. In time we want to develop technology in China for the global market.⁹⁴

Northern Telecom's experience indicated that foreign players will be in a better position for business success in China if (a) they offer products superior in quality, performance, and function; (b) they are willing to share state-of-the-art technology; (c) they are competitive in price and service; (d) they obtain support from both home and host governments; and (e) they take soft approaches to building trust, developing relationships, and adapting to Chinese business culture.

Second, Northern Telecom has been one of few global telecommunications companies that possess the most advanced and comprehensive technological competence and advantages in the manufacture of telecommunications equipment and network systems. In addition, the company's management sees sharing its technology with China in the course of localized manufacturing and development as in its own best interest.

The third advantage Northern Telecom has enjoyed over its rivals is that, uniquely for a western company, many of its technical and management staff come from the Chinese ethnic background. More than five hundred of its researchers (about 10 percent of the total staff) at Bell Northern Research, the company's R&D wing, are ethnic Chinese. Northern Telecom also has three ethnic Chinese vice-presidents in leading positions, plus quite a number of senior- and middle-level managers with a Chinese background. These people have proved to be uniquely valuable and effective when approaching Chinese customers who have the identical language and culture.⁹⁵

⁹⁴*The Financial Post*, April 1, 1995.

⁹⁵Adapted from Johnstone, "Great Leap Forward," 57. This unique advantage also poses a unique disadvantage. For instance, many Chinese staff members are often bewildered by the company's management styles and practices.

Chapter Nine

Legality in Concept and Practice in China: Implications for Telecommunications Regulation

Law, as it is generally defined, is a system of formalized rules or statutes with specified rights and obligations assigned to the state and individuals to regulate their behavior, conduct, and interrelationships in order to achieve impartial equality and justice in a particular society. Legally specified rights are inherently bound up with legally specified obligations for all individuals in a society, regardless of ethnic or racial background, social position, or possessions, wealth, or power. Law in a particular society is associated with culture, history, tradition, and existing political and economic status. That is, no law exists in a sociocultural or political vacuum. The enactment, enforcement, and evolution of any legal authority always takes place within the context of a particular society.

An understanding of Chinese concepts of legality has great relevance to China's telecommunications, and to other business and industrial enterprises, because of the lack, in this sector for example, of an adequate regulatory structure. As of April 1996, no codified law was yet in place that could uniformly regulate the telecommunications industry.

9.1 The Chinese Concept of Law

A nation with thousands of years of recorded civilization, China has been distinguished by its preoccupation with its history and tradition. The Chinese concept of law, both official and popular, is a synergetic reflection of Chinese cultural values, political tradition, and philosophy of life. During its long history in China, law, designated by *fa*, has embodied the following conceptual framework:¹

1. Law possesses the defining qualities of bureaucratic regulations that are positive and public qualities of bureaucratic regulations, but it is not meant to be a neutral force among conflicting values or social interests, nor autonomous in any substantive, institutional, methodological, or professional sense.
2. Law arises from the human will, rather than from any pattern underlying the reciprocities of the people's social lives. It is of the government, by the government, and for the government to harmonize social relations and maintain social order.
3. Law may be as general or particular as the policy objectives of the government require: no clear distinction is intended between legal rules (law) and administrative commands (policy); no need is specified for the profession of lawyers, as distinct from

¹Roberto Unger, *The Chinese Case: A Comparative Analysis, Law in Modern Society*, 102-105 [course handout].

policymakers. Agencies that apply the law may, by and large, be the same ones responsible for executing government policy.

9.2 Chinese and Western Legal Concepts: Fundamental Discrepancies

In many western countries, legal systems embody concepts of natural rights, social contract, equality, democracy, separation of powers, and representative government as cornerstones. Liberal constitutionalism rests on the general theme that civil liberties should be safeguarded against the government's abuse of power, which is regarded as a potential danger so that power must be carefully defined, limited, and regulated by law (including the constitution and other law). Thus, the law stands above the government, the government is itself subject to the law. Official power holders derive their power from the law, and they must exercise that power in accordance with the law. Because the constitution is the fundamental law and provides the basic structure and defines the basic powers of government, it holds the highest authority. These concepts make it self-evident that a separation of powers, among the legislative, executive, and judicial branches of government, as well as free electoral competition for political power among different political parties are necessary, as is a system of checks and balances among the different political players.

China, in contrast, bases formal legality of governance on the belief that a nation should be ruled by internalized, often coercive moral forces² and that the virtuous men (elite) of a nation, who are in a position to rule, are merely the delegates and enforcers of these forces; this reflects a different concept from that of the western world, both of formal authority and substantive content.³ A legal system, therefore, is more of a means, a representation, and a realization of "rule of men" than a "rule of law,"⁴ or, put another way, an instrumentation of virtuous men to achieve political legitimacy.⁵ Law, whether constitutional or otherwise, in reality does not command as a source of authoritative supremacy. The central government should act as the sole interpreter and guardian of the interests of the people and of the nation, particularly when conflicts arise between the actions and decisions of the government and the formal requirements and procedures prescribed by law.

