

Interview with CEO(37)

Mr.Michiaki Miyake

President & CEO

Mitsubishi Space Software Co.,Ltd



Outline of Career

- 1943 Born in Ayabe City in Kyoto Pref.
- 1966 Graduated from Osaka University, LL.B.
Joined Mitsubishi Electric Corporation (MELCO)
- 1977 Completed International Institute for Study and Training (IIST,METI)
- 1990 General Manager, Space Systems Department, HQ, MELCO
- 1997 General Manager, Electronic Information Division, MELCO
- 1998 General Manager, Law Department, MELCO
Served concurrently as a director of Mitsubishi Electric China
- 1999 Officer & General Manager, Law and Intellectual Property Right, HQ, MELCO
- 2002 President & CEO, Mitsubishi Space Software Co., Ltd (URL: <http://www.mss.co.jp>)

(Interviewer: Takao UEDA, AIAA-JFSC)

First of all, please let me hear how Mitsubishi Space Software Co. that had fully devoted itself to the space development program of Japan for many years in the area of software and the system development, as the company name suggests, has changed and evolved recently. How is the most recent company profile ?

Mr.Miyake : Our company was established as the joint venture called “ Mitsubishi TRW ” between four major Mitsubishi Group companies headed by Mitsubishi Electric Corp. and TRW Ltd., top enterprise in U.S. space activities in 1962.

At that time, TRW was a conglomerate including the semiconductor, computer, auto mobile parts, and space activities. Mitsubishi-TRW concluded the contract with TRW Systems including the execution right and the technical exchange in the area of the space technology which lasted until 1974. Under that contract, our company has worked on the development and design of guidance-and-navigation(G&N) software and launch complex system of N-I and N-II launch vehicles.

In 1976, the company name was renewed to "Mitsubishi Space Software Co.(MSS)", after the termination of joint venture contract with TRW, under the new circumstance to develop H-I vehicle based upon Japanese domestic technology. Since that time, MSS has been contributing to the evolution of domestic technologies, as the leading launch vehicle/satellite software development firm in Japan, having the support of Mitsubishi Electric Corp. (MELCO) and Mitsubishi Heavy Industries.

Concretely, we have been responsible in developing the on-board G&N software, design verification analysis and G&N analysis of H-I, H-II and H-IIA vehicle under the contract with the National Space Development Agency (presently JAXA).

Later, we have made extensive efforts in developing JEM safety /information management system, in providing engineering support to MELCO for 1 ton-class LEO satellite and 2 ton-class GEO satellite buses built by MELCO, and various satellite related software such as ETS-VI tracking/control and real time orbit determination software. Orbit injection analysis of “Kaguya” lunar orbiting satellite that was successfully launched by H-IIA in September, was also done by us under the contract with Mitsubishi Heavy Industries, the prime contractor. We have also been involved in the R&D efforts for GX. Further, conceptual study of next generation solid rocket and space transportation system has been initiated.



Since you were assigned to the present position, what was the biggest challenge in implementing your CEO job ? What would be the challenge from now ?

Mr. Miyake : There are a lot of excellent engineers who hope to join our company, having the strong desire to work in the area of space. However, all these people's desire cannot be realized in a current scale of space business in Japan. It is mandatory that our company continues to survive vigorously by the excellent daily company management, in order to maintain and evolve the important space technology.

I have the intention to fulfill the young people's desire to be involved in space related work, sooner or later. On the other hand, I believe that it is important to let them recognize that their engineering capability can be grown through the fundamental jobs, not necessarily directly related to space. It is necessary that they are to be involved in the job such as system integration, fully utilizing the common information system/software technology, which is our core-competence technology. From that standpoint, we have been actively developing the business in the broader area of advanced science and technology.

