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## Model Reference Adaptive Management Theory (I) – Focus on Meiji Era of Japanese Management –

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### Abstract

The main purpose of this paper is to clarify the adaptation policies upon the introduction of management methods from the advanced countries in focus on Meiji era.

The main adaptations policies are as follows: (1) Meiji government adopted positively the pioneer with past shogunate retainers. (2) Meiji government adopted many foreign experts. (3) Japanese managers who studied abroad became master of technological improvement. (4) Establishment of schools and colleges to learn the management and to cultivate bureaucrats. (5) Improving the inherited traditional management by using European and American management. (6) Published to the management journals and books to enlighten peoples. (7) For the sake of modernizing the management, Meiji government pronounced many Japanese Acts. (8) To adopt to the drastic changing of environment of management, Meiji government and companies well monitored the world wide informations.

**Key words:** Model reference adaptive management theory, Japanese management, Meiji era, National bank, Traditional management. European management, *Eiichi Shibusawa*

### 1. Introduction

Recounting the history of Japanese Management, it is clear that when the Japanese management came into contact with the managements of advanced countries, the work of Japanese management exalted the part of the period. This period coincided with the period when the management methods were introduced by advanced countries as a model. In other words, this process can be said to be an attempt by Japanese to adapt to a foreign method, and more this process can be likened to the Model Reference Adaptive Process.

This paper discusses the effort process and consideration about the process of adaptation upon the introduction of management methods from the advanced countries in focus on Meiji era.

The framework of the study is represented as follows: Firstly the economic and social conditions in the last days of the Tokugawa Shogunate and Meiji period will be introduced. Secondly, the development of Japanese traditional management will be discussed. Thirdly, the introduction of European management will be discussed. And finally, the educational

system for Japanese management will be evaluated.

## **2. The Economic and Social Conditions in the Last Days of the Tokugawa Shogunate and Meiji Period**

During the last days of the Tokugawa shogunate, previously introduced primary education system became widespread not only in the urban areas, but also in the rural areas. And via Holland, the existing conditions within the various foreign countries as well as invasion plans of European countries and America within the Asian region could be well monitored. The truth is that, such pressures of foreign countries led to great reforms experienced under the Edo shogunate i.e., the opening of the country. This tension had opened the atmosphere of Edo shogunate, and after recognizing the comprehensive meaning of social and economic systems behind the military and technological power of Europe and America, the Edo shogunate and the two clans-Satsuma and Chosyu sent students to study abroad.

From economic point of view however, the problem in finance experienced by the Edo shogunate and the clans, coupled with international trade problems had actually escalated into other big problems. The Edo shogunate had had to bear the burden of funding the two wars in Chosyu, purchasing the warships, construction of battery plant, completing the factories, etc. But against this background however, the Edo shogunate had disposed of the annual land tax, the surplus of the recasting of metallic currency and government funds from wealthy merchants. The financial situation of the clans at that time, was, beside borrowed golds from wealthy merchants, based on money made from paper as well as the recasting of metallic currencies. According to the investigation conducted in 1871 during the Meiji restoration, the total deficit in a year of each clan became 2.37 times higher during this period. This certainly led to inflation in the Tokugawa shogunate period. At that time, the domestic ratio of exchange between gold and silver was 4.5: 1, while a similar ration on the international market was 15.5: 1. The significant difference in these two ratios caused the gold from Japan to be exported to foreign countries. To prevent this outflow, in 1860, the Edo shogunate did an invulnerable action i.e., one third of total volume of gold was issued by the shogunate in form of gold coins, and the volume of silver coins issued was three times that of gold coins. The result of this effort was that the domestic circulation of both gold and silver increased remarkably by three times. This led to the reduction for inflation in the country.

From the political point of view, the new Meiji government established a foundation for economic growth and centralization became the main political thrust aimed at unifying the country. For that purpose, by 1871 the abolition of clans and establishment of prefectures had been realized. All clans became prefectures and former lords became loyal to the command of Tokyo. There was a government office in each prefecture. In all, there were three metropolitan areas and 72 prefectures, and prefectural government system had come into realization. Reformation of the system of government stressed that under the Prime Minister and the Counselor, the Foreign Affairs, Ministry of Finance, Department of Industry, Department of Military, the Court of Justice and Department of Education were

subordinated to the government. At the same time, the garrisons of Tokyo, Osaka, Kumamoto, Sendai were set up. In 1872, Departments for the Army and the Navy was set up, and in addition the foundation for primary education based on the promulgation of the educational system law and universal conscription based on the promulgation of conscription system law were established.