²These forces may include benevolence, righteousness, propriety, wisdom, fidelity, and good conscience.

³According to Barrett McCormick, "the fundamental difference between the two legal systems is that whereas Chinese law is primarily a tool of state power, American law protects a margin of relative social autonomy" (*Political Reform in Post-Mao China: Democracy and Bureaucracy in a Leninist State* [Berkeley: University of California Press, 1990], 126).

⁴The traditional Chinese vision is that the ideal ruler of a country is a man of perfect virtue, who not only governs his own conduct by moral principles but also inspires the people to do likewise. When moral principles are internalized within all people, law is no longer needed to ensure a tranquil society. When law must be resorted to, it is a sign that society is breaking down.

⁵Legitimacy here indicates the government's mandate to exercise political authority.

9.3 Realization of the Chinese Concept of Law

As a direct “brain child” of the Chinese traditional concept of law, two systems operate side by side to manage Chinese society today. One is an externally constructed, formalized legal framework, which defines, often in a political sense, what is permissible and what is not. Specific rules built on this framework are enforced through government organizations⁶ at different levels. The second system, intangible but more powerful, consists of socially accepted values and norms that define and regulate the behavior and conduct of all members of the society. Compliance with this system is realized through an internalized process of socialization.

Chinese traditional views on law have found expression in current social, political, and economic life, such as in the following:

- Avoiding the use of law tends to be a norm for many individuals and institutions in regulating business, civil, and interpersonal relations. Justice and legitimacy are more likely to be determined by mediation, conciliation, or compromise with reference to social values, informal guidelines, local customs, or political authorities, rather than by a formal process of legal remedy or settlement.
- The pervasive idea is that of the rule of men—wherein enlightened and conscientious officials rule well under the supervision of vigilant, concerned masses, educated and willing to speak up whenever impropriety is seen, and in this way society operates smoothly and individuals are well protected, thus a Chinese version of democracy.
- Justice, equality, and civil obligations are interpreted in the form of enforcement of state policy, ideology, and intrusion, subject to the government’s changing positions.
- Legal rules and government policy or regulation are often seen as equivalent or made without adequate difference and clarity, which causes confusion and ambiguity.
- Law is perceived by the general public as an instrument of the government used to crack down on criminal acts or to settle disputes, not as a mechanism to protect individuals or as a system of checks and balances for social forces.
- Independent legal processes are virtually nonexistent. All legal decisions are influenced or controlled by government policies.⁷

⁶In contemporary China, the institutions that enact and enforce laws are virtually government agencies.

⁷The intimate relationship between government implementation of policy and legal action is indicated by repeated campaigns launched by the CCP in which all local party organs and government were urged to redouble their efforts to join with judicial departments to maintain and enhance justice, law, and order, to prevent and fight crimes, and to build a strong law enforcement function. Besides, the central government and local authorities have joined in mounting movements to strengthen the legal system by issuing new laws, approving new law offices, and popularizing knowledge of various laws.

Despite these views and attitudes, the Chinese political tradition of law has been challenged since the 1980s by an emerging public reverence for the rule of law, which has called for the establishment of a set of generally applicable principles to regulate the government and the people it governs. However, the legal system under development continues to function subservient to political needs, and legality continues to be viewed as a source of government legitimacy: political authorities often justify their positions and actions by proclaiming adherence to the rule of law, although such adherence offers little or no limit to the government's power. Government doctrine and policy are reflected in the texts of laws and judicial decisions, and the Party remains the final arbiter of power relationships in China.

Inconsistency regarding the role of law is an important issue, representative of China's conflict between the rule of men and the rule of law. The mass campaigns frequently used to consolidate political power and to attack perceived opponents have, time and again, undermined effective enforcement of formal rules that express policies intended to reinforce central control, and such campaigns have held off efforts to establish legal rules and institutions to apply law objectively and uniformly. Factors contributing to this inconsistency are: (a) a fundamental ambivalence within the Chinese political leadership toward a functionally differentiated legal system; (b) the close relationship between law and policy, a pattern inherited from past political doctrine; and (c) frequent changes in government policies themselves, which largely influence the drafting and substance of laws.⁸

