## Kyocera Corporation

#### Abstract

Kyocera Corporation was established after the World War II in Kyoto. It became a large corporation representing Japan in a short time. It does not belong to any of the Ex-zaibatsu or bank groups. Kyocera Corporation mainly manufactures ceramics and supplied U-ji Kerushima (U-shaped ceramic tube) to Matsushita Denshi Kogyo Kabushiki Kaisha (Matsushita Electronics Industry Corporation) (now Panasonic). It launched the business activities in the Kyushu Region and the Kanto Region relatively early.

Kyocera Corporation diversified its businesses especially after the 1973 oil crisis. It grew from a small company toward a large corporation.

Keywords: Kyocera Corporation, ceramics Takatoshi Takikawa

# Preface

Kyocera Corporation mainly produces ceramics and also runs a lot of businesses such as cellular phones and solar electric power generation systems [1]. Kyocera Corporation was founded by Kazuo Inamori at Kyoto City. He comes from Kagoshima Prefecture. Kyocera Corporation doesn't belong to any of the Ex-zaibatsu groups or bank groups [2].

There are studies conducted by R. Cooper and Hiroshi Miya about so-called Amoeba Management that was named after the management style of Kyocera Corporation [3]. However, there was no study done by using the publication of company history (shashi) of Kyocera. Therefore I use a publication of company history (shashi) of Kyocera in this article.

There are two publications about the company history of Kyocera Corporation. One is titled "Hateshinai Mirai heno Chōsen - Kyocera Kokoro no Keiei 40 nen (Challenge to the Endless Future – 40 Years of Kyocera's Mindful Management)"(2000). The other was compiled for the internal use of the Kyocera Corporation group, and is titled "Hateshinai Mirai heno Chōsen - Kyocera Group 50 nen no Ayumi (Challenge to the endless future. the history of Kyocera Group. 50 years)" (2010)[4]. The former consists of eight chapters followed by technology part and comprehensive data part. The latter consists of ten chapters in the latte are the same as the ones in the former.

#### 1. Ceramics

Kazuo Inamori comes from Kagoshima Prefecture and graduated from Kagoshima University in 1955. He got a job with an insulator company in Kyoto after the graduation. The name of the company is Shofu Kogyo Kabushiki Kaisha (Shofu Kogyo, Inc.) established in 1906. He was assigned to a laboratory of the manufacture section and was engaged in the research of forsterite ceramics. At that time, steatite porcelain and zircon porcelain were used for high-frequency insulators of electronic parts. In contrast, forsterite porcelain has higher insulation resistance even in high temperature than stealite porcelain. Therefore, forsterite porcelain is more suitable for making electronic parts. In 1953, the television broadcasting began in Japan and the demand for television sets was starting to come out. Matsushita Denshi Kogyo Kabushiki Kaisha (Matsushita Electronics Industry Corporation) (currently, part of Panasonic) was importing U-ji Kerushima (U-shaped forsterite ceramic tube parts) from Koninklijke Philips Electronics N. V. (Royal Philips Electronics) in the Kingdom of the Netherlands. U-ji Kerushima was electronic parts used for a television set. Matsushita Electronics Industry Corporation wanted to start the domestic production of U-ji Kerushima in Japan, and asked Shofu Kogyo, Inc. to produce it. Kazuo Inamori succeeded in developing the product by using forsterite ceramics in Shofu Kogyo, Inc. and the company sold U-ji Kerushima to Matsushita Electronics Industry Corporation. Since there was a conflict between Kazuo Inamori and his boss about business policy, Inamori was forced to leave the company in 1958. Then, he established Kyoto Ceramic Kabushiki Kaisha (Kyoto Ceramic Corporation) at Nishinokyo-haramachi, Nakagyoku at Kyoto City in 1959. He borrowed buildings from Miyaki Denki Seisakusho (Miyaki Electric MRG. Co., Ltd.) The number of the employees was 28. In 1982, Kyoto Ceramic Corporation changed its name to Kyocera Corporation. Kyo is for Kyoto and Cera is for ceramics [5].