In the reformation of the currency system, a new regulation for the standardization of gold and coins were promulgated. A currency system to support the silver coin using gold standard was also introduced. At that time however, in casting the coin, the ratio between gold value and silver was 13.2: 1, while the same figure on the international market was 16: 1. This cheap gold value internally, certainly led to an outflow of gold from Japan to foreign countries. For example, between 1872-1884, of the 55 million yen worth of gold coins available in the country, 43 millions yen went to foreign countries. This fact indicated that the established currency system had failed to operate efficiently. Though almost all the previous tax returns received by feudal lords became the income of the new government with the abolishment of these domains and their subsequent replacement by the implied that the debt of feudal lords had to be absorbed by the new government who at the same time, had to provide salaries for these former clans. In line with the above, in 1873, the debt of former clans which had dwindled considerably was taken over too. The deficit before 1843, the deficit inherited from the former shogunate, the deficit of the clans, and no authentic document in a paper had been cut down. Concerning the deficit of the former clans from 1844 to 1867, annual repayment with no interest was applied for 50 years, and after 1868, the share itself remained unredeemed for 3 years. Shares with 4 percent interest was to be paid for a period of 25 years and international deficits were paid by cash. The result showed that the deficit reduced by 73 percent. Among the ex-military class who had less than 100 koku in 1873, the ex-military class who wanted to be repaid the former stipends or who wanted to start with new businesses were disbursed with new stipends for six years in case of permanent stipend repaid and stipends for four years in case of a whole life stipend repaid with half of cash and half of public loan.

To guarantee a stable source of finance for the central government, the system of land tax was reviewed and re-enforced in 1873. Prior to that time, the spot goods tribute of rice existed, owners of land of the whole Japan was decided and to confirm the ownerships, the land ownership must be delivered and the value of land was determined. Every year, a change of three percent was imposed on the land value and this was paid in the form of revenue to the central government. Of this amount, a third was earmarked to the respective local government. This reformation resulted in the decline of the price of rice. It also culminated into the shock experienced in rural areas as well as the bankruptcy of wealthy merchants. The result of this depletion policy was the significant contraction in the economy. The greater part of this shock however brought with it a positive impact, i.e. the character will that prevailed in the development of the country got stronger, and it means, using a single stroke to carry out reformation and this became a fundamental issue in future, development perspectives. Considering the European countries and America as a reference model, Meiji government carried out a policy to develop manufacturing industries. From the former clans and shogunate, Meiji government succeeded to 11 manufactur-

ing industries and 9 mines. Almost all, Department of Military and Department of Industry managed these factories.

In 1870, the Department of Industry came into realization. Railroads construction and management on telegrams, preparation and management of mines and kobudaigakuko (university) were established. To ensure the sound management of the mining industry, Japanese mine regulations were promulgated. All Japanese minerals were owned by government, and at that time 10 vital mines were owned by government and the rest of the mines were left to the private sector. Furthermore, the Department of Industry managed factories responsible for the cement, glass, and introduction of France technology into Gunma prefecture by the Department of Home Affairs could be said to have established the foundation of the Tomioka filature factory.

In 1873, Department of Home Affairs supported the promotion of agriculture industrial trade, development of marine transport, etc., and also made a policy to promote industry. The Ministry of Finance also imposed a policy of import control, limitation of import commodities involving government expenditures, and plans also to supply the issue of public loan for the capital outlay of industries development of marine transportation, and to promote the circulation of money. Along the same lines, the Colonization Agency had been established in 1869 which aimed at developing Hokkaido. During one decade from 1872, the policy to increase the production and promotion of development had also been established. In 1878, a fund meant for channeling public loans into enterprises has also been established and government applied also a sound management on the mines, railroad construction, road construction, harbors construction, etc.

In 1872, the National Bank was established. *Hirofumi Ito* proposed to adopt the system used by National Bank of America. The bank note of specie conversion was published and the value of currency was relatively stable. Around 60 percent of capital of the National Bank was kept by government, and this will be charged as public loan with 6 percent interest. Grant with the same amount of paper money from government was given as a business capital.

The main aim of National Bank is to start business in 1873. But, the number of established bank was not increased, and in 1876, the Regulation of National Bank was revised, i.e. proportion of money reserved became 20 percent of the total capital. The number of established bank was 153 banks until 1879.