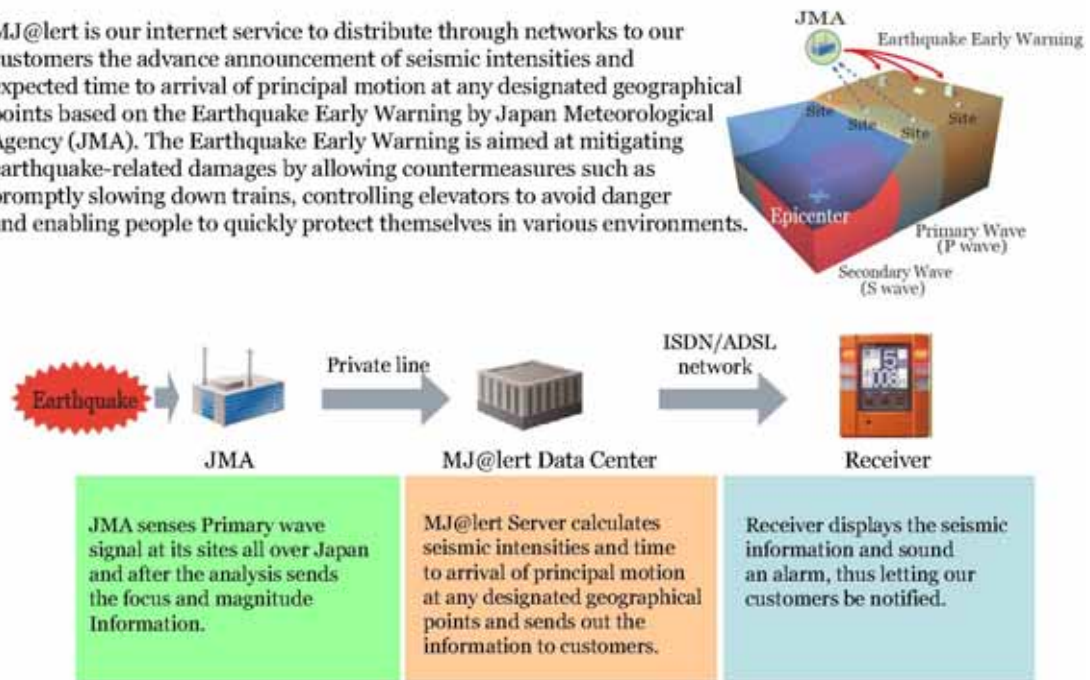


Especially, taking advantage of having in “Tsukuba”, where a lot of national research laboratories exist, many engineers whose background is space or defense technologies acquired at our Kamakura or Tokyo division, we have been exploring the field of bio informatics and the earthquake disaster prevention. Furthermore, corresponding to the recent demand for the information security and compliance, the information security related products (such as the retrieval of personal information, information leakage prevention, and preservation of evidence, etc.) have been developed and made available for the customers.

Thus, presently, five key business areas (space, defense, bioinformatics, earthquake disaster prevention, and information security) are supporting the company. It is my biggest challenge to maintain the innovation oriented engineers group, and let them explore and keep the strong will for developing advanced technology and products. For that purpose, we have been investing for the most advanced services for which the engineers should be much excited, such as the cellular phone based “Navigation” (<http://www.kanko.ichides.com> and <http://www.ichides.com>) that uses the keywords “sightseeing” and “positioning” authorized in the official mobile phone sites of NTT-DoCoMo, KDDI au and Softbank, and medical diagnosis support software which fully utilizes the image processing technology. We started since August 2006 the “MJ@lert” service for enterprises that re-distribute the “Earthquake Early Warning” by Japan Meteorological Agency.

MJ@lert

MJ@lert is our internet service to distribute through networks to our customers the advance announcement of seismic intensities and expected time to arrival of principal motion at any designated geographical points based on the Earthquake Early Warning by Japan Meteorological Agency (JMA). The Earthquake Early Warning is aimed at mitigating earthquake-related damages by allowing countermeasures such as promptly slowing down trains, controlling elevators to avoid danger and enabling people to quickly protect themselves in various environments.