In those days, Nihon Gaishi Kabushiki Kaisha (NGK INSULATORS, LTD. and Kabushiki Kaisha Murata Seisakusho (Murata Manufacturing Co. Ltd.) were also producing ceramics, but no other companies except Kyocera Corporation paid attention to forsterite ceramics. While the manufacture of iron needs large facilities like steel mills, the manufacture of ceramics doesn't require such large facilities. Comparatively little capital is sufficient for producing ceramics. Kyoto City is close to Osaka where many large corporations like Matsushita Electronics Industry Corporation, Sanyo Denki (Sanyo Electric Co., Ltd.) and Sharp Kabushiki Kaisha (Sharp Corporation) have located their headquarters. The Kansai Region is the second most populated area after the Kanto Region. Therefore, Kyoto City is a very good location for business.Kyocera Corporation was successful in getting a business order for U-ji Kerushima from Matsushita Electronics Industry Corporation.

Later, Kyocera Corporation started to produce cathode-ray tubes which were important parts of the television set in those days. Matsushita Electronics Industry imported also cathode-ray tubes from Royal Philips Electronics, but as in the case of U-ji Kerushima, Matsushita Electronics Industry also wanted the domestic production of U-ji Kerushima in Japan. Kyocera Corporation also succeeded in developing and producing the cathode-ray tube. There were economic booms in the economy of Japan: the Jinmu economic boom (1956-1957), the Iwato economic boom (1958-1961) and Izanagi economic boom (1965-1970) as named after legendary events of Japanese history. During these economic booms, electric appliances such as television sets, washing machines and refrigerators came into widespread use in Japan. The color TV broadcasting began in Japan on September 10, 1060, and the Olympic Games held in Tokyo in 1964 triggered the demand increase for the color television sets in the Japanese domestic market, which greatly contributed to the rapid growth of Kyocera Corporation[6].

Kyocera Corporation expanded the head office at Kyoto City in 1960, but the space shortage soon occurred again. Therefore, the company constructed a new factory at Gamo-cho (currently, Higashi-Omi City) in Shiga Prefecture in 1963. The Land Price of Shiga Prefecture is comparatively lower than that of Kyoto City. Shiga Prefecture is near the headquarters of Kyocera Corporation at Kyoto City. These were merits of constructing a factory in Shiga Prefecture. Furthermore, Kyocera Corporation constructed another factory at Yokkaichi City (now Higashiomi City) in Shiga Prefecture in 1980 while the head office of Kyocera Corporation was moved to Higashiyama-ku Yamashina (now Yamashina-ku) at Kyoto City in 1972.

In addition, Kyocera Corporation constructed new factories at Sendai City (now Satsumasendai City) in Kagoshima Prefecture in 1969 and at Kokubu City (now Kirishima City) in Kagoshima Prefecture in 1972. The reasons for constructing the factories in Kagoshima Prefecture were that the governor in Kagoshima Prefecture invited the factory construction by business corporations for the purpose of developing the economy of the prefecture and that Kazuo Inamori comes from Kagoshima Prefecture, graduating from Kagoshima University. He has close relationship with the prefecture. With the engineering departments and Science departments, Kagoshima University sent a large number of engineers to Kyocera Corporation. The Kyusyu region including Kagoshima Prefecture has abundant resources of high quality water supplies as well as labor forces and lands. The products can be transported by air from Kagoshima Airport etc. The scale of the market in the Kyusyu Region is not small. Furthermore, the Kyusyu Island is comparatively closer to the Republic of Korea, the People's Republic of China and the Republic of China (Taiwan). Kyocera Corporation opened a small detachment office at Tokyo in 1960 and restructured it as Tokyo Office later. It also opened Tokyo Central Laboratory and Tokyo Branch Office in 1984. Kyocera Corporation had sent their staff and employees on business trip from Kyoto to Tokyo before. Since it took such a large amount of cost and time with limitations in business activities, the company opened such business locations in Tokyo The Kanto Region is the most populated region in Japan where most of the large corporations of Japan have located their business offices such as Sony Kabushiki Kaisha (Sony Corporation), Fujitsu Kabushiki Kaisha (Fujitsu Limited), Kabushiki Kaisha Toshiba (Toshiba Corporation), etc.

