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THE IMPACT OF NTT PRIVATIZATION ON

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THE IMPACT OF NTT PRIVATIZATION ON JAPAN'S TELECOMMUNICATIONS

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ABSTRACT

THE IMPACT OF NTT PRIVATIZATION ON JAPAN'S TELECOMMUNICATIONS

By

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On the first of April, 1985, the Japanese government proclaimed Telecommunications Business Act and NTT Company Act. As a result, NTT was privatized and any company was now able to enter the long monopolized market by NTT.

The purpose of this paper is to examine the NTT privatization and explore the optimal policy in Japan's telecommunications.

With regard to the methodology to approach the issue, I start with the historical review. In this section, I describe how Japan's telecommunications developed, how the policy transferred, and what factors motivated the government to adopt the policy of competition. Second, I analyze the New Acts and mention what is changing, emerging and so forth. Third, the impact of the New Acts is studied. Forth, I mention the advantages and disadvantages of the new policy, comparing with the former concern. Finally, I conclude the optimal policy in Japan's telecommunications which meets the public interests.

To my parents and my wife, Satoko

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Chapter 1
Introduction

The introduction of competition in the telecommunications industry is an internationally common trend among the most developed countries in the latest decade. The United States which is considered to be the most liberalized country in terms of the telecommunications policy, achieved AT&T divestiture and deregulation in other service provisions, adopting the market place approach. In the meantime, the United kingdom, a representative of the traditional public utility model, privatized the British Telecom and allowed the new common carrier to enter the market. the leading countries in the world economics were going toward the deregulation in telecommunications field. Japan was not exceptional.

On the first of April, 1985, the Japanese government abolished the Public Telecommunications Law and the Nippon Telegraph & Telephone Public Corporation Law that had regulated the telecommunications industry and proclaimed new acts named "Three Acts of NTT Reformation", which consists of Telecommunications Business Act, NTT Company Act and the Omnibus Act. As a result, NTT was privatized and any company was now able to enter the long monopolized market by NTT. Thus, the government drastically changed its policy from monopoly to competition.

The purpose of this paper is to examine the NTT privatization and explore the optimal policy in Japan's telecommunications. This

issue is strongly related to the debate between monopoly or competition. However, strictly speaking, there is no country which falls into either a pure competitive model or a monopoly model. Therefore, discussion has to be made as to what extent the telecommunication industry should be regulated or what policy could be adopted.

With regard to the methodology used in approaching the issue, I will start with the historical review. In this section, I describe how Japan's telecommunications developed, how the policy transferred, and what factors motivated the government to adopt the policy of competition in this arena from the stream of the history. Second, I analyze the New Acts and mention what is changing, emerging and so forth. Third, the impact of the New Acts will be studied. Forth, I mention the advantages and disadvantages of the new policy, comparing with the former concern. Finally, I will conclude the optimal policy in Japan's telecommunications which meets the public interests.

Chapter 2

Historical Review of Japan's Telecommunications

Japan's Telecommunications initiated with the formation of the Ministry of Teishin in 1885. The Ministry had responsibility for policy making, ownership, operation, research and radio frequency allocations in telecommunications and postal services.[1] In that sense, Japan's telecommunication was then based on the European PTTs' philosophy that telecommunications and postal services should be jointly owned, operated and managed by the government. This policy had continued until 1949 when the Ministry of Telecommunications was established to separate telephone services from the postal services.

The most important reformation in those days was the separation of telecommunication services from the postal services. During the occupation by the U.S. after World War II, American policy gave a strong influence on many aspects of Japanese policy making and as a result, the government adopted a hybrid model of policies of the U.S. and Europe. The Ministry of Telecommunications was transformed into a public corporation as a operating entity named Nippon Telegraph and Telephone Public Corporation (NTT) to be supervised under a new regulatory body, the Ministry of Post and Telecommunications (MPT).

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[1]Mitsuru Yokoi, "Agencies and Directions of Japanese Policy,"Telecommunications Policy" (December 1982): 259.

Besides the influence by American policy, another major reason for the separation was that the government took a part of telecommunications revenue to compensate for the deficit of its general account even though the account of telecommunications services was independent from the general account. A public corporation in Japan means an organization that is owned by the government however, managed by the public. Since the management and accounting of the corporation are independent from the state, governmental intervention is not, in principle, permitted.

Furthermore, in 1953, the overseas services were separated from the NTT and were to be managed by the Kokusai Denshin Denwa Co., Ltd. (KDD), which has been a joint-stock company based on KDD Company Act. Since its establishment, the NTT had a monopoly on domestic telecommunications operations and the KDD on international services, protected by the Public Telecommunications Law. At the time when the NTT was established, Japan's urgent purpose was to recover telecommunication facilities and spread the telephone networks as soon as possible because they were almost completely damaged during the Second World War. Aiming at the procurement of the funds for their recovery, the government, since 1953, forced telephone subscribers to purchase telephone bonds, which supplied 30 percent of the funds for the NTT's telephone development programmes.[2] And the government allowed the NTT to monopolize the market and set severe restrictions on the entry of competitive carriers into the public

[2]Mitsuru Yokoi, "Agencies and Directions of Japanese Policy," Telecommunications Policy (December 1982): 262.

telecommunications market. This was done because the government wanted to ensure the effective utilization of investment funds by enabling the NTT to install and expand facilities, and provide the public telecommunications services as a single carrier.

As a result, telephone spread at a remarkable pace. By the late 1970s, telephone sets penetrated into almost all the households and consequently, the obligatory purchase of telephone bonds was abolished in March, 1983.[3]

In the meantime, there was an exception to the monopoly by NTT and KDD in public telecommunications, which is a field of non-telephone services. This business has been liberalized step by step since 1971 in contrast to the basic communication service.

Non-telephone services are divided into three categories; facsimile, data communication, and visual communication.

The first public facsimile service in Japan began in 1930 with photo-telegram. Demand for this service was small until 1960s. As economic activities increased and the need for rapid transmission of large volume of information also increased, the role which facsimile can play in public Telecommunication became re-evaluated because facsimile has many advantages over telephone, such as the fact that any type of figures or other graphics can be sent even when a receiver was absent. Facsimile service is particularly useful in Japan because its writing system employs ideographics and other complex symbols. As a result of the revision of the Public telecommunications Law in 1971, it became possible to offer facsimile service freely

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[3]Tetsuro Tomita, "Japan's Policy on Monopoly and Competition in Telecommunications," Telecommunications Policy (March 1984): 46.

throughout the telephone network, so that the number of facsimile terminal installation increased drastically.

Data communication systems began in 1964 when Japan National Railways and Japan Air Lines introduced a seat reservation system. And in 1971, data communications were incorporated into legal systems by the revision of the Public Telecommunication Law, which opened the age of data communications.[4] This revised law provided two systems for using data communications circuits:

> 1. Special Communications circuits leased from NTT and used exclusively for data communications, and
> 2. Public Communications circuits established by NTT on request and used the public telephone or telex network for data communications.[5]

In addition, as to leased circuits, there were three major changes in shared use, third party use and interconnection.

Shared use, i.e. using circuits for other people's messages, of special communications circuits was permitted with the following conditions: (1) there would be a certain business relationship between the sender and receiver, (2) communications would be completed between computer and terminals solely for the use of data processing, (3) uses other than data processing would receive individual permission from the MPT.[6]

Third party use, i.e. using other people's communications circuits, was permitted in the case of communications completed between a computer and terminal. This permitted a data processing

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[4]Ibid., 48.

[5]Toshio Kosuge, "The Emerging Data Communication Policy in Japan," Telematics and Informatics, Vol.1, No.1 (1984): 20.