In 1877, there was Seinan war, and to supply the expenditure for wars, the supply of money was increased. This certainly increased the price of commodities. In 1874-1876, the standard of basket of agricultural products was 139, however, this figure increased to 167 in 1880. This result brought about the financial crisis in the beginning of Meiji period.

The excess paper money had actually increased the rate of inflation. Considering this crisis, *Masayoshi Matsukata*, Minister of Finance, planned a solution which centered on the gradual adjustment of the money supply and it was followed by the establishment of a regular conversion system.

On the problem of limited financial avenues and increasing of taxation, concrete policies such as withdrawing surplus finance from the financial system were initiated. In addition, inconvertible notes were to be withdrawn from this surplus finance while the rest

of this money as to be channeled into funds meant for foreign exchange.

To guarantee sound balance of payment policies, the above funds were linked to an export company which had relationships with foreign exchange capital. This arrangement was to ensure that current accounts went into the balance of payment accounting system. It was also to afford smooth convertibility into gold money.

This effort was followed by the establishment of modern banking system under the control of the Central Bank.

The above initiative was under the leadership of *Matsukata* and in 1882, regulations of the Bank of Japan was established and enforced in the same year. In 1883, regulations of National Bank assumed that the period permitted for business was for 20 years, and will thereafter be converted into an ordinary bank. In 1884, the regulations of conversion of the bank was promulgated and the monopoly of publication of convertible notes of Bank of Japan and equating silver coin exchange to silver standard was also resolved. The difference between silver and paper money was abolished and in 1883, the convertible notes of Bank of Japan was printed, and exchanged with the money of National Bank of Japan. As a result these measures, the rate of inflation gradually got reduced and modern system of currency was established.

Within the 1890's foreign trade expanded due to the recovery experienced in foreign countries and low exchange rates, and this resulted in the rapid expansion in private enterprises power. The main export commodities were raw silk and tea, alcoholic drinks, bean paste, etc., and consumption commodities such as tobacco, cotton textile, and silk textile. The latter half of 1881 saw a rapid increase in the manufacturing of products resulting in increased profits too. The modern industry of spinning under the manufacturing sector could be distinguished into the main manufacturing of commodities e.g.: pottery industry, while exported commodities were, raw silk, copper, camphor, match, glossy silk, straw insect, etc.

### 3. The Development of Traditional Management

The development of commerce and industry in the beginning of Edo period was as follows. To maintain the rights and interests among traders, a private-circled guild was established among the trade unions. It strongly increased the authorization and protection done by the shogunate. This measure was followed by the institution of foreign trade control, police control, quality control, price control, and paid patent revenue to the shogunate and clans. In a guild, there were officers acting as director, adviser, officials, etc., who decided the venues for meetings. An Individual action done by a member of guild was not permissible, also they limited the entry of new comers.

In the Edo period however, the production of commodities in rural areas intensified, monetary economy increased, and the eradication of traditional distribution system became more effective. To maintain the interests and rights during critical conditions, wholesalers became more dependent on the power of the shogunate and clans. The lord gave an authorization to wholesalers, a privilege similar to the control of the comrade during Kiyoho reformation (1716-1745).

In the period of Tanuma (1760-1787), the shogunate and clans protected a guild and many guilds got authorization from the shogunate and clans. But in the latter Edo period, the monopolistic practices had gradually increased resulting in the increase of prices of commodities too. The shogunate reformed under the Tempo reformation (1841-1843) during which attention was given to the breaking up of the guild. As a result of this effort, there was confusion in the economy, and in 1851, many trade unions of new merchants involved in commerce were re-established.

In the Meiji period, new markets which had relationships with opening of seaports began, and the foundation of guilds became dispersed too. In 1872, the guild was broken up by the regulation on the liberalization of the guilds. However, there was a difference as compared to the process of development of western system of guilds, because merchants in the urban area preferred to enter the comrade union, the rule union, the same trade union for necessity products, and still kept a structure of management.

At that time, the Japanese management practices was characterized by the application of liberal business principles and alongside the continued use of the traditional management methods.