The biggest challenge from now is to build the structure to make profit continuously, while providing the system products which can contribute to the society, utilizing the “exciting” technology. For that purpose, I have been promoting the “triangular management”. That consists of three words of slogan: “Holon”, “And”, and “Holding point”.

“Holon” means the well-balanced condition between total optimum and partial optimum.

A “holon” requires the harmonization and balancing of opposite perspective, such as the individual and the whole, short-term and long term, and the front and the reverse.

The etymology and meaning of the term are as follows:

Etymology: “Holon” is said to have been created by British writer and philosopher Arthur Koestler from the Greek word “holos”. “Holos” means “whole”, to which was added the suffix “on”, which indicates “parts” or “particles”, to produce “holon”. This was intended to alert society that harmony between the whole and the constituent parts would be essential to social activities.

“And” means unremitting will for promoting the new business together with the basic business. “Holding point” means to make decision of Go/No Go timely and flexibly, after the deadline and the action items are defined. Structure building and fixation of the structure are the most important role of mine as the president, I believe.

You had long experience in business development area as well as space related manufacturing area, before you were assigned to the present position. What policy and approach different from the hardware manufacturer are necessary for promoting technology development to take customers' needs in advance, at the system /software development firm like MSS ?

Mr. Miyake : Generally, software manufacturing procedure is not easily monitored from the outside. Furthermore, in the software development, negotiator with the customer, concept creator, designer, algorithm and the program writer, the inspector, and quality assurer might sometimes covered by the same person, in *Space Japan Review, No.51, August/September 2007*

case the software size is not so large.

In case of hardware, even if the same engineer covers several different job processes, the management should be done by different person in each of such process. In software, different jobs are sometimes done in series, sometimes in parallel, or sometimes in arbitrary order. The situation can happen that the final product is different from what the customer desired, since the inside contents of the software may not be incidentally disclosed until they are visible in front of the customer.

Being too conscious of the customer desire, or monitoring the process too much in correspondence to the robust quality requirement, does not lead to the customer satisfaction.



Mr. Miyake during the tour in the demonstration room

The attempt of visualization and understanding of unseen software has been accelerated by software development approach from “waterfall” to “spiral” and “agile”, or process control like CMMI. Similar efforts have also been done in database from “relational database (RDB)” like Oracle to “index fabric(IFX)” corresponding to the pervasive ubiquitous communications, and in OS from Windows to the open source OS. We have to adapt ourselves to new technologies. In software language too, more efforts will be done in the education of “object oriented language” such as Java which is appropriate for use in the network environment like Web application.

Furthermore, the security robust products are provided by fully utilizing encryption technology.

In the past, the earlier phase of the program was dominated rather by hardware. However, recently, the importance of software became much larger. Unless the software people are not involved in conceptual design, system design, and the definition of requirement and specification from very early phase, the excellent products will never be made.

--- How do you foresee the mid and long term business direction of MSS, in government business and commercial business, respectively ? Does the area like defense operation system software also come into your target ?

Mr. Miyake : In general, some software companies aiming general application system are categorized into the information service industry. However, the other like MSS pursuing specific business field based on customer's

order are categorized as system/software manufacturer, and our management style should be completely different from the “dynamic” companies like Livedoor or Rakuten which were praised by the media as the hero of the age at one time. We steadily perform the business which can contribute to the society in accordance with our company motto (see footnote), even if profit is not necessarily so large.

We continue to aim the steady and healthy company in mid and long term. We deploy our business by managing "Chain of confidence" and "Value chain" which are trustworthy and safe for customers and employees at the same time..

Since the president is not the owner of the company in our case, I believe that my target is, like long distance relay road racer, to improve balance sheet, technology level, management base, intellectual properties, and compliance situation, compared to those parameters at the time of the predecessor, to be handed over to the next management after me.

In Government business, my target is to provide high quality products with the reasonable price by closely defining the requirements from the customer. In commercial business, we would like to become a forerunner of new trend for the market and technology, and to endeavor to develop user-friendly products both from the point of price and customer service.