Kyocera Corporation actively went into foreign markets. Kyocera Corporation made agency contracts for export with Kyokuto Boeki Kabushiki Kaisha (Kyokuto Boeki Kaisha, Ltd.; KBK) in 1962, and with Marubeni-Iida co., Ltd. (now Marubeni Corporation) and Shaman Shoji Kabushiki-gaisha in 1964. KBK covered Europe, Marubeni-Iida covered the United States of America, and Shaman Shoji covered Hong Kong and Southeast Asia. Kyocera Corporation also established Kyocera Corporation International Inc. (KII) in California, USA in 1969. It also opened the business base in New Jersey in 1973. Kyocera Corporation acquired the ELCO Group in 1989. The ELCO Group is an American corporation and had production bases in Japan, Korea and Germany. The group produced and sold connecters for electronic equipment. Furthermore Kyocera Corporation merged AVX Corporation. AVX Corporation was an electronic parts company and had production bases in the United Mexican States, Germany and Singapore, etc. Kyocera established a joint company in Germany with Feldmühle in 1971. Kyocera also established Kyocera (Hong Kong), Ltd.(KHL) in 1977. It established a joint corporation Tokansekiryu Kyocera Kogaku Yugenkoshi (Dongguan Shilong Kyocera Optics Co., Ltd) (now Dongguan Shilong Kyocera Co., Ltd.) with Yuelong Industrial Company in Guangdong Province of China in 1996. Kyocera also established Shanghai Kyocera Kogaku Yugenkoshi (Shanghai Kyocera Electronics Co., Ltd: SKE) at Shanghai. Thus, Kyocera Corporation completed four business bases in the world in 1988. The territories covered by the headquarters are Japan, Korea and Brazil. The territory of KII is North America. Kyocera Europe GmbH (KEG) was established at Düsseldorf of Germany in 1988 to control European countries. Kyocera Asia covered Southeast Asia. Kyocera Corporation expanded business to

France in 1999 and to Brazil in 2000. Kyocera Europe GmbH changed its name to Kyocera Fineceramics GmbH (KFG) in 1999. It covered Europe and Africa. Kyocera Hong Kong Limited was found at Hong Kong in 1977. It was mainly in charge of Asia except Japan. With the return of sovereignty to Hong Kong in 1997, Kyocera Asia Pacific Private Limited was established in Singapore in 1998. The headquarters business of KHL was transferred to Kyocera Asia Pacific Private Limited. The reasons for advancing abroad are that the United States of America and Germany are the leading industrial countries in the world and that Asia has a large population.

### 2 Diversification

Kyocera Corporation took advantage of their ceramics technology to enter other business fields. In 1959, Kurashiki Rayon (now Kuraray Co., Ltd.) requested Kyocera Corporation to manufacture yarn guides with ceramics to be used in the spinning machines. Later Kyocera Corporation got order from Toyo Rayon (now Toray Industries, Inc.), Teikoku Jinzokenshi Kabushiki Kaisha (Teikoku Rayon Co., Ltd.) (now Teijin Limited), Mitsubishi Rayon Co., Ltd and other textile companies. Yarn guides of ceramics excel in smoothness and wear resistance. Kyocera Corporation produced friction disks for textile machines around 1969. A friction disk is a rotating disk for twisting chemical fibers for the texture feeling. Rubber (polyurethane) had been used before, but a friction disk made of rubber lasted only half a year. According to the request from Teijin, Kyocera succeeded to manufacture the friction disks made of ceramics.

In 1965 Kabushiki Kaisha Toyo Roll Works (now Horikawa Engineering Works Ltd.) requested Kyocera Corporation to make hydrofoils and forming boards to be used for filtration equipment for dewatering of paper making machines. Toyo Roll Works had imported hydrofoils and forming boards from Feldmühle of Germany and assembled them in a stainless box for sale to paper manufacturing companies. Toyo Roll Works planned to manufacture hydrofoils and forming boards in Japan. Kyocera Corporation developed high-purity alumina and succeeded in manufacturing hydrofoils and forming boards in Japan.