Since the 1980s, progress has been made, with the 1982 Constitution and through a number of new laws enacted into the Chinese legal system. The 1982 revision of the Constitution states that all citizens are equal before the law,⁹ a reflection of the regime's adapted view that, subject to regulations, all individuals have equal access to civil and political rights. The 1981 Economic Contract Law provided that contracting partners enjoy equal rights, a departure from prior policies, whereby, pursuant to the state economic plan, transactions were between hierarchically unequal parties. The General Principles of Civil Law expressed the regime's doctrinal assumptions about equality by ascribing various rights universally to all natural persons, regardless of organizational, family, or class status. And the Administrative Litigation Law permitted any citizen, regardless of class background, to file a suit challenging the legality of a wide range of decisions by Chinese administrative agencies.¹⁰

⁸Adapted from Pitman B. Potter, "Riding the Tiger: Legitimacy and Legal Culture in Post-Mao China," a handout based on a paper presented at the International Conference on Values in Chinese Societies, Center for Chinese Studies, Taipei, May 23-26, 1991.

⁹This dictum had its origins in the 1954 Constitution but was deleted from the 1975 and 1978 Constitutions.

¹⁰Litigation against law enforcers in China is almost unheard of. But change has begun. For instance, the Dow Jones News Service reported (Feb. 6, 1995) that the Beijing Court agreed to accept a dissident's lawsuit against the police department for detaining the dissident longer than legally allowed without providing sound reasons. This

Contradictions remain, however. Assumptions about legal equality have not shifted the power structure from Party dominance to supremacy of law nor displaced political hierarchical relationships. The constitutional grant of legal equality is qualified by the provision that the exercise of citizens' rights and freedoms must not infringe on the interests of the state. These interests are coterminous with the interests of the Party, which leads to the exercise of "people's democratic dictatorship" under which the state operates.¹¹ The revised Constitution requires judicial institutions and personnel to defer to the Party and to suppress challenges to Party domination. Similarly, the Administrative Litigation Law permits no judicial review of decisions by Party organizations. Cases of legally defined misconduct or wrongdoing involving Party officials are usually handled with flexibility and discretion through the Party's discipline inspection system; sanctions under the criminal justice system apply only after the Party leadership agrees on them and decides to authorize them. This means there is a double standard, that is, a separate standard for Party officials, which appears to run counter to substantive notions of fairness.¹²

Contradictions surface also in economic relations. Newly enacted laws¹³ have expressly introduced a reduction in state intrusion into economic activities and permitted to private parties composed of either natural or legal persons outside the state plans a greater autonomy in contracts and property relationships, subject mainly to private rules as a component of civil law. The basis for the legal validity of such transactions is the constituencies of the economic activity involved and the legal capacity, not the subjective identity (that is, title or position, official or unofficial, public or private) of the parties concerned. But because commercial contracts are still treated under the same laws as a component of economic law, they are unavoidably subject to state regulations. Both the Economic Contract Law and the Principles of Civil Law provide that private commercial transactions may not be conducted in conflict with state policies or interests, including state economic plans.¹⁴ The government also retains practical control over economic entities and their commercial transactions through approval and registration by local offices of the State Administration for Industry and Commerce and through official regulation of profit or price levels.

was the first time a Chinese court agreed to handle a suit against the police.

¹¹See Peng Zhen, former Chairman of the People's Congress of China, "Report on the Draft of the Revised Constitution of the People's Republic of China," 75-77.

¹²For example, in September 1995, Chen Xitong, former mayor of Beijing and member of the Party's Central Committee Politburo, was stripped of these positions because of alleged corruption involving embezzlement of U.S. \$35 million in public funds, but he was spared a criminal trial and penalty.

¹³Mainly, the Economic Contract Law and the General Principles of Civil Law.

¹⁴See Economic Contract Law of the PR China, Articles 1, 4, and 7; General Principles of Civil Law, Article 6.

9.4 Institutions in China's Legal Infrastructure

9.4.1 The Chinese Communist Party (CCP)

The Chinese Communist Party is the most influential political body in China, and its dictates are determinative at virtually every level of Chinese government. The largest organ of the Party to make policy is the National CCP Congress, which elects the Central Advisory Commission, the Central Commission for Discipline Inspection, and the Central Committee. The Central Committee elects the Politburo, which in turn controls the Politburo Standing Committee and the Secretariat. Under the Central Committee are various commissions, such as the CCP Central Military Commission.¹⁵ organizations exist from the central, provincial, down to grassroots levels. The CCP's omnipotence and omnipresence are usually defined by the Constitution or other statutes as political and ideological guidance, but the CCP has de facto control over the entire state apparatus. The CCP's engagement in legislation takes four forms: (a) preapproval of draft laws, (b) involvement through the its Central Political-Legal Leading Group, (c) organizational control over key appointments for legislative organs, and (d) control or influence over meeting agendas or the general tone of legislative debate.