The space utilization in defense area has not been so active in Japan, partly by the restriction in the definition and interpretation of the diet resolution “Peaceful use of space”.

However, it is expected that "Fundamental law for national space utilization" will be approved in the next Diet. At the same time, people have become to consider the national defense widely and seriously since the North Korea missile and nuclear threat occurred. Under such circumstances, Information Gathering Satellite and “Japanese version GPS” programs have been actualized, and the modern operation/utilization concept by the fusion of space and defense will be realized.

Then, the military operation and information which have been independent before would be unified, and higher level of Japanese national defense can be achieved.

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MSS Company Motto: To contribute to the information society through creating new value, by fully utilizing the state-of-the-art information/ communication technology and software technology.

Since these are our strong points in both business and technology standpoint , space/defense fusion area should be an attractive business area for us which can contribute to the nation and people. It is also attractive since our engineers' dream can be fulfilled through such business.

This "Space Japan Review" magazine offers the satellite communications related business and technical information.

What kind of business do you have in the area of communication or satellite communication ?

Mr. Miyake: We are involved in the public satellite communications system monitor /control and the link control for use in maritime broadband, electrical power and gas companies, and image transmission and the warning in disaster prevention system. These products are under the guidance of Mitsubishi Electric Corporation.



Demonstration of quasi-geostationary satellite system

Especially, in correspondence with the tendency of the requirement by society, we have been providing the technical support for the position/time definition system called "Coco-Dates" (Correct Coordinate & Dates) utilizing the data from GPS and the meteorological satellite, including PAS (Positioning Augmentation System) Link preparation and operation support.

GPS positioning system is widely used in car navigation in Japan. By augmenting the accuracy by several centimeters, much broader application for land surveying and city planning is expected.

Furthermore, if time can be defined in addition to position information, day of production/collection and distribution process can also be confirmed in real time with the place of origin, which leads to the product traceability. Mitsubishi Electric Corp. has developed this position/time certificate service.

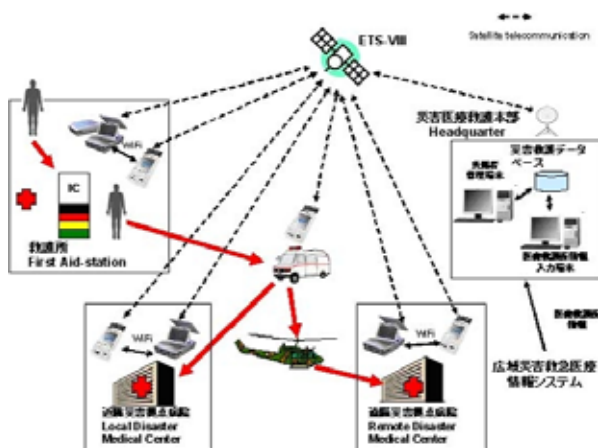
Using this service, camouflage activity on the place of origin or backdating of overdue can be easily avoided at the super-market adopting Coco-dates. The definition of time using meteorological satellite by identifying the shape of clouds in images taken by satellite (Clouds are moving all the time, and the shape of clouds changes every moment.) is the business patent owned by Mitsubishi Electric.

The package software "COCOPRICO" which can print the certificate by Coco-dates with the photo of the visitor taken at the time of visit on the business-card size paper is available from our company. This is utilized

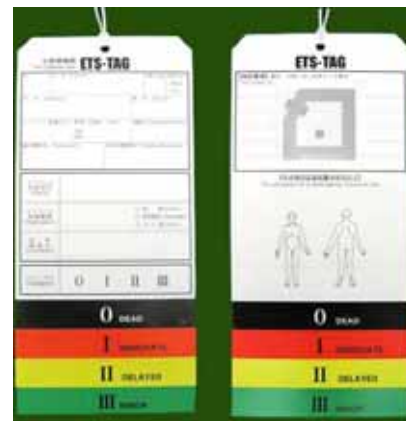
for the souvenir of the convention, visitor control card for companies, and indication of place of origin for fruits and meats. If used for the settlement of business trip account, you can easily check the fictitious business trip such as that exposed recently inside Government Agencies.