The Meiji government did not face with the transformation of guild, because the nature of guild was actually an inheritance of former guild. In 1884, the Department of Agriculture and Commerce opted for the old trade union rule and gave an order to prefectures which aimed at increasing the production of necessity products. This decision resulted in a rapid increase in the number of unions above the expectation of the government. In 1886, the number of trade unions in the whole of Japan was 1579 with commerce, manufacture, and commerce and manufacturing constituting 628, 404, and 547 respectively. In the 4 provisions of rule of the trade union, in the case three fourth of the trade unions was agreed by traders, the rest must follow too. The same trade union must take the duty, and there was no punishment of the joined trade. To this, among the traders, there was a severe law to get the vote, and this led to the imperial ordinance in 1890, and the same trade union rule was added by punishment rule. And actually, this had developed the system of the same trade union in the whole of Japan. In 1897, the same trade union for the export of important commodities was established because in the local areas there was mass production of coarse articles for export. Since the evaluation of international trade performance of the whole country revealed a downward trendy, it became necessary to establish the same trade union of traders in the whole country.

In 1890, the same trade union act for important products had been promulgated and established under the law, but it was not only confined to the export of important commodities, but was also extended to essential commodities for industrial production purposes. But before the act for training and security of employment and agreement upon the condition of employment became established, this act had ceased to exist. The same trade union structure was thus upheld by the government until First World War, by organizing the important proportion of the production structure.

In a general mercantile house, the traditional system of career-long employment which the employee is fired directly from elementary school as an apprentice, and the position of a sales-clerk and clerk is determined by age, and finally starts a person in business is

adopted. The relationship between employer and employee is based on the expectation relationship.

The present Japanese system of career-long employment and the age-graded management is based on the traditional management system.

#### 4. Introduction of European Management

Meiji government established the Trade Ministry in 1869 to increase the wealth of nation via developing commerce and industry. The government also established the Trade Company and Exchange Company to design the promotion of domestic and international trade.

Initially, the establishment of the Trade Company was aimed at managing the domestic and international trade while the Exchange Company was aimed at helping the Trade Company when the latter was faced with financial problems. This arrangement was meant to recognize the fact that capital was necessary for business transactions. This effort can be said to be a step that was aimed at the establishment of the first bank of Japan and its initial capital was collected from the wealthy merchants. The government also gave credit in the form of capital, while Trade Ministry determined its regulations such as deposits, loans and exchange under supervision of the Ministry's officials. Thus Exchange Company was under semi-government and semi-private management and also enjoyed special favors to issue gold bonds, silver bonds, yen bonds and foreign silver bonds. Though these companies run their businesses well, largely because of government interference, the management became be deadlocked and disappeared after abolition of the Trade Ministry in 1871. The chief reason for this problem was, that these companies could not manage the operation of bookkeeping of foreign accounts. Primarily, Japanese ordinary daybook dealt with order of transactions, income and expenditures, but never with chits, payment accounts, discount bills, etc. In line with this needed modernization, *Kaoru Inoue*, who was the vice minister of Ministry of Finance, employed *Alexander Allan Shand* of Chartered Merchantile Bank of India, London and China (after Merchantile Bank of India in 1892). He was initially posted to the English bank in Yokohama and was also the counselor of the Ministry of Finance. He taught the practical business to officers of Ministry of Finance and young accounting clerks of wealthy merchants Mitsui, Ono, etc. *Shand* came from Scotland and he was an eager believer of liberalism and democratism, and he also deeply respected *William Ewart Gladstone* (1809-1895). He was a man full of democratic spirit and he denounced the putting the government above the people. This was with regards to the relationship between the Meiji government and the people. He was also a hard worker who could recite the book on English history written by *Thomas Babington Macaulay* (1800-1859). The reason why *Shand* was employed at the Ministry of Finance was that he was the author of detailed bank bookkeeping book and his line of thought was rather similar to *Eiichi Shibusawa* who was in charge of practicing administration within the Ministry of Finance.

*Shibusawa* visited Europe in the last days of the Tokugawa government (1867-1868) where he observed the condition of economic and industrial and also political situation.



Based on what he observed during the trip he concluded that it was necessary for Japan to establish an institution for companies with priorities placed on making a modern industry and economy develop along the Gappon principle i.e. the stock company, and then turn into reality to wipe off the prejudice of society to the private sector. He was selected by Ministry of Finance and where he saw to the abolishment of the Exchange Company.