[6]Public Telecommunications Law, Article 55, No.11.

company to service multiple clients on the same circuit but not to exchange data between any two unrelated clients.[7]

Interconnection between a special communication circuit and the public circuits was possible with individual permission of the MPT.[8]

After this revision, data communication in Japan made rapid progress. the number of data communications systems increased from 300 to 8000 for the next decade.[9]

New technological innovations stimulated a further review of the legal regime in this field and the second liberalization was carried out in 1982. Revised Public Telecommunications Law of 1982 removed most of the restrictions imposed by The 1971 Law on shared use and third party use of leased circuits. As to shared use, users those who are closely associated become able to operate a system including "message switching". Message switching is defined as a use of a computer which relays information without modifying its contents.[10] Even if they are not "closely associated", they can use data communication circuits if they perform data processing in the system and do not relay other peoples information. For third party use, it is now possible for computer service companies to extend their data communication circuits to the customer's computers and to exchange processed information. Moreover, the restrictions on

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[7]Ibid., Article 55, No.13.

[8]Ibid., Article 55, No.16.

[9]Tetsuro Tomita, "Japan's Policy on Monopoly and Competition in Telecommunications," Telecommunications Policy (March 1984): 48.

[10]Mitsuru Yokoi, "Second Liberalization in Japan, "Telecommunications Policy.(September 1983): 247.

interconnection between leased data communication circuits and the public networks was removed and such connection can be made without any approval from the MPT with the exception that connections at both ends of the leased circuits to the public networks are subject to the approval from the government.

After successful establishment of nationwide telephone network, NTT had two goals which were the elimination of back-log telephone applications and completion of direct long distance dialing services. The former objective was attained in 1978 and the latter in 1979.[11] Thus, the necessity for intensive utilization of resources, which is the major reason for monopolization, decreased.

Since then, NTT needed to have a new goal to step forward to a more advanced information society because communication technology had been advanced enough for practical use. It should be time to have another look at the system and the legal arrangement in telecommunications. Needless to say, a large demand for further liberalization on data communications promoted the fundamental change in Japan's telecommunications.

Besides the above mentioned public demand and future benefit, there were two other factors that facilitated towards liberalization and deregulation of telecommunications.

One was the US government, which had put fierce pressure on Japan to deregulate its telecommunications market. NTT's procurement practices became a target for its trade partners to criticize for less foreign procurement. As long as NTT remained a

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[11] Yasusada Kitahara, Information network System (London: Heinemann Educational Books, 1983), P.15.

public entity under government management, it would, according to GATT rules, be bound to respond to demands for more open procurement practices. If privatized, however, it would be exempted from this requirement.[12]

NTT's performance in operating business is another factor to make this policy change occur. Because of its monopolistic and bureaucratic nature, NTT showed financial and operating performance levels below Bell Operating Company standards. Especially for revenues and output per employee, NTT fell considerably below US performance levels. Over the 1982-1984 period, NTT's capital investment to sales ratio was almost double that of the Bell System and NTT exhibits a much lower level of profitability than the Bell companies.[13]

The administrative Reform and Ad Hoc Committee, which aims at researching and considering the fundamental matters concerning the reformation of administrative systems and management in Japan, recommended the reorganization of NTT to be a private company. The government accepted it and decided to introduce a principle of competition in the telecommunications market from the first of April, 1985 with proclamation of the new acts.

The government reasoned this policy change as follows:

The basic purpose of Japanese telecommunications policy is to secure a certain grade of communications services at as low a price as possible and in the most convenient way. It seems clear that the

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[12]Roya Akhavan-Majid, "Telecommunications Policy making in Japan," Telecommunications Policy (April 1990): 161.

[13]William H. Davidson, "Japanese Telecommunications Policy," Telecommunications Policy (June 1987): 149.

optimal policy so far has been to let the NTT monopolistically offer telephone services to catch up with unsatisfied demands. The NTT has accomplished its major tasks of getting rid of the huge back-log for telephone installations and introducing an automatic dialing system throughout Japan. As a result, the characteristics which formed the basis of the Japanese telecommunications monopoly have changed. For instance, as for technological unification, progress in the technology of interface between networks has made the coexistence of networks possible.

On the other hand, the public need for telecommunications has increased and become diversified, and specific services which meet the various needs of individual users, as well as the present, nationwide, unitary, telegraph and telephone service, have been requested. In addition, the technology and funds of private enterprises have improved and the conditions under which they may participate in the telecommunications business have been developing.

Furthermore, with the advent of satellites and optical fiber communications and the increase demand for diversified services, the introduction of a policy of competition is becoming more suitable to the purpose.[14]

It is very significant to review the new laws in order to study a post-monopoly configuration of Japanese telecommunications.

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[14]Tetsuro Tomita, "Japan's Policy on Monopoly and Competition in Telecommunications," Telecommunications Policy (March 1984): 50.

Chapter 3

Critical Review of New Acts

I. Telecommunications Business Law.

The purpose of this law is to ensure the sound development of telecommunications and to promote the public welfare. This law consists of several chapters; general provisions, telecommunications business, use of land, miscellaneous provisions, and penal provisions.

The new law classified all the telecommunications business as Type I and Type II business. Type I telecommunications business provides services by establishing telecommunications circuit facilities such as transmission lines, switching facilities and other facilities complementary to those. Type II is defined as telecommunications business in which the carriers offer services without having their own telecommunications facilities but renting it from a Type I business provider. Thus, the difference between Type I carrier and Type II carrier is whether or not a carrier owns a telecommunications facilities.

A: Type I Telecommunications Business.

Type I carriers have the attributes as follows:

1. They provide information infrastructure.
2. Their business is heavily dependent on the facilities.

In this sense, their business is restricted within the area in which they own the transmission circuit. Therefore, if a certain Type I carrier becomes unable to maintain its facility in a certain region, it would be impossible for people living in that area to receive the services.

3. Huge investment is needed to construct the circuit.

Due to the attributes above, Type I business applicants have to obtain permission from the Ministry of Posts and Telecommunications to start the business.[15] "Have to obtain permission" is interpreted that the market of the type I carrier is not free entry and it seems this is because the government expects the service providers to be reliable and stable, therefore, the applicants must be assessed based on the company's financial standing and technical capability. Furthermore, in order to prevent excessive competition and to promote the public welfare, which is the primary objective of the reformation, it is required to evaluate the new applicants.

Although an entrant into this market has to be permitted by the government, it is now noticeable that any company is given a chance to perform the business which NTT has long monopolized since its establishment.

The introduction of the policy of competition was adopted due to the following facts and the political judgements.

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[15]Telecommunications Business Law, Section 2, Article 9.

First of all, the government thought that competition among multi-enterprises would bring about the earlier realization of highly developed information society.

Secondly, the environment has been completely changed, compared to the era when the government decided to give NTT the privilege to monopolize the market. The emergence of communications satellite, optical fiber cable, and other new technologies does not seem to allow the natural monopoly by the economy of scale merit to be the best policy.

Thirdly, it became feasible to connect independent communications network due to the development of the interface technology.

Last of all expansion of the market creates the surplus demand for other common carriers than NTT.

Article 10 prescribes the criteria to grant permission as follows.

I) Telecommunications service to be provided by a Telecommunications carrier shall be appropriate in the light of the demand in the service territory.[16]

II) The introduction of the telecommunications business shall not result in a significant excess of telecommunications circuit facilities used for such business in all or in any part of the territory or route to be covered by the telecommunications carrier.[17]

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[16]Telecommunications Business Law, Section 2, Article 10.

[17]Ibid.

III) The applicant shall have an adequate financial basis and technical capability to properly perform his or her telecommunications business.[18]

IV) The plan of the telecommunications business shall be reliable and feasible.[19]

V) In addition, the introduction of the telecommunications business shall be appropriate for the sound development of telecommunications in general.[20]

As we can see from the above, the reliability and stability of the business and the balance between demand and supply are key factors to obtain permission from the government. The second criterion seems to be a strategy in which an excessive investment for telecommunications circuit facilities does not result in a raising of the tariff. Because it is predicted that the demands to the telecommunications services increase rapidly it would be very difficult to determine an optimal supply to satisfy such demands. Therefore, since the government's judgement heavily affects the decision making, there is a fear that intervention by the government is inevitable in this business area.

The fifth criterion is a very abstract expression and is also regarded to have the same problem I mentioned above. What is the sound development should be mentioned clearly.

Article 11 mentions the items of disqualification for the permission as below.