Around 1973, a fishing company requested Kyocera Corporation to make guide rings which were attached to fishing rods. Previously guide rings were mainly made of glazed porcelain and carbide tungsten carbide. They, however, had several weak points as they were subject to wear and to break and they were too heavy. Fine nylon thread (fishing gut called "tegusu" in Japanese) was subject to snapping due to friction heat when hooking up a fish. To solve these problems, Kyocera Corporation developed guide rings made of alumina ceramics in 1974. It also started to manufacture guide rings of silicon carbide in 1979 [7].

When the 1973 oil crisis occurred, the price of oil jumped up. In 1974 the minus economic growth was recorded for the first time in Japan after World War II. The Japanese high economic growth came to a pause. In this situation, Kyocera Corporation listed its shares on the First Section Tokyo Stock Exchange and Osaka Securities Exchange in 1974. Kyocera Corporation changed its business structure which was too much concentrated in the electric appliances for limited customers. Therefore, the company diversified its businesses more than ever. Firstly, they entered machine tool business of ceramic chips. Ceramic chips made use of ceramics as a cutting tool. Conventional high-speed steel chips and super-alloy chips used for cutting tool were damaged or worn out too soon due to friction heat when cutting speed is raised. Ceramic chips are hardly subject to chemical reaction and are excellent in heat-resistance

and wear resistance. At present, Kyocera Corporation makes cermet tools, coated tools and cemented carbide tools as well.

Kyocera Corporation also produces ceramic knives and ceramic kitchen knives. In comparison with metal, ceramics are characteristically light and hardly rust. Moreover Kyocera started to produce parts for cars in order to respond to car manufacture movements toward digitization and advanced electronic control systems.

Kyocera Corporation also started to sell recrystallized jewels (Crescent Vert). Crescent Vert is compound words of English and French. Crescent is an English word for the crescent moon. Vert means green in French. Kyocera Corporation succeeded in recrystallizing the jewels by making use of the ceramics technology. Kyocera Corporation entered into the area of dentistry and medicine. Mainly metal was used for damaged teeth, bones and joints at that time. While they lasted about two to five years, ceramics are better in biocompatibility than metal. Thus Kyocera Corporation produces ceramic dental implant, ceramic bone implant and ceramic joint implant instead of metals.

Kyocera Corporation also started to compete in the package business of semiconductors in 1968. An integrated circuit (IC) was invented in 1960 and its demand for IC protection package showed a rapid increase. Kyocera Corporation started to manufacture ceramics packages. Semiconductors were used for video game machines and vending machines at first, then for computers. Since package demands for the computers shifted gradually from ceramics to organic packages, Kyocera Corporation also started to produce organic packages around 1995. Moreover it also produced SMD packages for cellular phones and digital household appliances. It also made CCD packages and CMOS packages for digital cameras and cellular phones, and then blue LED packages and white LED packages later. It produces packages for accelerometers used in the airbags of cars, substrates for electronic control unit (ECU) used for electric control of car engines and sensor substrates for medical diagnosis equipment.

With the 1973 oil crisis, interest for the alternative energy emerged. Ministry of Economy, Trade and Industry (METI) launched the so-called Sunshine Project in 1974. The project covered the researches on the alternative energy such as solar energy, geothermal energy, gas production from coal, liquefaction of coal, hydrogen energy, etc. In 1975, Kyocera Corporation invested 51% funds for establishing Japan Solar Energy Corporation (JSEC) with Japanese and American companies like Sharp Corporation, Matsushita Denki Sangyo Kabushiki Kaisha (Matsushita Electric Industrial Co., Ltd., renamed as Panasonic later), Mobil Oil Corporation and Tyco Laboratories, Inc. Japan Solar Energy Corporation promoted the introduction and commercialization of the solar battery technology named Edge-defined Film-fed Growth Method (EFG) which Mobil-Tyco Solar Energy Corporation (MTSEC) had. Social interest for solar battery declined as the supply of oil stabilized, and in 1980 to 1983 Kyocera Corporation bought all the other stocks of the company from the other four companies. The oil price dropped in the mid 1980's due to oversupply of oil. This was due to the increase in oilfield development in the non-OPEC countries like Mexico as well as the energy efficiency improvement in the developed countries including Japan. Later Kyocera Corporation obtained the polycrystalline silicon technology of Wacker Chemitronic GmbH of Germany. In 1990s, social interest for the global environment and new energy was increasing. Ministry of Economy, Trade and Industry (METI) also began a monitor system in 1994 to subsidize half of the cost of a solar electric power generation system. METI gave the subsidy for introducing solar electric power generation systems at households until 2005. Kyocera Corporation sells solar electricity