Form the Several measures that he initiated, it be concluded that he was the right man in the right position, i.e. he knew precisely the vital points that must be reformed in planning the regulations of National Bank. He tried to improve the domestic industries and he was a manager of brains in the First National Bank as well as the think tank for the manager' society in the private sector soon after resigning his position from Ministry of Finance. At the time, National Bank held the privileges of only the management of government money, the publication of banks notes. In addition it held the persistence between both two financial cliques such as Mitsui and Ono. *Shibusawa* regarded that bank as necessary for the development of industries and private interest and must be laid down in the second order. Initially, the capital of the bank was only 2,500 yen, the deposits expanded and reached 10,000 yen in 1874. Credit service also increased and the branch offices were established in Osaka, Yokohama, Kobe, etc., besides Tokyo as the head office. *Shibusawa* started industrial promotion by establishing companies. Thereafter, he was selected as the President of the First National Bank in 1874. They had to put all their efforts to persuade customers to use the deposits. Nevertheless, it seemed the bank would not become greater within the status quo. Considering this problem, *Shibusawa* postulated that it was quite relevant to invite some private companies to join together, and this was carried out.

At that time, the quality of paper was found to be inferior, so he decided to establish paper manufacturing plant. In addition to this, the demand for paper for newspaper, magazines and publications had increased rapidly, so he established the Oji Paper Co. in 1874. The factory operated under Western-like style and the plant stood in a row inside the vast area and its machines were usually imported using steam engine. Unfortunately however, the production of paper was found to be unsatisfactory because of lack of technological knowledge of foreign engineering techniques. To overcome this problem, the managers went to America to study the operation of advanced technologies and finally they created their own production process without the assistance of foreign engineers. *Shibusawa*, together with *Yataro Iwasaki*, who was an expert in marine transport established the Tokyo Marine Insurance Co. This establishment was found to be inevitable because they realized that damages due to imported commodities must be reduced.

He also established Tokyo Chamber of Commerce and Industry to develop the character of business. He also supported the Trade Schooling Office to train young businessmen by inviting foreign lecturers. Later, this school was upgraded into the Tokyo college of commerce which later on became Hitotsubashi University. When President Grant of the U.S.A. came to Japan in 1879, *Shibusawa* exerted himself to private diplomacy with him because he considered that the relationship between Japan-America was very important. In 1883, he established Kyodo Transportation Co. in an attempt to modernize the Japanese transportation system against a background of monopoly enjoyed by Mitsu-

bishi Steamship Company in the area of marine transport. This company was developed to become the Nihon Mail Steamer Co. in 1885. Gold coins and Silver coins that flown to foreign countries was mostly caused by dramatically increased import of cotton from British. *Shibusawa* asked *Takeo Yamabe* who was staying in England to study and master the knowledge and techniques within the British Spinning industry. To be able to study along that expectation, he served as a worker in Manchester soon after finishing his study on machinery. The knowledge he acquired in this direction in establishing the Osaka Spinning Mill which he directed as a responsible man. This example can be said to be a reverse experience in acquiring foreign engineering expertise in companion with the Oji Paper Co. In 1887, *Shibusawa* established Tokyo Artificial Fertilizer Co. and he placed *Jokichi Takamine* who went to England in 1878 to study chemical fertilizer manufacture as a central figure. Still within the same year, he established Nihon Brick Manufacturing Co. that produced a number of bricks needed in Western architecture. Thus in all, *Shibusawa* had involved himself in around 400 company establishments during this period.

When he established a new corporation, *Shibusawa* first of all, accumulated the capital and then he recruited engineers to maintain the factory, and finally engineers assumed the management of the factory. When he introduced a new technology, the destiny of the corporation depends on the ability of the engineers. Now a day in Japan, the Presidents of manufacturing and high technology industries are mostly former engineers. This fact suggests that the experience acquired the Meiji period continue to be practicable.

In developing a country, generally the manager is the person who studied management in Europe or America. When he funds company, he usually fails in introducing a new technology. Managers who started as engineers are needed more and more when investment for research and development becomes large scale and long term oriented.

*Shibusawa's* activities was not confined to the business sector alone, in addition, he participated in many social works. He was a director of Tokyo Workhouse for protecting fragrance and he also took part in industrial education, social welfare activities, international friendships, etc. This desire to partake in social activities stem from the lessons he learnt from the sympathetic activities of charities and public service activities of Carnegie when he was studying in Europe and America. Moreover, he believed the analects of Confucian which says that "It is wrong to treat your fortunes as yours only. Because people with greater fortunes gets more help from the society, so it is necessary to do relief work for these benefits and you must do as much as it possible for the society."