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[18]Ibid.
[19]Ibid.
[20]Ibid.

i) Any person who has been sentenced to a fine or any sever penalty in accordance with the provisions of this law, the Wire Telecommunications or Radio Law, if a period of two years has not yet elapsed since the day on which the sentence was fulfilled or exempted from execution.

ii) Any person whose permission was revoked in accordance with the provisions of Article 19 paragraph (1), if a period of two years has not yet elapsed since the day of the revocation.

iii) Any juridical person or association any of whose officers falls under any of preceding two items.

iv) Any person who dose not have Japanese nationality.

v) Any foreign government or its representative.

vi) Any foreign juridical person or association.

vii) Any juridical person who is represented by any person or body set forth in the preceding three items, or one-third of whose total voting rights is exceeded by the aggregate of voting rights directly held by such persons or bodies and voting rights calculated in accordance with the provisions of the applicable ordinance of the Ministry of Posts and Telecommunications, which is indirectly controlled by such person or bodies through any other juridical person or association.[21]

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[21]Telecommunications Business Law, Section 2, Article 11.

The provisions from iv) to iiv) are written about the exclusion of foreign capital in Type I telecommunications business. In this business area this exclusionism is significant for the following reasons. First, the government should have enough control on the information infrastructure spread all over Japan in the case of disaster or intrusion by a foreign country. Secondly, the government should secure the essential information for the national secrecy. Lastly, the government has to begin with fostering the domestic common carriers for the sound development of Japan's telecommunications.

B. Type II Telecommunications Business.

Type II telecommunications carriers do not own the circuit but rent it from Type I carriers to provide diversified services such as telephone, telex, facsimile and Value Added Network Service (VAN). VAN service is especially expected to be a main service in Type II business. The VAN system offers several services; protocol conversion, mail box function, multi-point distribution function, media conversion and code conversion in order to meet the rapidly increasing inter-corporations' communication needs.

Article 21: (1) says that Type II telecommunications business shall be classified into General Type II business and Special Type II business.[22] Special Type II business is defined as a business which provides for the use of communications of many and unspecified

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[22]Telecommunications Business Saw, Section 2, Article 21. (1).

persons' telecommunications facilities. These facilities exceed in scale the standards stipulated, in terms of the capacity for accommodating telecommunications lines, in the applicable cabinet ordinance, or Type II telecommunications business which provides telecommunications facilities designed for communications between Japan and foreign points for the use of communications of others.[23]

Therefore, a Special Type II carrier provides either nationwide network or international network which consists of more than 5000 lines offering transmissions speeds in excess of 1200 bits per second.

Meanwhile, General Type II telecommunications business is defined as any business other than Special Type II telecommunications business.[24] In this sense, it should be a relatively small network in which the companies being related in their business are connected each other, such as manufacturers and the retailers, the parent companies and their subsidiaries, and so forth.

In order for the General Type II carriers to start the business, it is necessary to submit a notification to the Minister of Posts and Telecommunications.[25] To submit a notification means that the Minister of Post and Telecommunications may not reject any of such notifications, so that the General Type II market is free entry. This decision is made due to the characteristics of the General Type II carriers as follows.

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[23]Ibid.(3).
[24]Ibid., (2)
[25]Ibid., Article 22 (1)

1. Their business activities are so limited that they have very small affect on the public interest.
2. Since it is expected that a large number of carriers enter the market and provide diversified services so as to meet the needs of various types of business group, it is very difficult to set standards to examine the applicants.

In the meantime, as to the Special Type II telecommunications business, the applicants have to register to start the service.

The reason why the government adopted the registration system instead of notification is due to the nature of Special Type II business. First of all, because the service providers establish a nationwide network, their business gives a relatively big influence on the public. Secondly, the transmission facilities are open to unspecified users, so that the carriers have to secure the secrecy of the communication and the functional stability of the facilities. Therefore, the entrants to the market should be examined carefully.

Another thing observed is that there is no refusal provisions for aliens to start the Special Type II business. The reasons for it are as follows:

1. The U.S. government pressured the Japanese government to solve the problem of imbalanced trade between both countries.
2. The MPT thought no protection for the domestic carriers from foreign enterprises should contribute to the sound development of the Special Type II industry and also adoption of the principle of impartiality between foreign and domestic suppliers and of the principle of fairness contributes to sound development of friendly trade relations with all countries in the field of telecommunications.

However, in terms of the sound development of the Special Type II business, the protectionism would be the better policy because Japan has considerable delay in this field. In the U.S., Tymnet, Telenet, etc. have provided enhanced services since early 1970s.[26] Moreover, ATT and IBM became legally able to enter this business in 1982. Nevertheless, Japanese companies have just started VAN services on the experimental basis since 1982. Thus, it seems most Japanese carriers will not be capable to compete with American firms with the exception of NTT. The government should have fostered domestic carriers first and afterward opened up the market to the foreign companies.

II. NTT Company Limited Law.

Nippon Telegraph and Telephone Public Corporation became a private company with execution of this Law. The Law prescribes that the purpose of NTT is to operate domestic telecommunications business.[27] NTT's business activity is restricted only in the territory of Japan in spite of the fact that the Telecommunications Business Law prescribes that new common carriers may operate both domestic and international telephone business. There seems to be two reasons for this restriction. One is that Kokusai Denshin Denwa Co., Ltd. (KDD) has successfully operated the international services, therefore, NTT's entry into the overseas business could bring about

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[26]Study Group of Telecommunications Issues, Fifty-five Points of New Telecommunications Acts (Tokyo: MIA, 1984), 58.

[27]NTT Company Law, Article 1, (1).

excessive competition. The other reason is due to the fact that NTT is already a huge powerful company, so the concentration of power into a single entity should be avoided.

Section 2 in the Article 1 defines NTT's business fields, which are divided into three categories as follows:

1. Domestic telecommunications business, original business purpose,
2. Business activities incidental to above, and
3. business activities necessary to achieve the purpose of the company.

The first business field is the main business of NTT, which is to provide nationwide telephone and telegraph services fairly to anyone. The second field is the business that would be able to contribute to facilitating the original business purpose or that could effectively utilize the technologies or know-hows of telecommunications business, for instance, a weather forecast service, a time information service, telecommunications equipment sales, etc. fall into this category.

The third field is a business which seems to fall in neither the first category nor the second one. For example, an international cooperation activity is in this field. It is mandatory for NTT to be authorized by the Minister of Posts and Telecommunications to enter this type of business and in this respect, MPT has a control over NTT.

Before the enactment of the new law, NTT purchased the terminal equipments from the private electronic companies called NTT family; NEC, Fujitsu, Oki, Hitachi, etc. and sold them in the

domestic market. The electronic firms were not allowed to sell those merchandise to the customers unless the first telephone set was supplied to them by NTT. The new law removed this restriction, and the customers are now able to purchase terminal equipments from any company, including foreign suppliers.

Although Section 2 reads that it is theoretically possible for NTT to manufacture telecommunications equipment, the government decided to restrain NTT from having manufacturing division for the time being due to its strong influence on the terminal equipment industry.

The former law, NTT Public Corporation Act, imposed severe restrictions on NTT's investment activities into any new business. However, the new law does not mention such restraints. Now NTT acquires a chance to commence a new business.

On the other hand, according to Article 2, NTT has the following obligations to secure the public welfare.

1. NTT has to consider the maintenance of its proper and efficient management.
2. NTT has to contribute to securing nationwide telephone services throughout Japan at appropriate conditions.
3. NTT has to contribute to the creative advancement and development of telecommunications through promoting the basic research and development activities, and disclosure of their results.

However, except the number 3, all the obligations of NTT stated above are removed only in the market where the competitors also operate the business, because in the area where the carriers other

than NTT could provide the stable service, it is not fair if the obligations are imposed only on NTT.

Article 4. Sec. 2 mentions that the government shall always hold one-third or more of the total number of the outstanding shares of the company.