9.4.2 The National People's Congress (NPC)

The NPC is, in theory, the highest body of legislative and governmental power in China. It has the authority to propose bills, amend the Constitution, and enact "basic laws" that deal with criminal offenses, civil affairs, and state organs.¹⁶ The Standing Committee of the NPC has the authority to enact or amend basic laws when the NPC is not in session as well as to promulgate or amend other laws. Under the NPC are four other important bodies: the State Central Military Commission, the Supreme People's Procuratorate, the Supreme People's Court, and the State Council.¹⁷ Interpretation of the Constitution is constitutionally entrusted to the Standing Committee of the NPC, although the responsibility for actual interpretation of laws is divided among the Standing Committee, the Supreme People's Court, the Supreme People's Procuratorate, and the SC, depending on whether the law in question requires "legislative," "judicial," or "administrative" interpretation, respectively.¹⁸

¹⁵There is another military commission, under the National People's Congress, called the Central Military Commission of the People's Republic of China; neither the function of nor the relationship between these two military commissions is clear.

¹⁶As of 1994, six major codes were considered included as basic laws: the Criminal Law, the Civil Code, and the Administrative Code, as well as the accompanying procedural codes for each.

¹⁷Theoretically, the SC is an executive body of the central government under the NPC, but the rule rather than exception is that the SC holds more power than the NPC.

¹⁸Perry Keller, "Legislation in the People's Republic of China," *University of British Columbia Law Review* (Vancouver) 23 (1989), 653, 660-661.

9.4.3 The State Council

The State Council is the executive branch of the central government. It oversees the administration and policy decisions of about sixty ministries, commissions, bureaus, and offices. The premier and five vice-premiers usually also hold seats on the Standing Committee of the Politburo of the CCP. Under the Constitution, the SC is authorized to issue administrative rules, regulations, directives, or orders concerning domestic and international affairs. It refers drafted laws to the NPC and its Standing Committee for adoption. Since 1982, the SC has enjoyed greater freedom, granted by the NPC, to promulgate temporary legislation on issues of economic reform and other domestic matters. It has even acted as both a key drafter of most NPC-promulgated laws and a promulgator of many national regulations without submitting them to the NPC for consideration. Because of the significant overlap in the membership of the SC and the CCP, the CCP can directly control the content of various regulations or laws initiated or passed by the SC.

9.4.4 The People's Courts

The People's Courts consist of a hierarchical structure of judicial organs that are generally divided into five levels: descending from the top, there are the Supreme People's Court, the Higher People's Courts, the Intermediate People's Courts, the Basic People's Courts, and the Special People's Courts.¹⁹ Each level has its own jurisdiction and serves as a trial court within its competence.²⁰ The Supreme, Higher, and Intermediate People's Courts also serve an appellate function. The Special People's Courts have responsibility for a variety of special matters, such as political cases, military discipline, and industrial or business disputes.

9.4.5 The People's Procuratorates

The hierarchical structure of the People's Procuratorates is similar to that of the People's Courts, that is, descending from the top there are the Supreme Procuratorate, the Higher, Intermediate, Basic, and Special Procuratorates. Their roles are somewhat analogous to the public prosecutor's offices in common-law countries: they have responsibility for approving arrests and investigating and initiating prosecutions. Public security organs, such as police and surveillance units, which parallel the procuratorates at different levels, are responsible for arrests and detentions.

¹⁹See *China: Facts and Figures—Legal System* (Beijing: Foreign Languages Press, 1982).

²⁰Chinese trials differ from Western trials in two fundamental ways: no jury operates at trials in China, and most trials are not open to the public. Further, trials are often influenced by particular government policies at particular times.

9.4.6 Legal Offices and Staffing

Independent attorney offices are virtually nonexistent in China, because all legal organs are components of the government, which controls or supervises their activities. The number of judges and lawyers is surprisingly small,²¹ and many judges and lawyers are not well trained.

9.5 Conflicts in China's Law-Making Processes

There are three major systems in Chinese legislative processes: the CCP central apparatus, the SC, and the NPC system, but the exact demarcations between the legislative processes of each and the power relationships among them are not clearly defined, either formally or informally, even to those who live and work inside them. Power resources within the systems are more fragmented than integrated among the various power holders and bureaucracies involved in law-making. Whether a given policy issue will be addressed by a policy document drafted in the form of a law or as any other type of formalized official material affects the balance of power among the people or organizations involved.²² The intensity and configuration of powers varies from stage to stage and from arena to arena, in the whole process of making a law. The actors involved will try to steer key legislative proposals toward whatever they have the greatest influence and stakes. Often all three political systems try to become involved so that each can attempt to expand its sphere of power and influence in promulgating new laws, because Chinese law gives only the most general guidance on questions of who should promulgate what legal documents in various circumstances.