*Kosuke Tomioka* who went to America to study prison affairs and prison inspection purposes in 1894, devoted himself to the establish establishment of the reformatory with *Taizo Miyoshi*. At first, he started the Moral Requitall Campaign in 1903 and then it was influenced by the charities of Crup financial clique from Germany when he visited Europe. In Japan he found the financial support from Sumitomo financial clique.

Later, he was introduced to Hotokusha by *Sontoku Ninomiya* and organized "Moral Requitall Group" for regional improvement works. There after, he expounded the necessity for and the establishment of local self-government, while applying the logic of *Sontoku Ninomiya* such as sincerity, labor, portrait and the humbling of one's self. The Sumitomo financial clique always helped *Tomioka Kosuke* and took part in social works and educa-

tional activities through the publication of books and the establishment of the Sumitomo Workers Training School, Osaka Sumitomo Hospital, Osaka Club, etc. These examples has been followed by Japanese managers as they participate also in worker's house and other welfare facilities for employees.

The next issue concentrates on the law system that governed the establishment of business firms. *Gustave Emile Boisuenade de Fontarabie* (1825-1910) from France was invited by Meiji government in 1873. He was ordered to make a draft on the Civil Code. *Herman Roesler* (1834-1894) from German came to Japan in 1878 and he was also ordered to get involved in the promulgation of the Commercial Law Act in 1881. In France, the Five Major Laws were established in the beginning of 19th century, e.g.: Civil Code in 1804, Commercial Law Act in 1807. The Company Law was promulgated in 1867. In Germany, the Commercial Law Act was promulgated in 1861 and each state accepted and enforced it up to 1865. A greater part of the Company Law was revised in 1870 and 1884. *Roseler* finished his work in 1884. During his stay in Japan, he also made a comparison of the Japanese Laws with the French Law in 1808, Spanish Law in 1830, Dutch Law in 1838, German Law in 1861, Italian Law in 1865 and the Egyptian Law in 1874. Under the decision of Law Research Committee and the conference within the Senate, this draft was scheduled to be completed in 1891. However, its enforcement was delayed because it duplicated foreign Laws and also the Committee thought there was imperfect co-ordination between it and the civil code. The Meiji Government established the law investigation association in 1893 to revise the Commercial Law Act and a new one came into being in 1899. This referred particularly to the Germany law system.

## 5. Educational System for Japanese Management

The modern school system of Japan was established in 1872. First of all, the spread and the development of primary education had been the fundamental basis to upper level education. History of industrial education was arranged under the slogan "Increase Production" and the foundation of high level schools were promoted selectively towards the adoption of Western technology at the beginning of the Meiji period.

The Ministry of Industry established Koburyo (later became Kobudaigakuko) in 1871 and Ministry of Education prepared the technical course on law, engineering, chemistry, etc., for the Tokyo Kaisei School in 1874. Sapporo Agricultural School was established by the Colonization Agency in 1876 and lectures on high technology were done by inviting foreign teachers. Koburyo was changed to Kobudaigakuko in 1877 and the then College of Engineering became Tokyo University in 1886. Tokyo Kaisei School was developed into the Faculty of Law and Faculty of Science of Tokyo University in 1877. Thus industrial education in the first half of Meiji period was set up to train the technical bureaucrats in higher education. Nevertheless, schools in the middle level were well maintained in the latter half of the Meiji era.

After the Nitushin War (1894-1895), the modernization of industry was intensified. The Number of enterprises in 1902 increased to 8,612. At that time, industries were mainly silk, spinning, and textile using large scale production systems and continued to expand as

export oriented industries with good prospects for the future.

After the Nichiro War (1904-1905), heavy industries were developed. Yahata Steel Co. produced 73 percent of pig iron and 95 percent of steel that was used in Japan. At that time, Japan was able to produce several kinds of machine tools, steam locomotive, steamship, etc., to supply the domestic demand. Though industrial employees increased rapidly to reflect the modernization process taking place in Japan, the problem posed by the shortage of skilled labor was never solved satisfactorily. Especially the demand for lower grade engineers, managers of small and medium enterprises did not equate its supply. In 1889, *Arata Hamao*, the President of Tokyo Imperial University, maintained the establishment of the school of industrial supplementary studies at Dai Nihon Educational Society. This idea was conceived after his inspection of the "Fortbildungs Schule" in Germany.