The government plans to sell one half of the stocks of NTT to the private sector within five years and eventually sell up to two-third of its total shares. The Commercial Code of Japan prescribes that a person who owns one-Third or more of the stocks in a firm is authorized to reject important decisions such as modification of the articles of incorporation, the appointment of executive officers and auditors and so forth. Consequently, holding more than one-third of total shares enables the government to have an indirect control on NTT.

The government, MPT is authorized to administer and control NTT by the following provisions:

1. NTT shall obtain authorization from the Minister of Posts and Telecommunications in order to issue new shares and convertible debentures(Article 4.(3))
2. Appointment or dismissal of executive officers or auditors of the Company shall be authorized by the government.(Article 9).
3. Any changes in the articles of incorporation, disposal of profits, or merger and dissolution of the Company shall be authorized by the Minister of Posts and Telecommunications.(Article 10.)

4. The Company shall formulate its business program for each business year and shall obtain authorization from the MPT (Article 11).
5. The Company shall submit to the MPT its balance sheet, profit and loss account and business report for each year (Article 12).
6. The Company shall obtain authorization from the government in order to transfer or mortgage its telecommunications circuits or other important facilities (Article 13).

As we can see above , NTT is imposed more restrictions than new common carriers, however, the company acquired a certain degree of autonomy to run his business compared to its former organization, i.e., a public corporation.

Several Supplementary Provisions are included in this law and it seems that they are important to ensure the future configuration of Japan's telecommunications.

According to the Provision 2, the government will review the nature of NTT within five years and take necessary measures based on the conclusion of the review. It is possible to predict that a principle of competition may not work well because NTT should be too powerful for new entrants to compete with. The first five years of competition can be regarded as an experimental period. Thus, it is indispensable to add this provision.

In the case that the principle of competition does not work well, and NTT remains a dominant power, forming a natural

monopoly, then what alternative should be taken ? One possible solution for this is a divestiture of NTT. In July, 1982, the Administrative Reforms Ad Hoc Committee proposed a plan to reorganize NTT into a central body and several regional operating companies. This plan was not adopted due to the strong opposition of NTT's managerial sector and its employees but it is still being considered by the government.

Chapter 4

Impact of the Reformation

I. Impact on the Telecommunications Equipment Market.

Since the time of NTT privatization, telephone terminal market, which value is approximately 1 trillion yen was opened to the private companies.

NTT has procured various materials and equipments from more than 200 companies which forms a group called "Den-Den family". Approximately 40 percent of NTT's total purchase amount are procured from 4 companies: NEC, Fujitsu, Oki and Hitachi, which are called "A Maker".[28] Members of NTT Family are changing. Those companies who can not comply to NTT's demands to digitize its facilities are losing their shares in NTT market and those who can are newly entering and expanding their shares in this market. Most of the 200 companies are spun out and big names such as Matsushita, Mitsubishi, Toshiba, etc. are becoming core entities in addition to the "A Maker".

NTT has never had a manufacturing division. NTT cooperated with a few large electronic companies to research and develop innovative telecommunications facilities and let those firms manufacture the equipments for NTT. This cooperation resulted in a

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[28]Teruyuki Inoue, NTT (Tokyo: Ohtsuki Shoten, 1990), 105.

tacit agreement between NTT and those firms in NTT's procurement of the telecommunications equipments, and in the formation of the NTT family.

Because the new carriers are supposed to construct the telecommunications system to start the business, the liberalization in telecommunications business will promote the expansion of the demand in the equipment industry, and the open policy of NTT's equipment purchase will promote the innovative power among the domestic manufacturers and also competitive power to the foreign suppliers.

However, under the public corporation system, we would not be able to expect rapid technological progress. This is one of the reasons for the introduction of the policy of competition in Japan's telecommunications.

From the user's point of view, it is desirable to purchase inexpensive and diversified terminal equipment because such competition will satisfy the need of users. In 1984, before liberalization, there were 488 approved terminal devices, with applications made by 71 companies. After liberalization took effect in 1985, those figures leaped to 852 and 144, respectively.[29] NEC, Fujitsu, and Oki have heavily relied on NTT, which normally accounts for 20 to 30 percent of total sales.[30] Therefore, the sales of these companies will be influenced by the liberalization.

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[29]Yusai Okuyama, "Development of Telecommunications Competition and its Prospects in Japan," New Era of Telecommunications in Japan (January 1987): 3.

[30]Mitsuru Yokoi, "Agencies and Directions of Japanese Policy," Telecommunications Policy (December 1982): 260

The computer industry is especially expected to become more vital. It seems that the Type II carriers perform primarily VAN business in which the computer system should be an essential facility. Two groups dominate the market; the domestic group such as NEC, Fujitsu, Hitachi and Toshiba, and the American group such as IBM Japan, Unisys, NCR and DEC. Regardless, whether they are domestic or foreign, all suppliers have been competing in the fertile market where the annual growth rate was at an average of 25 percent in the recent decade.[31] Introduction of competition into the telecommunications business will create a surplus demand and accelerate the growth rate of computer industry.

II. Impact on the Government: Inter-bureaucratic conflict.

Any structural change frequently brings about the issue of who is going to benefit from it. The agency which has the most influence on the information process and distribution will take the initiative in economic policy making in the highly advanced information society which Japan is aiming at. In the legislative process of the new laws, the ministries relevant to the reformation had severe conflict. The conflict between the Ministry of Posts and Telecommunications (MPT) and the Ministry of International Trade and Industry (MITI) stemmed from the problem of who held supervision over the Value Added Network (VAN) service in which computer technologies play an important role in the telecommunications network. Since MITI is

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[31]Meheroo Jussawalla, "The Race for Telecommunications Technology," Telecommunications Policy (September 1987): 304

responsible for the development of computer technologies, it said the VAN is an extension of the computer oriented information processing system, therefore, MITI should be the prime agency for supervision and policy making in VAN business. MITI insisted on perfect deregulation over VAN services.

On the other hand, MPT held a different opinion. The ministry mentioned that the VAN is an enhanced telecommunications service which uses leased circuits, therefore, MPT should regulate this field. For example, a permission system to start business and some restrictions on foreign capitals to enter the market.

Both Ministries reached a compromise, adopting a notification system in General Type II business and no regulation on the entry of aliens. Moreover, the government added the provision to the Telecommunications Business Law which says that the government shall, within three years from the date of the enforcement of this law, review the situation under which this law is executed, and shall take necessary measures based upon the condition of the review.[32]

Thus, the integration of computer and telecommunications technologies raised a new issue of who is a regulator and whether the current administrative system is appropriate.

III. Impact on Information Network System (INS)

Information Network System (INS) is a same type of system that is internationally known as Integrated Services Digital Network

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[32]Telecommunications Business Law, Supplementary Provision, Article 2.

(ISDN). It is anticipated that the privatization of NTT will have a great influence on the (INS) project and implementation of its services will be accelerated, because INS is the most powerful weapon for NTT to cope with the age in the low economic growth and to compete with the new carriers by differentiating its services from others.

The concept of INS was originated and announced by NTT in 1981. INS is simply described as a nationwide communication network system which will provide a wide range of innovative services, including simultaneous voice and data transmission, videotex, two-way cable television, image transfer, databases and a variety of advanced telephone features such as voice storage and retrieval, call recording and screening, and so forth.

Now Japan has 5 types of communication networks: telegraph network, telephone and facsimile network, telex network, DDX (Packet) network and videotex network. In most of the cases, each type of service has been offered through its own individual network. This is because configurations and types of information are different among the networks and individual networks have been more economical and easier to operate. However, it is now technically possible to handle various types of information economically in a single form as a digital signal. From this technological development, the concept of sharing switches and transmission lines for the purpose of handling various kinds of information has developed. This concept brings about the INS project.

Dr. Kitahara, former vice president of NTT, has stated that in order for INS to develop, it is necessary to digitize the

telecommunications network, and to provide all kinds of communications services efficiently and economically. This includes such services as facsimile, data communications and visual communications. It is also essential to establish a comprehensive system based on the integration of computers and digitized telecommunications networks to provide for the transmission, storage, and processing of information.