The CCP exercises leadership over legislation mainly through three channels, the power of veto in preapproval, the functions of the Central Political-Legal Leading Group, and the personnel appointment system, which controls the leading membership of both the NPC and the SC, plus the Party group system within the NPC and its Standing Committee.

Most draft laws must undergo preview by the CCP, which means the draft must be approved by the CCP's Politburo or Standing Committee and other relevant senior leaders. But this process tends to examine only the guiding principles, justification, and the most basic content of the draft law, not its detailed legal clauses. The point of this process is to make sure the draft law's basic thrust is in line with the general direction of current Party policy.

²¹One report estimated that in 1986, there were about 3,200 legal advisory offices in China with a total of 21,546 "legal workers" staffing them. See Colin Mackerras, *The Cambridge Handbook of Contemporary China* (Cambridge, Eng.: Cambridge University Press, 1991), 69.

²²Based on Murray Scot Tanner, *The Politics of Law-Making in Post-Mao China*, Harvard Law School, 1991 [unpublished], 57.

Since the late 1980s, the Party's Leading Group has focused primarily on social-order issues (criminal law enforcement) and on resolving bureaucratic and personnel disputes between major ministries and committees, a focus due in part to the Group's relatively small staff and in part to the expanding roles of the NPC's permanent staff and the SC's Legislation Bureau, which have made it less necessary for the Leading Group to be directly involved in law-making.

The most effective control, however, appears to be the CCP's personnel appointment system, a method of maintaining the Party's dominance over the NPC and SC and of preventing them from diverging from Party principles and values. The appointment list, usually approved by the CCP's Politburo, includes all members of the NPC Standing Committee and the Party group within the Standing Committee, as well as the top officials of all NPC special committees and their Party core groups.²³

The NPC has often been regarded as a rubber stamp in law-making, but the years since 1993-96 have brought significant change. Economic reform in China has challenged not only the existing economic system but also the conventional political and legal systems. Since the 1980s, the NPC has come more than ever before to seem distinctly a legislative institution. Compared with the SC and the CCP, it has a different configuration of power in legislative activities. Its Legislative Affairs Work Commission, like the SC's Legislation Bureau, enjoys a growing freedom in deciding which laws to place on its priority agenda and which not to. NPC delegates have been able to debate and criticize legislation put before the NPC by the Party and the SC, which is often an important element in creating a political mood to pressure the Party and the SC to amend their policy proposals. The NPC seems also to have obtained the power to amend or alter the content of laws if necessary, and it plays a central role in brokering final compromises on the passage of legislation.²⁴

In theory, the SC is empowered to adopt administrative measures, rules, regulations, and orders in accordance with the nation's Constitution and laws, as well as to promulgate temporary legislation on some state affairs. In reality, the policy content of most Chinese laws is determined or drafted by the SC, not by the Party or the NPC. And the most significant and intractable political process affecting legislative content is the bureaucratic politics of interagency or interministerial review. Because of their vast resources and organizational strength, various commissions, ministries, and think-tanks under the SC maintained dominance over the content of legislation.²⁵ Each of these organizations, with its own stake in legislation, usually has made every effort to safeguard or expand its own sphere of interest

²³Ibid., 63.

²⁴Ibid., 88.

²⁵Ibid., 58.

and influence by advocating or denying a new law,²⁶ and in consequence interministerial disputes drafting of redundant, overlapping, or contradictory legislation has seemed unavoidable and the SC has had to set up a special authority, such as the Legislation Bureau,²⁷ to coordinate interministerial legislative processes.

Improper ministerial orientation is generally designated "departmentalism," which is marked by a narrow focus of ministerial goals or missions, unwillingness to coordinate legislative proposals with other concerned offices, and a lack of clearly delineated authority to resolve interministerial disputes at lower levels.²⁸ Aside its efforts to resolve interministerial disputes, the Legislation Bureau compiles annual and long-range legislative plans and drafts implementing regulations for laws already adopted for enforcement. As defined by former and current premiers of the SC,²⁹ the Bureau is a summarizer, arbiter, and presenter of draft laws to the SC Standing Committee.

9.6 Implications for Telecommunications Regulation

China largely remains a nation of bureaucratic control, not of consolidated legality. The vulnerability of its legal framework is revealed by the lack of effective mechanisms for law-enacting and enforcement and by the confusion of legislative involvement the Party, the NPC, and the central and local governments. The relationships among the Party's policy documents, the SC's regulations and directives, the statutes and orders promulgated by the NPC, and the administrative regulations issued by ministries and commissions is hardly clear, and their legal binding power is only vaguely defined. The practical legitimacy of who should rule what has often proved a critical issue, even though in principle the Party is entitled to exercise overall leadership.