We delivered remote sensing data processing facility for observation satellite " Daichi " to RESTEC (installed in Thailand), although it is not satellite communications related. We also have been developing broad-band digital data distribution technology for use in remote sensing image data processing, identification and distribution.

We are also developing " Large scale disaster relief/support system " which has been studied by JAXA as one of the application program of ETS-VIII communication terminal, aiming the demonstration test. In this system, " triage tag " installing IC tag will be given to the injured persons by disaster like earthquake, and categorizing the level of injury. Having this information, total situation recognition of injured persons and direction of carrying them to the appropriate hospital would be easily done through satellite communication. Thus, even in the disaster relief activity, space has already been utilized for our daily life.



Large-scale disaster relief/support system using satellite communications



Triage tag

Please let me hear your view on how the Japanese space development and utilization should be from now on ? Would you comment freely, not necessarily from the standpoint of present position ?

Mr.Miyake : The space activities around the Earth should be basically promoted as the national projects either for infrastructure or for academic purposes such as communication/broadcasting, weather, air traffic control, observation, Earth resources sounding, disaster prevention, and scientific exploration.

Needless to say, the private organization should also bear the obligation and responsibility for space activities from the viewpoint of the vitalization of the economy and utilization of business efficiency peculiar to the private society. However, from the macroscopic and mid/long term viewpoint such as national policy and diplomacy, it should be appropriate that the Government should take initiative to prepare fundamental plans. Recently, resulting from the tendency that private sector business and economical efficiency are too much pursued, the value of space from scientific or diplomatic/national security viewpoint has been somewhat neglected.

Then, there is a tendency that space scientists and engineers struggle each other on the non-essential points by

criticizing the others' results, to acquire resources that are relatively small compared to the other countries both in budget amount and number of talents. When I read or hear that the space journalist criticizes the one side of space related people by using the opinion of another side, I can not but feeling disappointed as the one person who have been involved in space for long time.

Seeing that United States, Russia, and Europe are handling "space" as the part of national strategic diplomatic and defense policy , and that China launches manned spacecraft as the national strategy, I strongly would like to ask Japanese Government to promote the national space policy very seriously.

I believe that it is at least a world tendency that the government becomes the anchor tenancy or vanguard.

How do you spend your holidays away from work? In what activity are you most interested presently other than the work?

Mr. Miyake : I'm most interested in traveling. I accomplished visiting all urban and rural prefectures in Japan last year by the trip to Kochi the year before last. However, I have still many splendid places that I have not been yet. For instance, I have been to Yamaguchi Prefecture many times. But it was just recently that I visited Hagi, fantastic historical old town.

Although I love Tohoku District and visit there every year, I have not yet seen "Kanto-festival" of Akita or "Nebuta-festival" of Aomori on the spot. It was just this year that I saw the cherry trees in full bloom at Hirosaki Castle. There are wonderful culture, tradition, festival, scenery, hot spring, local cuisine, and excellently brewed sake. I have visited Hokkaido tens of times, but I have never been there in winter.

I want to enjoy the all beautiful places of Japan in each of four seasons, respectively. I travel sometimes by motorcycle to see things intimately. I wonder how many years more my physical strength allow to continue such way of trip.

It is told that Hokusai Katsushika, famous "ukiyo" (Japanese traditional genre pictures) artist in 18th Century, traveled from Edo (present Tokyo) to Boso (Chiba Pref.) and Obuse (in Nagano Pref.) on foot after he was 80 years old. Considering the traffic means such as train and aircraft today, the thought of traveling around Japan is so intriguing. Where there is a will, there is a way. I wish I could spend the rest of my life for "Discovery of Japan that has not known yet".

Thank you indeed for accepting SPACE JAPAN REVIEW interview while you are so busy.



Mr. Miyake and Mr. Ueda after interview