Kitahara reasons the necessity of digitization for the telecommunications network as follows:

> 1. Information suitable for digital transmission is now on the increase.
> 2. Digital transmission can be performed with high efficiency, and is more economical than analogue transmission.
> 3. Signals can be standardized in pulses.
> 4. Digital signals allow efficient storage, conversion and processing of information.
> 5. Distortion and noise phenomena are no longer related to distance.[33]

In INS, communication networks suitable for each service are designed to integrate the services into one digital network, and to utilize optical fiber cable systems, satellite communication systems and digital exchange systems.
INS are summarized as follows.

INS will:

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[33]Yasusada Kitahara, Information Network System (London: Heinemann Educational Books, 1983), p.11.

1. make it possible to provide every kind of service economically through a single communications network.
2. allow users access to the network with any terminal at any time through terminal-connecting equipment.
3. make possible communication between different kinds of equipment providing the same service, and interservice communications, e.g., between telex and facsimile, through a combination of communications processing and transmission functions.
4. provide users with access to all information available, primarily from those in the information industry such as data base service suppliers.
5. make available inexpensive leased circuits and network services such as CATV.
6. provide telemetering and telecontroll services, and
7. enable the establishment of a new rational tariff structure based on the volume of transmitted information, which should lead to international agreement of issues concerning interconnection and tariff structures.[34]

There are several implications due to the characteristics of INS as described above. First of all, integrated communications such as the combination of voice, video and facsimile will help people create more comfortable and convenient lifestyles. Secondly, because INS services will work to solve the problem of distances and accompanying information disparities, they will help to promote the spread of corporate activities throughout local economies and develop the local areas. Thirdly, investment in the terminal equipments which are compatible to receive INS services will largely expand domestic demands and make national economy more active. Total investment in ISDN terminal development and network

[34]Ibid., pp. 69-71.

digitization is expected to top ¥20 trillion ($140 billion).[35] Lastly, ISDN services will facilitate the transborder data flow via wide variety of communications media and as a result, communication gaps between countries could be eliminated and mutual understanding should be further promoted.

There are several important issues to be considered regarding INS. NTT's philosophy is to provide less expensive and more convenient services to its customers. In order to offer inexpensive services, Dr. Kitahara pointed out that the following issues have to be taken into account:

1. How to continue reducing service charges to customers with timely introduction of rapidly advancing state-of-the art technology.
2. How service differentials based on distance can be reduced as state-of-the art technology that will minimize the impact of rates on distance is introduced.[36]

To achieve it objective of reducing service charges, NTT is introducing a bit-based tariff structure in which charges are based on the quantity of information sent and received. However, there is a question, which is how NTT should deal with the tariff of international communication ? Standardizing the tariff structure of all countries will be impossible.

Meanwhile, a comprehensive network where people can gain access to various services such as telephone, telegraph, data

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[35]The Telecommunications Association, "Final Report by ISDN Terminal Development Council," New Era of Telecommunications in Japan (March 1988): 3.

[36]Yasusada Kitahara, Information Network System (London: Heinemann Educational Books, 1983), p.64.

communication, facsimile, etc. could be the most convenient way for the people to receive diversified services, therefore, putting independent networks into one comprehensive network is very beneficial. But if some parts of the network are severely damaged by unexpected incidents such as natural disasters or trespass by foreign countries, how will the communication system be maintained ? Would it be possible to find an alternative ?

Another issue I would like to mention is whether INS is compatible with people's educational standards. In other words, is INS easy enough to use for the public ? Because INS aims at being utilized economically and conveniently by users, ease of use of this system is one of the most important factors.

When NTT was a public corporation owned by the government, INS was regarded as a national project. NTT has been reorganized to be a private company, therefore, INS is said to be NTT's business plan. The question is whether or no such a huge scale project can be accomplished by one private company under competitive situation. It is certain that government support is indispensable to realize such a plan. With this regard, it makes NTT more difficult to be independent from the government.

Because INS provides users with diversified services, their communications protocols become more complex so that it will become more difficult to assure mutual compatibility between the network and terminals, or between terminals. Consequently, universal standards are essential to guarantee the mutual compatibility. This is especially true in the circumstances that

multiple number of carriers individually operate their own networks and they need to be connected each other.

NTT started a basic rate access service called INS NET 64 which provides two 64 kbps B channels and one 16 kbps D channels onto a single subscriber loop and later, initiated a primary rate access service with 23 B channels and one D channel, which is called INS NET 1500. These services were introduced in April, 1988 and in June, 1989 respectively. Primary applications of those services at this stage are GIV facsimile (Digital Fax), high speed electronic mail, video conferencing, etc. The projected penetration rate for INS services by the year 2000 is 70 % in business environment and over 10 % in all households.[37] In order for INS services to diffuse nationwide, ISDN terminals will play a key role. They will have to have the capabilities to handle a wide range of attractive service offerings and at the same time, the availability of low-cost terminals will be an essential factor.

IV. Impact on the Service.

The reformation is functioning so as to provide the customers with diversified services at lower cost.

Tariff reduction will be seen especially in the long distance call. NTT has used a strategy of setting the long distance telephone fare at a relatively high rate causing the local call fare to fall below the break-even point. According to the research by B.M.Michell, Japan

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[37]The Telecommunications Association, "Final Report by ISDN Terminal Development Council," New Era of Telecommunications in Japan (March 1988): 5.

has the most expensive long distance rate and the lowest local rate among the developed countries. Therefore, the potential entrants in the basic service have the opportunity of depriving the customers of NTT's long distance service. As a result NTT will have to reduce the tariff in that area.

Since the enactment of Telecommunications Business Law, we could observe several new entrants providing services in Type I telecommunications market. As of December 1989, the number of new entrants reached 56 companies in every type of Type I business.[38] Those new common carriers called NCC are divided into five categories.

The first category is a long distance carrier. Earlier than any other segmented group, three organizations in this category obtained permission to start a long distant telephone service between Tokyo and Osaka, which is the most profitable areas.

Among these entrants, Daini-Denden Inc. (DDI) initiated very smooth preparation. It consists of Kyosera, the main stack holder occupying 30 percent of the shares, Sony, Secom Security Service, Ushio Electric Company and other two hundreds companies. The company started offering private line services in October, 1986 using the microwave radio system along the Tokyo-Nagoya-Osaka corridor and in September, 1987, commenced public switched telephone service.

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[38]Telecommunications Bureau, Ministry of Posts and Telecommunications, "Current Status and Future Subjects of Telecom Business in Japan," New Era of Telecommunications in Japan (January 1990): 2.

Japan National Railway established the subsidiary named Japan Telecom and entered the Type I telecommunications market by installing an optical pathway along the Tokaido Bullet Train Route, and started private line services in August, '86 and a long distance telephone service in September, '87. Japan Telecom has the following advantages to undertake the business.

First of all it is unnecessary to acquire the land to install the cable because the company has already owned the land to have constructed railway. Secondly, JNR has the largest private telecommunications circuit owner, so it has the know-how on the common carrier business.

As we can see the new common carriers in the U.S. and Britain, the railroad companies have an advantage in starting the telecommunication business compared to the other enterprises in the different industries. Consequently, the Japan Telecom is expected to be able to compete with NTT in densely populated areas.

Moreover, Teleway Japan is planning to establish all the optical fiber network along the highway linking big cities. This corporation also has an advantage of land. The total length of Japan's road is computed to be 1,200,000 km. If Japan Telecom constructs the circuit on its property, the size of the network will become almost equivalent to that of NTT, 1,800,000 km. The company, which is a joint venture sponsored by the Ministry of Construction, Japan Highway Public Corp, Toyota, Mitsui, Sumitomo and others initiated leased line services using optical fiber cable along the Tomei and Meishin Highways in November, '86. Its public switched telephone service started in September, '87.

The second category is regional telephone carriers, which consist of Tokyo Telecommunications Network Co., Inc. (TTNet) and Lake City Cablevision.

TTNet, a subsidiary of Tokyo Electric Power started a leased line service in Nov. '86 and basic service in May, '88 within Tokyo area.

Lake City Cablevision, originally a cable system operator which has approximately 50000 cable subscribers in Lake Suwa area.[39] The company entered local Type I market with basic telephone service and video transmission service.