When *Inoue Tsuyoshi* was installed as the minister of Education, he considered that the promotion of industrial education was vital as the educational reform itself so he planned for the establishment of school for industrial supplementary study. School of industrial study was based on "Fortbildungs Schule" of Germany as well as the training of young workers on working practices and primary education was given too. Those who entered these schools were graduates of primary schools and the period of study was three years. The main subjects taught in these schools were moral training, reading, arithmetics under the general education curriculum. Industrial subjects were taught depending on the characteristics of a region. In a manufacturing region, they selected drawing, modeling, physics, dynamics design, handicraft, etc. In a commercial region, regional economics, economics, business law, bookkeeping, business, documents, commercial geography, foreign language, etc. In an agricultural region, the main subjects were, introduction of agriculture, cultivation, noxious insect, fertilizer, soil, draining, irrigation, farm implementation, gardening, silkworm, agricultural book, etc. For other subjects e.g.: fisheries, machinery, etc., were selected for some occupation suitability. These subjects were prepared and were connected with each regional industry. In 1894, Japanese industrial education made a rapid progress caused by Industrial Education Fee Act (national treasury disbursements) and the number of schools for industrial supplementary study increased from 19 in 1894 to 108 in 1897 and increased further to 6,740 in 1911. This indicated that practical know-how for "Increase the Production" policy had become popular among the society.

Japanese industrial education system had been completed through Industrial School Act of 1899 and Technical School Act of 1903. School of industrial supplementary study and guild schools were restored as industrial schools from the curriculum of primary schools.

Finally, one of the most important education was the popular enlightenment, which many books with introduction of European country and promotion of education such as "Seiyoujijou" "Sekaikunizukusi" and "Gakumonnosusume" by one of enlightened scholars *Yukichi Fukuzawa* were published at timely. Japanese peoples learned earnestly the culture and civilization of European country and the promotion of education from these best seller's books.

Recently, developing countries are experiencing difficulties on how to create business and industrial talents among their citizens that these conditions are created by the shortage of lower and middle class managers and engineers. This shortages, inevitably frustrates the

efforts of their business and industrial leaders trained in Western countries as they undertake business and industrial activities based on their acquired knowledge. To this effect, the Japanese experience teaches some vital lessons as a means of confronting economic development problems currently being experienced in the developing countries.

## 6. Conclusion

The Tokugawa Shogunate and Meiji government have monitored the existing conditions within the various foreign countries as well as invasion plans of European countries and America within the Asian region.

From the political point of view, the Meiji Government has established a foundation for economic growth, and the centralization to aim at unifying the country. For that purpose, by 1871 the abolition of clans and establishment of prefectures had been realized. Furthermore, considering the European countries and America as a reference model, Meiji government carried out a policy to develop manufacturing industries. In 1872, the National Bank was established to adopt the system used by National Bank of America. This effort was followed by the establishment of modern banking system under the control of the Central Bank. According to established the economic and political foundation, the European management has been introduced from foreign countries to the government and company of Japan. The development of European management was pursued by a leader, *Eiichi Shibusawa*, and then was actively adapted by Japanese leaders.

In 1897, the trade union for the export of important commodities was established because there was mass-production of coarse articles for export. Since the evaluation of international trade performance of the whole country revealed a downward trend, it became necessary to establish the trade union of traders in the whole country. The trade union was thus upheld by the government until First World War, by organizing the important proportion of the production structure.

The modern school system of Japan was established in 1872. First of all the spread and the development of primary education had been the fundamental basis to upper level education. The industrial education was arranged under the slogan "Increase Production".

After the Meiji and Nichiro War, the light industries and heavy industries were developed. Though industrial employees increased rapidly to reflect the modernization process taking place in Japan, the problem posed by the shortage of skilled labor was never solved satisfactorily. Especially the demand for lower grade engineers, managers of small and medium enterprises did not equate its supply. The promotion of industrial education was vital as the educational reform for the establishment of school for industrial supplementary study. Japanese industrial education system had been completed through Industrial School Act of 1899 and Technical School Act of 1903. School of industrial supplementary study and guild schools were restored as Industrial School. Recently, developing countries are experiencing difficulties on how to create business and industrial talents among their citizens. It is regarded that these conditions are created by the shortage of lower and middle class managers and engineers. The business and industrial activities were based on their acquired knowledge. To this effect, the Japanese experiences teaches

some until lessons as means of confronting economic development problem currently being experienced in the developing countries.

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