These Chinese legal concepts and realities explain why the MPT, although officially granted a combination of functions as regulator, operator, law drafter, and enforcer for

²⁶The process and tactics employed by different ministries or commissions to lobby the Legislation Bureau and to get preferred laws placed on an annual legislative plan can be described as follows: The ministries or commissions send the chiefs of their legal bureau to the Legislation Bureau to try to convince it of the vital nature of the proposed laws. They argue that if the proposed laws are not considered and passed in that particular year, social activity in the particular location would be ungovernable. If this argument does not work, then they most likely manage to see some senior leading officials—usually members of the Politburo or the SC Standing Committee—to request them to write a commentary in support of drafting the laws desired (revised from Tanner, *The Politics of Law-Making in Post-Mao China*, 69).

²⁷The Legislative Bureau usually consists of several liaison offices that link the different ministries or commissions with the judicial system.

²⁸In general, Chinese ministries or commissions lack authority to issue binding orders to other ministerial units of comparable rank or to resolve disputes among them. China also lacks a system of administrative law to help delineate proper ministerial authority (Tanner, 65, 91).

²⁹Namely, Zhao Ziyang and Li Peng.

telecommunications, has been unable to submit a draft telecoms law to the NPC for review and approval. The MPT has designated one of its departments, called the Department of Policies and Regulations, to take responsibility for drafting telecoms law,³⁰ and a few versions of the law were indeed drafted but were then put aside in cold storage before being sent to the Congress. Why? One reason is that, as a ministry under the SC, the MPT is undoubtedly involved in the interministerial rivalries and disputes concerning organizational interest when proposing laws or regulations for adoption. The drafted telecoms law was rejected by some politically influential ministries or individuals, either because some of its provisions went against the principal interests of non-MPT organizations or because it gave too much advantage to the MPT. For a newly drafted law to get over different bureaucratic hurdles, it must in the first place have the blessing of the SPC and the senior leadership, and then it must pass the review by many government organizations, such as the MR and MEI, that have a significant stake in telecommunications. Resistance, arising for whatever reasons, in this complicated process can suspend or kill a draft before it receives formal legislative consideration.

In 1993, the MPT's Department of Policies and Regulations prepared a draft telecommunications law, the first statute to regulate China's telecommunications industry, in an attempt to clarify and reform the five areas of the MPT's functions. The draft law had several objectives:

1. To divide postal services from telecommunications sectors
2. To separate regulatory and management functions
3. To define and clarify the MPT-controlled basic services and non-basic services to be opened to market competition
4. To establish a good relationship between the MPT's public networks and non-MPT private networks, and to establish regulations of their service operations
5. To establish regulations for consumer protection

This draft was to have been submitted to the NPC for debate and approval in early 1994, but to date it has somehow been suspended: as of April 1996, no codified law was yet passed to uniformly regulate China telecommunications. The country's telecommunications industry operates simply under a mix of policies or directives issued by the SC, the SPC, or the MPT. This lack of a legally powerful mandate has often created loopholes for different

³⁰It is said that MEI also set up a telecom studies group in March 1995 to help draft China's telecoms law.

players to bypass the MPT regulations. Rule of exception,³¹ as the name indicates, has led to inconsistent approval of telecoms business ventures involving political constituencies outside the MPT. The lack of legally effective guidelines for network interconnection has made financing and technically regulating and coordinating different network operators and service providers exceptionally difficult for China on a viable and impartial basis.

³¹"Rule of exception" here means that some MPT regulations often are ignored or ineffective, because some ministries or telecoms enterprises can manage to go around these regulations and make business deals without following them.

Appendix

Organizations That Sent Compliments to China Unicom

China Domestic Entities (120)