The third category is satellite carriers, and Japan Communications Satellite Co. (JC-SAT) and Space Communication Corp. (SCC) fall in this group.

JC-SAT was established by C. Itoh, Mitsui & Co. and Hughes, and started a leased line service in April, '89. using Hughes-made satellites to cover most of the territory of Japan.

On the other hand, SCC invested by Mitsubishi group launched two satellite manufactured by Ford Co. and commenced private line services in July, '89.

The forth category is mobile communication carriers.

Tokyo Telemessage is one of the service providers in this category to offer pocket bell paging service. The company started the services in October, '87. Nihon Ido Tsushin (IDO) initiated automobile telephone service in December, '88 using cellular transmission system.

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[39]Tadakazu Shida, Telecommunications (Tokyo: Nihon Keizai Shimbun-sha, 1989), p.182.

The last category is international carriers.

International Telecommunications Japan (ITJ) was established by major trading firms; Mitsui, Mitsubishi, Sumitomo, etc., as core companies, and started overseas tie line service in April, '89 and basic telephone service in October of the year. Meanwhile, International Digital Communication (IDC), a joint venture by C. Itoh, Toyota, British Cable & wireless, Pacific Telesis, Merril Lynch and others entered into the market providing same type of services in May, '89.

These new entrants started offering the diversified services at over 20 % less expensive charges than the monopoly carriers to erode their market shares. In order for the existing carriers, i.e., NTT and KDD to compete with the new service providers, they started introducing new services and reducing the tariffs.

A similar phenomenon is observed in Type II telecommunications market. Since enactment of the Telecommunications Business Law in April, 1985, as of July 31, 1989, 27 companies entered Special Type II market and 723 carriers have submitted notification to operate General Type II business.[40]

The Special Type II carriers include Intec Inc. technically supported by GTE-Telenet, Japan ENS Corp. partially invested by AT & T, Network Information Service Co., Ltd. with the capital and technical cooperation of McDonall Douglas Corp., Internetwork jointly established by NTT and major computer companies, and so forth. Moreover, communications equipment and computer manufacturers

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[40]InfoCom Research, Inc., ed., InfoCom Handbook (Tokyo: NTT Publishing, 1989), p. 152.

such as NEC, Fujitsu, Hitachi and Oki are also competing in this market segment. These companies are primarily offering such services as packet switching and circuit switching for voice, data and facsimile, PC communications, electronic mail and resale of leased lines.

In General Type II market, a large number of carriers are providing services such as data processing, database access, PC communications, facsimile and so on. It is noticeable that dozens of foreign-affiliated companies are running business in this market because of no limitation on entry into the Type II market.

About 70 % of the companies that engage in General Type II telecommunications business provide data transmission services.[41] Typical services of the business category are:

1. to transmit and exchange data for order placing/receiving between a retailer and a wholesaler,
2. to transmit and exchange transportation/delivery information for parcel services, and
3. to transmit and exchange sales data between a credit card company and its member stores.

As we can see above, there have been many new entrants in this field since the revision of telecommunications policy in 1985. Those new carriers are offering their services at approximately 20 % lower than NTT or KDD. As a result, NTT has had to reduce its charges in almost every business field. Both monopoly carriers and NCCs

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[41] Yusai Okuyama, "Development of Telecommunications Competition and its Prospects in Japan," New Era of Telecommunications in Japan (January 1987): 3.

conducted charge reduction several times and as of March, '90, the following effects are obtained:[42]

Telephone (3 minutes daytime weekday call between Tokyo and Osaka)	30% reduction
Leased Circuit (64 Kbit line between Tokyo and Osaka)	44% reduction
Pocket Pager	24% reduction
Mobile Telephone	50% reduction
International Telephone (3 minutes, direct dial call from Tokyo to the US)	52% reduction
International Leased Circuit (voice circuit between Japan and the US)	55% reduction

[42]"Current Status and Future Subjects of Telecom Business in Japan," New Era of Telecommunications in Japan (January 1990): 10-11

Chapter 5

An Optimal Policy; Monopoly or Competition.

As I have mentioned so far, the government selected a policy of competition as a partner to reach the goal of realizing highly advanced information society. However, it is questionable whether the competition is optimal choice because the new policy has both positive and negative aspects. In this chapter, I would like to discuss the advantages and disadvantages of both monopoly and competition, evaluating the current reformation in Japan's telecommunications.

I. Advantages of Competition.

One of the advantages of the competitive model is that technological innovations take place as a result of competitive spirit. Furthermore, profit maximization, cost efficiency and other factors generally result in low product costs. Therefore, it is especially true that the introduction of competition into a terminal equipment market is very significant. For example, telephone subscribers had to purchase the first telephone set in their premises from NTT before the deregulation, but now they become allowed to select various kinds of equipment with a lower price from other companies. Demand has grown rapidly. The competition to satisfy the consumers' requirements have improved the reliability of the products and

extended the range of product lines. This argument was supported by Langdale to say that introduction of competition in this area in the USA has facilitated innovation and increased the range of customer choice.[43]

Moreover, from the industrial perspective, it is very incentive for electronic companies to become able to enter terminal equipment market in order to develop themselves further because electronic industry in Japan has already reached maturity.

An open door policy to the foreign enterprises could promote the development of the domestic software industry. In spite of the fact that the hardware in Japan is highly advanced nowadays, its software is not so advanced as the U.S. Especially ATT, IBM and GTE-Telenet are great threat to the domestic VAN service providers but there is a possibility that this threat could turn to a good stimulation for them in developing more sophisticated services. Since a dominant service provider tends to be insensitive to the demands of the market, a competitive model can be expected to better contribute to the social needs.

It should be true that the competitors offer diversified services which meet the various demands. More importantly, they play a role to give a monopolistic carrier the threat which forces it to be more responsible to the diversified needs and be rational in pursuing business. This may be proven by the fact that there had been many inefficiencies associated with bureaucratic nature of NTT before reformation, however, the policy of competition is operating to

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[43]John Langdale, "Competition in Telecommunications," Telecommunications Policy (December 1982): 260

stimulate the awareness of crisis among the NTT personnels after the privatization.

Moreover, the policy of competition is likely to work so as to develop the factors such as innovativeness and improvement of the services and as a result, it increases the competitiveness in the international markets. Japan's marketplace success is largely dependent on its ability to introduce and effectively export high technology to overseas. Thus, the promotion of international competitive power is indispensable for the future of Japan.

II. Disadvantages of Competition.

More competition may lead to communication chaos because of the increase of isolated and incompatible systems which can not communicate to each other.[44] Thus, in the competitive model, it is very difficult to standardize the telecommunications systems. We can observe this example in the computer industry, therein incompatible equipment is often made as a competitive devise, so that the standardization of the systems is almost impossible. Even in the basic telephone service in which relatively simple technology is adopted, although the interconnection between different networks is not a problem technically, the users in the U.S. experienced the following inconvenience as an extreme case. The telephone subscribers were fed up with the lack of interconnection between ATT and

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[44]Hans Bergendorff, Torsten Larsson and Ruben Naslund, "The Monopoly v Competition Debate," Telecommunications Policy (December 1983): 298.

competitors' networks because many people had to equip two telephones in order to contact all subscribers in a city.[45]

Thus, competition raises a number of interconnection problems. One of them is the interconnection between a monopoly carrier and competitive one. It is one of advantages for monopoly carrier to restrict competitors to access to its network. This strategy is especially effective for the business of local services.

Meanwhile, if NTT is exposed to the competition, it will be forced to devote a tariff reduction. Although this is a positive aspect for customers, as a result, it might become more difficult for NTT to invest in a long term R & D. NTT has been the most outstanding innovator in Japan's advanced technology. This fact attributes to the governmental protection and support to NTT in telecommunications. For instance, NTT has delegated to develop a fifth generation computer which processes information conversationally using voice recognition. Competitors will not be able to spend huge budget in this kind of long term technological research.