generation systems for private houses, public institutions and industries. Kyocera Corporation utilizes the ceramics technology and produces fuel batteries [8].

Kyocera Corporation merged Trident Kabushiki Kaisha and Cybernet Kogyo Kabushiki Kaisha in 1979. Trident Kabushiki Kaisha has factories at Ise City in Mie Prefecture and Sukagawa City in Fukushima Prefecture. It produced cash registers and calculators with a printer. The head office of Cybernet Kogyo Kabushiki Kaisha was at Kawasaki City in Kanagawa Prefecture. It has factories at Kitami-City in Hokkaido, Tanagura-machi in Fukushima Prefecture and Tamaki-cho in Mie Prefecture. It produced audio equipment such as stereo sets and transceivers for cars. Kyocera Corporation entered the electronics market of copy machines in 1981. Then it embarked on the area of printer and other parts like ink accessory. It produced thermal print heads, amorphous silicon photoconductor drums, LED print heads and ink jet heads etc. Furthermore Kyocera Corporation provided business supports to Mita Kogyo Kabushiki Kaisha since 1998. Mita Kogyo Kabushiki Kaisha changed its name as Kyocera Mita Kabushiki Kaisha (Kyocera Mita Corporation: KMC) in 2000 and become a subsidiary of Kyocera Corporation later. Kyocera Corporation restructured the sales subsidiary of Mita Kogyo Kabushiki Kaisha into Kyocera Mita Japan Kabushiki Kaisha (Kyocera Mita Japan Corporation: KMJ). Kyocera Mita Corporation changed its name again as Kyocera Document Solutions in 2012. It produces printers and attachments including toners. It provides solutions about computer security such as control of printers and information leak.

Kyocera Corporation participated in the area of hotel business in Kagoshima Prefecture in 1995. The reason for the participation is that there was no urban-type hotel near the factories of Kyocera Corporation in Kagoshima Prefecture. The hotel provides the services for the weddings and meetings of local people. They own Hotel Kyocera Co., Ltd. at Kirishima City in Kagoshima Prefecture and Hotel Nikko Princess Kyoto at Kyoto City. There is International Golf Resort Kyocera at Satsuma Town. Guests can play golf, tennis and soccer and they can also stay at this resort.

The three large government-owned corporations were privatized in 1985: Nihon Kokuyu Tetsudo (Kokutetsu)(Japanese National Railways; JNR), Nippon Denshin Denwa Kosha (Den Den Kosha) (Nippon Telegraph and Telephone Public Corporation; NTT) and Nippon Senbai Kosha (Japan Tobacco and Salt Public Corporation) [9]. Regarding the telecommunication business in Japan, Nippon Denshin Denwa Kosha had a monopoly in the domestic arena and Kokusai Denshin Denwa Co. Ltd. had a monopoly in the international telecommunication business up to that time. Nippon Denshin Denwa Kosha was privatized as Nippon Telegraph and Telephone Corporation(NTT). The NTT Group consists of Nippon Telephone and Telegraph East Corporation(NTT East), Nippon Telephone and Telegraph West Corporation (NTT West), NTT Communications Corporation, NTT Docomo, Inc. and NTT Data Corporation, etc. NTT East covers Tokyo Prefecture, Hokkaido Prefecture and 15 Prefectures north of the Kanto Region and Koshinetsu Region. NTT West covers Osaka Prefecture and Kyoto Prefecture and 28 Prefectures. NTT Communications Corporation covers the international telephone and the internet service provider as Open Computer Network(OCN). NTT Data covers IT Services.