State Planning Commission	The Office of Beijing Municipal People's Government
State Economic and Trade Commission	The Office of Hubei Provincial People's Government
State Commission for Economic Restructuring	Beijing Commission for Science and Technology
State Science and Technology Commission	Bank of China Beijing Branch
State Commission for Science, Technology and Industry for National Defence	Bank of Communications Beijing Branch
Ministry of Electronics Industry	China Pacific Insurance Co. Beijing Branch
Ministry of Electric Power Industry	Beijing CATCH Communications Group Co.
Ministry of Railways	China Everbright International Trust and Investment Corp.
Ministry of Posts and Telecommunications	China Huaneng Group Co.
Ministry of Personnel	China Resources Group Co. Ltd.
Ministry of Labor	China International Trust and Investment Corp.
Ministry of Coal Industry	China National Chemicals Import and Export Corp.
Ministry of Machinery Industry	China Merchants Holdings Ltd.
Ministry of Water Resources	Shanghai Scientific and Technic Investment Co. Ltd.
Ministry of Forestry	Guangzhou United Telecommunications General Corp.
State Radio Regulatory Commission	China Foreign Economy, Trade, Trust and Investment Corp.
State Statistics Bureau	China (Fujian) Foreign Trade Centre Group
China National Tourism Administration	China National Technology Import and Export Corp.
National Meteorological Bureau	Dalian Vastone Telecommunications and Cables Co. Ltd.
National Bureau of Oceanography	Anshan Iron and Steel Co.
National Seismological Bureau	Wuhan Iron and Steel (Group) Co.
State Administration for the Inspection of Import and Export Commodities	Capital Iron and Steel Co.
China Aviation Industries Corp.	China National Instruments and Meters Import and Export Corp.
China National Space Industry Corp.	Daqing Petroleum Administrative Bureau
China National Nonferrous Metals Corp.	Qinghua University
State Development Bank	Information, Science and Technology Institute of Qinghua University
Industrial and Commercial Bank of China	Qinghua Ziguang (Viobright) Group
People's Construction Bank of China	China National Petroleum Corp.
Import and Export Bank of China	Telecommunications Branch
Fujian Provincial People's Government	Petroleum Pipeline Bureau of China
Shandong Provincial People's Government	Siemens Shanghai Mobile Communications Ltd.
Guizhou Provincial People's Government	Beijing International Exchange System Corp. Ltd.
Jiangsu Provincial People's Government	Nanjing Fujitsu Communications Equipment Co. Ltd.
Liaoning Provincial People's Government	Shanghai AT&T Telecommunications Equipment Co. Ltd.
Hunan Provincial People's Government	Guangzhou Electronic Technology Garden Development General Corp.
Gansu Provincial People's Government	
Hebei Provincial People's Government	
Yunnan Provincial People's Government	
Guangzhou Municipal People's Government	
Wuhan Municipal People's Government	
Anshan Municipal People's Government	
Dongtai Municipal People's Government	
Dalian Municipal People's Government	
China Pacific Insurance Co.	

The Electric Engineering Research Institute of China Academy of Sciences	China Xingnan Corp. (Group)
The Electric High-tech Co. of China Academy of Sciences	The Telecommunications Dept. of Dongfeng Auto Co.
Qingjiang Hydraulic Power Development General Corp. of Hubei Province	Jitong Communication Corp. Ltd.
Shenzhen Vastar Enterprises Corp.	Caihong Electronic Group Corp.
China National Post and Telecommunications Industry Corp.	Zhongshan Group
China National Telecommunications Construction Corp.	Jinfeng Telecommunications Co. Ltd.
China National Post and Telecommunications Appliances and Equipment Corp.	No. 7 Research Institute of the Ministry of Electronics Industry
Beijing Designing Institute of Ministry of Posts and Telecommunications	Sanchan Industrial Co. of the Ministry of Electronics Industry
China Electronics and Information Industrial Group Corp.	Zhongshan Radio Factory
China National Electronics Import and Export Corp.	China Federation of Power Enterprises
China Great Wall Commuters Group Corp.	National Power Dispatching and Communications Center
China Hualu Electronics Group	China North China Power Group
China Electronic Industry Shenzhen General Corp.	China Central China Power Group
China Pushi Electronics Co. Ltd.	China East China Power Group
Shandong Weifang Huaguang Electronic (Group) Co. Ltd.	China Northeast China Power Group
Sichuan Changhong Electrical Equipment Co. Ltd.	China Northwest China Power Group
China Telecommunications System Engineering Co.	China Southern Power Group
Beijing Bridge Electric Technology Co. Ltd.	China National Railway Engineering Corp.
	China National Railway Construction Corp.
	China National Railway Engines and Carriages Industrial Corp.
	China National Railway Materials Corp.
	China Civil Engineering Corp.
	China Railway Telecommunications and Signals General Corp.

Foreign Entities (66)

Amerida, Inc.	ITI Electro Optics Corp.
Alcatel	Itochu Corp.
Amnet	Intel Corp.
Anderson Consulting	Japan-Asia Exchange Association
AT&T China	London Export Co. Ltd.
Barclays de Zoete Wedd (Asia) Ltd.	Matrubeni Corp.
Bear Stearns	Matsunaga International Ltd.
Bell Canada Inc. (BCI)	Mitsui and Co. Ltd.
Bellsouth Corp.	Motorola Inc.
Capitel International	Morgan Stanley Asia Ltd.
Canac/Microtel	NEC Corp.
CentralNa Inc.	Nextel
Champion Technology Holdings Ltd.	Nippon Telegraph and Telephone Corp. (NTT)
Chia Tai Group	Nokia Corp.
China Satellite Launch Agents (HK) Ltd.	Northern Telecom
Comsat International Ventures	NYNEX
Dassault Automatismes et Telecouncation	Pacific Century Group Hong Kong
DDI Corp.	Qualcomm
Deutsche Bundespost Telekom	Southwestern Bell
Digital Microwave Corp. (DMC)	Samsung electronics Co. Ltd.
ECI Telecom	Siemens AG
Ericsson (China) Co. Ltd.	Smith Barney Asia Inc.
France Telecom	SONY
Fujitsu Ltd.	Sprint China
General Electric (USA) China Co.	Singapore Telecom International
GPT (Exports) Ltd.	Techno Factor (Development) Ltd.
GTE Corp.	Telstra
Harris Semiconductor	The Traveller Insurance Co.
Henderson (China) Investment Co. Ltd.	Tomen Corp.
Hitachi Ltd.	Tricom Telecom Ltd.
Hongkong Telecom CSL	U.D.I. Ltd.
Hughes International Corp.	Uniden Corp.
IBM Corp.	
IRI-STET Group Italy	