The investment in R & D is strongly related to the company's long term viability. A telecommunications operator in a competitive market is likely to worry about the economic result of foreseeable years rather than long term viability. Therefore, the telecommunications market should be regulated to a certain extent so as to enable operators to have long term viability.

Furthermore, the price reduction will occur only in the attractive route where communication traffic is quite heavy such as

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[45] John Langdale, "Competition in Telecommunications," Telecommunications Policy (December 1982): 288.

the route between Tokyo and Osaka. This is favorable for the subscribers in those area but may possibly force the service providers to increase prices for other customers living less densely populated areas to balance the total profit margin.

Another argument is that service suppliers operating in competition may be unable to pursue activities which do not relate to the profit maximization. For instance, NTT has been offering services such as an automatic dialing telephones with an emergency button, an amplified receiver telephone for the hard of hearing, and a Braille dialing plate for the blind. Despite the philosophy that basic telecommunication services should be equally provided to everyone, it will be difficult for the service providers in competition to offer above mentioned services for handicapped people.

Further problem of competitive model exists in the information inequity. The shift of industrialized countries into the information economy is likely to enlarge the existing level of information inequity. In a country like Japan of which characteristic is high centralization, database and other information tend to be converged in especially Tokyo and a few other big cities. Therefore, individuals and firms located in rural area are not easily accessible to the information and telecommunications services. Although governmental regulation is needed to eliminate this problem, it is very difficult for the government to regulate plural networks in a competitive model, so that the information inequity will be further promoted. Information inequity is the problem of not only the opportunity or quantity to access to the information but also the price to get the information. Clearly, the competitive entry is going to

concentrate in heavy traffic area such as the long distance telephone business between large cities because the cream-skimming is the best strategy for the potential entrants to compete with a dominant carrier. This type of competition will result in tariff reduction only in heavy telephone traffic areas. On the other hand, there is a fear that in a low profit region, telecom operators in competition could go bankrupt and cease their service as a long term consequence of competition.

The element of the competitive model is the marketplace, if a new form of information technology is marketable, it is accepted and promoted, even though such a marketable technology has a power to spread social vice. For instance, the competitive model has a weakness in regard to the privacy issue. In the competitive model, information policy does not occur until the market place find a need for regulation, laws and policies regarding access to information files will not be adopted until privacy issues result in lower profits or considerable consumer demands for greater protection.[46]

III. Advantages of Monopoly.

A dominant service provider has an advantage that it can offer diversified services economically in one network because it is less costly to have different services in one network than to have parallel networks. This is especially true in a small country such as Japan. As a matter of fact, Japan utilized the personnels and other resources to

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[46]Jerry L. Salvaggio, "Social Problems of Information Societies: The US and Japanese Experiences," Telecommunications Policy (September 1983): 233.

achieve maximum economy for establishing the existing communication networks. The country in a competitive model admitted this strength of monopoly with the fact that in the negotiations of the INTELSAT arrangements, the USA strongly advocated the monopolistic character of INTELSAT. Taking this advantage into consideration, NTT is planning to establish INS in a nationwide scale as explained in the former chapter.

Another great advantage of monopoly is that monopolizing carrier is able to introduce innovations rapidly and compatibly with existing services and systems. This is also true in a small and densely populated country like Japan. Therefore, monopoly is likely to work more effectively in Japan than a widespread country such as the U.S. or Canada in terms of penetration of innovations.

In countries with a public utility model in which telecommunications services are likely to be provided by the government controlling entity, telecommunications administrations may find easier than others in a competitive model to agree on internationally applicable standards. This is because they are not tempted to resort to setting their own exclusive standards in order to lock in customers. The networking in a worldwide basis is especially beneficial for transnational corporations because they wish to link their intraorganizational communication systems in order to extend the ability of the firms to collect, store and analyze information on a worldwide basis.

As we can see in Japan and Europe, MPT or PTT has very strong power over telecommunications to make drastic changes happen when a social problem is perceived. The severity of these

problems can be minimized because the policy making body guides the introduction of new technology, the market place and the information infrastructure.[47] Although this strong power might result in an unexpected failure, we can expect that it works as a safeguard to eliminate social problems.

IV. Disadvantages of Monopoly.

Monopolized market allows a dominant service supplier to eliminate all competition in the areas where it is exposed to competition by using the profits from its protected markets to subsidize activities in competitive markets. In such a case, separation of dominant supplier's profitable sector from the parameter may be able to solve this problem.

Bergendorff, et al. pointed out the weakness of the monopoly existing in accessing to external sources of finance to say that there have been cases where financial restriction on the public telecom service provider combined with political control of its day-to-day operations has had a detrimental effect on the development of telecommunication.[48]

Furthermore, there is a tendency that monopoly carriers are unlikely to respond adequately to the demand for business communication services. Monopoly suppliers have traditionally

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[47]Jerry L. Salvaggio, "Social Problems of Information Societies: The US and Japanese Experiences," Telecommunications Policy (September 1983): 241.

[48]Hans Bergendorff, Torsten Larsson and Ruben Naslund, "The Monopoly v Competition Debate," Telecommunications Policy (December 1983): 306.

provided a basic telephone service. However, users are increasingly segmented in their use of communications according to size of firm and type of industry and each user has an individualistic demand. Monopoly carriers may be unwilling to offer services for only a small group of users. Thus, monopoly carriers have inflexibility in providing those services.

Considering the both positive and negative effects of the policies, the following conclusions are regarded as a optimal policy.

It seems that at least in terms of basic telephone service, the government should maintain a policy of NTT's monopoly. Because the basic telephone service is highly related to the people's daily life, in other words, this service has a strong public nature, the service must be assured a certain quality and avoid partiality among people, i.e., people living in urban area and those who in rural area, or the rich and the poor, etc.

As to the non-telephone services, a policy of competition seems to work better, because the services are strongly related to the business activities, therefore, we should look at an advantage of innovative power by a competition rather than its disadvantages in order to promote Japan's industrial development.

Although the policy of competition is introduced, it is required for the government to control over the tariff and the elimination of excessive competition.

Chapter 6
Conclusion.

In the former chapter, I supported a public utility model in the basic telephone services and a competitive model in the non-telephone services. This is because monopoly provision of services may have been reasonable in such a field as the basic telephone service where telecommunications technology is relatively static. On the other hand, there is a rapid increase of telecommunications services, many of which are derived from the growing importance of computer-communications network. In such environment, competitive carriers are more responsible to the diversified demands.

Since the government adopted the policy of competition, it has to create an environment in which the new entrants will be protected and fostered so as to compete with a dominant entity in order to fully utilize the benefits of competition. It is apparent that the monopoly carrier has the resources to crush small competitors. Thus, government regulation must restrain any unfair competitive tactics employed by the dominant carrier and give the new entrants a chance to develop their business.

Japan is introduced a policy of competition in both basic services and non-telephone ones, but it seems that the ideal is a policy mix, which will make the best use of the advantages of both monopoly and competition, rather than going towards either one.

After the principle of competition was introduced, the telecommunications market has become quite active, and business volume expanded rapidly. Therefore, it can be said that the current stage of Japan's liberalization in this field has been basically successful.

With regard to the media integration, INS should be a system which will obtain social acceptance. The relationship between technological possibility and social needs is crucial to the acceptance of a new system in the society. For example, the development of the telephone network was achieved based on the good balance of technologies and social needs.

After the compliance to the social needs of prevalence of the telephone, technological feasibility has grown rapidly, so that they have exceeded the social needs. Such technologies may become a threat to change the pattern of human communications. Therefore, well balanced relationship between technological capabilities and social needs is indispensable to form the advanced information society.

BIBLIOGRAPHY

BIBLIOGRAPHY

Akhavan-Majid, Roya. "Telecommunications Policy making in Japan," Telecommunications Policy (April 1990).

Akhavan-Majid, Roya. "Telecommunications Policymaking in Japan." Telecommunications Policy.(April 1990).

Asada, Kazuo. "NTT's Approach to Entering new Business Area and Founding Affiliates." NTT Review (November 1989).

Asatani, Koichi; Kano, sadahiko; Nakamura, Minoru. "International Trend Toward Standardization of ISDN and INS Services," New Era of Telecommunications in Japan (February 1987).