After this privatization of Nippon Denshin Denwa Kosha, any private enterprise can also compete in the area of the telecommunication. Then, Kyocera Corporation established Daini Denden Inc. (DDI Corporation: DDI). During a trip to the United States of America, Kazuo

Inamori knew that the cost of long distance call in Japan was far higher than that of USA. He thought that the reason was the state monopoly protected by the government regulations. By entering this business area, Kyocera Corporation wanted to lower the communication costs in Japan. Nihon Telecom Kabushiki Kaisha, an affiliated company of the JR Group competes in the same area. Nihon Kosoku Tsushin Kabushiki Kaisha, an affiliated company of Nihon Douro Kohdan (Japan Highway Public Corporation; JH) and Toyota Jidosha Kabushiki Kaisha (Toyota Motor Corporation) also started the business in the same area at the same time. Nihon Telecom had telecommunication technology as part of their railroad business since the time of Kokutetsu. It could lay optical fibers along the route of the Shinkansen(bullet train). Nihon Kosoku Tsushin Kabushiki Kaisha could also lay optical fibers along Tomei Kosoku Douro (Tomei Expressway) and Meishin Kosoku Doro (Meishin Expressway). In contrast, there was shortage of infrastructure and personnel in the case of DDI Corporation. DDI Corporation laid optical fibers by way of microwave. In 1986, the area of mobile communication was also liberalized. DDI and Nihon Kosoku Tsushin Kabushiki Kaisha compete in the area. Because of the limitation of wave band, only one company could compete in a region except NTT at that time. Therefore, Nihon Kosoku Tsushin Kabushiki Kaisha established Nihon Ido Tsushin Kabushiki Kaisha(IDO). The service area of IDO was the Tokyo Metropolitan area and the Chukyo area. DDI covered the Kinki area and the Kyushu area. Kyocera Corporation manufactures cellular phone as DDI began the business of cellular phone. DDI listed their shares on the Second Section Tokyo Stock Exchange in 1993 and the First Section Tokyo Stock Exchange in 1995.

On the 1st October, 2000, DDI Corporation, KDD Corporation and IDO Corporation were merged into a new company under the name of DDI Corporation, which then was renamed to KDDI Corporation in 2001. KDDI runs the business by the name of au. The market share of KDDI is the second greatest in Japan now. Kyocera Corporation develops, makes and sells mobile devices for the KDDI Group[10]. It merged the business of Sanyo Electric Co., Ltd in 2008. Sanyo Electric Co., Ltd had strong brand and marketing capabilities especially in North America. Thus, Kyocera Corporation planned to expand the business of cellular phones both in the United States of America and Japan. It acquired the development and design technology of Sanyo Electric Co., Ltd.

## Conclusion

Kyocera Corporation became a company representing Japan in a short time. It doesn't belong to any of the Ex-zaibatsu or bank groups. Kyocera is a company which supplied with U-ji Kerushima (U-shaped forsterite ceramic tube) to Matsushita Denshi Kogyo Kabushiki Kaisha (Matsushita Electronics Industry Corporation) (now Panasonic) at first. U-ji Kerushima was important parts used for a television set. Later, Kyocera Corporation succeeded in diversifying and participating in a high-tech industry under the occurrence of extremely rapid changes. It has made a great progress from a small company toward a large corporation.

There are three reasons for the development of Kyocera Corporation: ceramics, the markets and the diversification. The manufacture of ceramics does not require large facilities like a steel mill. With the rapid growth of economy, the demand for television sets was increasing at a high speed in those days. Therefore, the need for ceramics was also increasing and Kyocera Corporation grew rapidly. Kyocera Corporation was founded by Kazuo Inamori at

Kyoto City who comes from Kagoshima Prefecture.