Acronyms

AID	Agency for International Development
AMPS	advanced mobile phone service
AMT	Asia Mobile Telecommunications
AP	Associated Press
ATM	asynchronous transfer mode
B-ISDN	broadband ISDN
BLO	Build-Lease-Operate
BOT	Build-Operate-Transfer
BTO	Build-Transfer-Operate
CATV	cable TV
CCC	China National Communications Construction Corp.
CCCCP	Central Committee of the Chinese Communist Party
CCP	Chinese Communist Party
CDMA	code-division-multiple-access
CEO	chief executive officer
CERNET	China Education and Research Network
CESEC	China Electronics Systems Engineering Co.
CHINADDN	China Public Digital Data Network
CHINANET	China's nationwide Internet network
CHINAPAC	China Public Packet-switched Data Network
CO	central office
COCOM	Coordinating Committee for Multilateral Export Controls
CSTIND	Commission of Science and Technology in the Industry of National Defence
DDN	digital data network
DGT	Directorate General of Telecommunications
DMS	data management system
DPN	digital private network
EDI	electronic data interchange
EFT	electronics fund transfer
E-mail	electronic mail
EU	European Union
FCC	Federal Communications Commission
FLAG	Fiber-Optic Link Around the Globe
FTP	file transfer protocol
GBps	gigabytes per second
GDP	gross domestic product
GMDSS	Global Maritime Distress and Safety Shore stations
GNP	gross national product
GSM	Global System for Mobile Communications
GW	gigawatts
HDLC	High-Level Data Link Control

IC	integrated circuit
IDEN	Integrated Dispatch Enhanced Network system (Motorola)
IHEP	Institute of High-Energy Physics
IN	intelligent network
ISDN	integrated services digital network
IT&T	International Telephone and Telegraph
ITU	International Telecommunications Union
IWE	International Western Electric (AT&T)
JV	joint venture
km	kilometer
LAN	local area network
LG	Leading Group
LIBOR	London Inter-Bank Offered Rate
m	meter
Mbps	megabits per second
MBps	megabytes per second
MEI	Ministry of Electronics Industry
MEP	Ministry of Electric Power
MFN	Most Favored Nation
MOFTEC	Ministry of Foreign Trade and Economic Cooperation
MOU	memorandum of understanding
MPT	Ministry of Posts and Telecommunications
MR	Ministry of Railways
MRFT	Ministry of Radio, Film, and Television
N-ISDN	narrowband ISDN
NM	network management
NPC	National People's Congress
OECD	Organization for Economic Opportunity
PAD	packet assembler and disassembler
PABX	private automatic branch exchange
PBX	private branch exchange
PCS	personal communications system
PES	personal earth station
PHS	personal handy-phone
PLA	People's Liberation Army
PSDN	public switched data network
PSTN	public switched telephone network
PTA	provincial and local Posts and Telecommunications Administration
PTAC	China National Postal and Telecommunications Appliances Corp.
PTIC	China Posts and Telecommunications Industry Corp.
RMB	Ren Min Bi
SC	State Council

SCRES	State Commission for Restructuring Economic Systems
SDH	synchronous digital hierarchy
SDLC	synchronous data link control
SETC	State Economic and Trade Commission
SNA	systems network architecture
SNMP	simple network management protocol
SPC	State Planning Commission
SPC	stored program control
SRRC	State Radio Regulation Commission
SSTC	State Science and Technology Commission
TACS	Total Access Communications Systems
TBSC	China Telecommunications and Broadcast Satellite Corp.
TDM	time-division multiplexing
TDMA	time-division-multiple-access
TES	telephony earth station
TIS	telephone information service
TMN	telecommunications management network
TV	television
VLSI	very-large-scale integrated (circuit)
VSAT	very-small-aperture terminal
WAIS	wide area information server
WWW	World Wide Web



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