Bergendorff, Hans; Torsten, Larsson; Naslund, Ruben. "The Monopoly v Competition Debate," Telecommunications Policy (December 1983).

Brock, Gerald W. The Telecommunications Industry. Cambridge: Harvard University Press, 1981.

Carney, M. G. "Strategy in the Telecommunications Market." Telecommunications Policy (September 1986).

Coustel, Jean Pierre. "Telecommunications Sercices in France." Telecommunications Policy (September 1986).

Davidson, William H. ""Japanese Telecommunications Policy,"" Telecommunications Policy (June 1987).

Davidson, William. "Japanese Telecommunications Policy." Telecommunications Policy (June 1987).

Egan, Bruce L. "US Telecommunications Deregulation." Telecommunications Policy (December 1988).

Egan, Bruce L. and Weisman, Dennis L. "The US Telecommunications Industry in Transition. "Telecommunications Policy (June 986).

Fujiwara, Katsuhiko. "Commemorating the Centennial of Telephone Service in Japan." NTT Review (January 1990).

Hirota, Ken'ichiro. "The Future for Telephony in Japan. "Telecommunications Policy (December 1982).

InfoCom Research, Inc., ed., InfoCom Handbook. Tokyo: NTT Publishing, 1989.

Inoue, Teruyuki. NTT. Tokyo: Ohtsuki Shoten, 1990.

International Chamber of Commerce. "The Liberalization of telecommunication Services: Needs and Limits." Telematics and Imformatics. Vol.1, No.1, 1984.

Irwin, Manley R.; Ela, John D. "US Telecommunications Regulation." Telecommunications Policy (March 1981).

Janisch, H. ; Kurisaki, Y. "Reform of Telecommunications Regulation in Japan and Canada." Telecommunications Policy.(March 1985).

John Langdale, "Competition in Telecommunications." Telecommunications Policy (December 1982).

John Langdale, "Competition in Telecommunications." Telecommunications Policy (December 1982).

Jussawalla, Meheroo. "The Race for Telecommunications Technology." Telecommunications Policy (September 1987).

Komatsuzaki, Seisuke. "Social Impacts of New Communications Media." Telecommunications Policy (December 1982).

Kondo, Tetsuo. ed., Telecom Kaikoku. Tokyo: Computer Age, 1984.

Kosuge, Toshio. "The Emerging Data Communication Policy in Japan," Telematics and Informatics, Vol.1, No.1 (1984).

Koyama, Moriya. "The New Communication Age in Japan." Telecommunications Policy (September 1985).

Kurokawa, Kazumi and Nambu, Turuhiko. "Focus on NTT Debate: Divestiture or Delegulation." Nikkei Communication (November 1989).

Langdale, John. "Competition in Telecommunications," TelecommunicationsPolicy (December 1982).

Locksley, Gareth. "London Calling: A Policy for Telecommunications after Privatization." Telecommunications Policy. (September 1984).

Maida, Kunji. "Privatization of Japanese Telecommunications." Telecommunications Policy (June 1985).

Masuda, Yoneji. The Information Society. Washington, D. C.: World Future Society, 1981.

Matsumoto, Yasushi. "The US Telecommunications Policy." Nikkei Communication (January 1990).

Montella, Luigi. "Global Competition and EEC Policy in Telecommunications." Telecommunications Policy (September 1984).

Nambu, Tsuruhiko. Telecom Economics. Tokyo: Nihon Keizai Shimbun-sha, 1986.

Nikkei Sangyo Shimbun-sha. ed., New Media Age. Tokyo: Nikkei Sangyo Shimbun Inc., 1983.

Noll, A. Michael. ""Bell System R & D Activities."" Telecommunications Policy (June 1987).

Ohmae, Junichi. Telecom New Age. Tokyo: Asahi Shimbun-sha, 1988.

Okuyama, Yusai. "Development of Telecommunications Competition and its Prospects in Japan," New Era of Telecommunications in Japan (January 1987).

Onda, Toshio; Matsumoto, Yasushi; Hoshino, Tomoharu; and Miyazaki, Kiyoshi. "Inspection: NTT." Nikkei Communication (July 1989).

Pye, Roger. "The UK Duopoly review." Telecommunications Policy.(April 1990).

RITE and InfoCom Research. ed., Era of Competition in Telecommunciations. Tokyo: Computer Age, 1986.

Sakurai, Shun. "Japan's Telecommunciation Services Shifted from Telephon to Leased Line." Nikkei Communicatoin (May 1990).

Salvaggio, Jerry L. "Social Problems of Information Societies: The US and Japanese Experiences," Telecommunications Policy (September 1983).

Shida, Tadakazu. Telecommunications. Tokyo: Nihon Keizai Shimbun-sha, 1989.

Shooshan III, Harry M. de., Disconnecting Bell. New York: Pergamon Press Inc., 1984.

Solomon, J. H. "Telecommunications evolution in the U. K." Telecommunications Policy.(September 1986).

Study Group of Telecommunications Issues, Fifty-five Points of New Telecommunications Acts. Tokyo: MIA, 1984.

Sugaya, Minoru. American Telecommunications Policy. Tokyo: Nihon Hyoron-sha, 1989.

Tachikawa, Keiji; Sano, Kouhei. "The Corporate Philisophy and Service Vision of NTT." NTT Review (May 1990).

Takahashi, Hirofumi. Telecommunications. Tokyo: Nihon Keizai Shimbun-sha, 1987.

Takahashi, Kenkichi and Odawara, Satoshi. Information Industry. Tokyo: Kyoiku-sha, 1988.

Telecommunications Association. "Current Status and Future Subjects of Telecom Business in Japan," New Era of Telecommunications in Japan (January 1990).

Telecommunications Bureau, Ministry of Posts and Telecommunications, "Current Status and Future Subjects of Telecom Business in Japan," New Era of Telecommunications in Japan (January 1990).

The Telecommunications Association, "Communications in Japan." New Era of Telecommunications in Japan (January 1988).

The Telecommunications Association, "Current State of Super Digital Services." New Era of Telecommunications in Japan (February 1988).

The Telecommunications Association, "Current Status and Future Subjects of Telecom Business in Japan." New Era of Telecommunications in Japan (January 1990).

The Telecommunications Association, "Development of Telecommunications Competition and its Prospects in Japan." New Era of Telecommunications in Japan (January 1987).

The Telecommunications Association, "Examinatin of Prosent Situation Surrounding Implementation of the Telecommunications Business Law." New Era of Telecommunications in Japan (March 1988).

The Telecommunications Association, "Final Report by ISDN Terminal Development Council," New Era of Telecommunications in Japan (March 1988).

The Telecommunications Association, "Liberalizatioin of Telecommunications and Problems being Confronted by Japan." New Era of Telecommunications in Japan (July 1988).

The Telecommunications Association, "Major Telecom Carriers Announce Results for FY 1989." New Era of Telecommunications in Japan No. 110.

The Telecommunications Association, "Mid-Term Demand Forecast for Telecom Equipment (Domestic Production). "New Era of Telecommunications in Japan (January 1989).

The Telecommunications Association, "Results of Liberalization and Future Problems in Japan." New Era of Telecommunications in Japan (February 1988).

The Telecommunications Association, "Technological Issues Involved in Providing Non-telephone Services," New Era of Telecommunications inJapan (March 1987).

The Telecommunications Association, "Telecommunications in Review." NewEra of Telecommunications in Japan (January 1988).

Toda, Iwao. "Innovation in Telecommunications towards the 21st Century." NTT Review (September 1989).

Tomita, Tetsuro. "Japan's Policy on Monopoly and Competition in Telecommunications," Telecommunications Policy (March 1984).

Yamaguchi, Haruo. "A View toward Telecom Services and Networks in the 21st Century." NTT Review (March 1990).

Yasusada, Kitahara. Information Network System. London: Heinemann Educational Books Ltd., 1983.

Yokoi, Mitsuru. "Second Liberalization in Japan." Telecommunications Policy.(September 1983).