The second reason is the markets. The Kansai region is one of the most populated areas in Japan. Kyoto City is near Osaka where Panasonic etc. located their headquarters. Kyocera Corporation constructed factories in Kyoto Prefecture and Shiga Prefecture. It also constructed factories in Kagoshima Prefecture relatively early. The reason for locating the factories in order to develop the prefecture. Kazuo Inamori comes from Kagoshima Prefecture, graduating from Kagoshima University. Therefore, he has close relationship with the prefecture. The scale of the market in the Kyusyu region is large. The Kyusyu island is closer to Korea, China and the Republic of China (Taiwan). Moreover, Kyocera Corporation can employ engineers who are graduates from Kagoshima University specializing in ceramics. Kyocera Corporation does businesses in the Kanto region. The Kanto Region is the most populated region in Japan. Large Japanese corporations like Sony Corporation, Toshiba Corporation, etc. locate their headquarters at Tokyo. Kyocera Corporation also actively entered foreign markets.

The last reason is the diversification. Kyocera Corporation uses the technique of ceramics and embarked on the other fields such as ceramic chips, ceramic knives semiconductors, fuel batteries and telecommunication etc. Thus Kyocera Corporation prospers today.

### References

[1] Ceramics is a general term which means non-metallic inorganic material.

[2] Zaibatsu mean Mitsui, Mitsubishi, Sumitomo and so on.

[3] Robin Cooper, Kyocera Corporation: *The Amoeba Management System*, (Boston:

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[5] Kyocera Corporation, Hateshinai Mirai heno Chōsen - Kyocera Group 50 nen no Ayumi (Challenge to the Endless Future - the history of Kyocera Group. 50 years, (2010), pp. 39-40., p. 44., pp. 48-49., pp. 172-173.

A black-and-white TV, a washing machine and a refrigerator are called Sanshu no Jingi (three sacred treasures). "Sanshu no Jingi" originally means the three imperial treasures of the Japanese Imperial Household. They consist of the mirror Yata no Kagami, the sword Ame no Murakumo no Tsurugi (the sword Kusanagi no Tsurugi) and the comma-shaped bead Yasakani no

Magatama. They correspond to the crown, the scepter and the orb etc. (the regalia) in Europe. A color television set, air conditioner (is called cooler in Japanese English) and a car are called 3C's (3 C in Japanese English) in Japan in those days as "everyone-wants-to-have commodities". [6] The Jinmu economic boom was named because the boom was epoch-making since the beginning of Japan. Jinmu emperor was a legendary first emperor who appears as written in the classical history books, Kojiki and Nihon Shoki. The Iwato boom was named after a historical event written in the same books. The Iwato economic boom was bigger than the Jinmu economic boom. The time of the Iwato event is older than that of Jinmu emperor. The economic boom was epoch-making since Amaterasu Omikami hid inside the Ama no Iwato. Amaterasu Omikami is a goddess and believed to be the imperial ancestor. The Izanagi economic boom is named after the same book as the economic boom was bigger than that of Jinmu economic boom and Iwato economic boom. Izanagi is a god and father god of Amaterasu Omikami. He and his wife goddess Izanami are said to have made Japan at an order of heavenly gods. [7] Tegusu means originally a thread which is made from larvae of Fusan (Eriogyna pyretorum)

and Kususan (Dictyoploca japonica). The threads are used for fishing lines. Deriving from the meaning, tegusu sometimes refers to the general fishing lines.

[8] METI launched "Moonlight Project" in 1993. It was a research on the technical development for energy saving. METI integrated the Sunshine Project and the Moonlight Project and started a New Sunshine Project in 1994.

[9] In 1987, Japanese National Railways (JNR) was privatized and divided into twelve corporations (the Japan Railways Group: JR Group). Seven corporations are railroad companies. Six companies are for passengers and one company is for freight. Five Corporations were established for preparation of gradual liquidation/settlement of negative inheritance from the old JR Group as Japanese National Railway Settlement (JNRSC).

[10] KDDI Corporation, NTT Docomo, Inc. and SoftBank etc. are the cellular phone companies in Japan. Willcom, Inc. is the PHS company in Japan. Willcom, inc. is under the process of rehabilitation by the supports of SoftBank.