

## Space-Time Engineering Japan, Inc.

Space-Time Engineering Japan, Inc. is a Japanese subsidiary of the US-based Space-Time Engineering, LLC, which is engaged in the development and commercialization of a system for information sharing and control to be conducted on the frontline of medical care in times of disaster which does not rely on communication infrastructure such as the Internet and cloud computing. Dr. Mineo Takai, the founder and President of Space-Time Engineering, talks about what has brought him to the Japanese market, particularly in provincial areas, and the current business situation and challenges facing his company.

### Adapting defense technology for disaster prevention

Space-Time Engineering, LLC (“STE”), a software development company, was founded in May 2007 in Los Angeles, the US. The founder and CEO of STE, Dr. Mineo Takai, was originally engaged in the research and development of wireless network simulators targeting the US defense industry at the University of California, Los Angeles (UCLA). He established STE to commercialize the wireless network simulators in areas other than defense.

STE has developed their software in wireless communications through the vehicle-to-everything (V2X) technology—an automotive wireless communications technology including vehicle-to-vehicle and vehicle-to-infrastructure communications<sup>(i)</sup>—collaboratively with UCLA Computer Science Department and companies specialized in the field in the US and Japan. STE’s simulation software designed to evaluate the V2X communication technology is the world’s best seller as a commercial evaluation tool.

Utilizing its expertise in this area, STE has been working since 2014 on the development and commercialization of Scenargie Physical, a system for information sharing and control which does not require communication infrastructure. In the defense area, as no communication infrastructure is available in a hostile environment, it is necessary to equip mobile units such as vehicles with

communication devices to build an ad hoc communication infrastructure for information sharing. Similarly, in times of disaster, a temporary information-sharing system needs to be set up in place of the Internet or cloud service which may become temporarily unavailable. Scenargie Physical can gather, store and share a wide range of data, including positional information, text, images and recorded messages, obtained from a global positioning system (GPS), cameras and smartphones. In addition, it can control the system based on the results of analysis on stored data. Expectations are growing that these features of Scenargie Physical may be utilized in the prevention of crimes and disasters as well as the monitoring of the natural environment.

Dr. Takai talks about STE’s vision, saying: “The private sector as well as the defense industry has been using technology for setting up communication infrastructure by equipping mobile units such as vehicles with communication devices. Developing the evaluation tools and systems for that type of technology over a long period of time has given us knowhow. Our hope is to make use of that knowhow, which is our competitive edge, to develop an information-sharing system that will be used in times of disaster. Specifically, we would like to deploy our technology to help companies develop business continuity plans (BCPs)<sup>(ii)</sup>.”

Cloud services, which are gaining ground as a means of communication, excel in

efficiency and economy. However, if power supplies or Internet services are interrupted during a disaster, cloud services would also become unavailable and there will be a risk of losing information, even temporarily. Since a number of municipalities are assuming the worst-case scenario of having to use analog methods such as orally sharing information or leaving notes, STE's systems have great growth potential for extensive deployment.



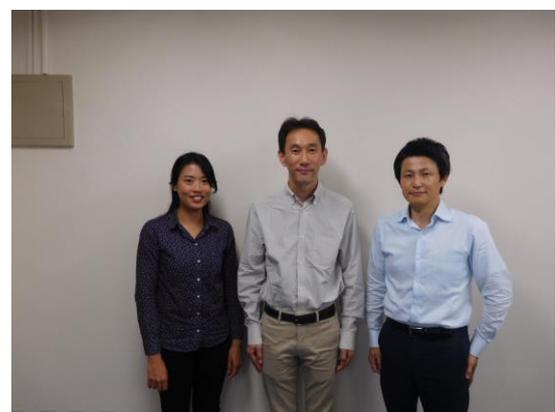
### Conducting verification test in Kochi and establishing base in Tokushima

STE established Space-Time Engineering Japan, Inc. ("STE Japan") as a sales base in Japan in April 2008 in Akihabara, Tokyo. With the support of its parent company in Los Angeles, STE Japan has focused its business on the development, sale and support of the software in the wireless communications area. It has been involved in the disaster-response projects of some municipalities since 2014, with an eye to commercializing Scenargie Physical.

STE Japan's relationship with Kochi Prefecture began with the company's participation in a verification study conducted at the campus of Kochi University of Technology to detect ground communication terminals by using drones. If any earthquake occurs along the Nankai Trough, Kochi is likely to be affected severely and extensively. STE Japan began its project in the prefecture hoping to "contribute to the region as a hard-hit area would require an alternative means of communication be set up,

even temporarily, in order to cover zones where telecommunications such as mobile-phone services are interrupted." In fiscal year 2016, under a JETRO subsidy program, and with support from Kochi Prefecture, STE Japan conducted the verification and feasibility studies for its information-sharing system for frontline disaster medical-care which can operate independently from communication or electricity infrastructure.

In May 2017, STE Japan opened its satellite office in Tokushima Prefecture, with plans to build a production base there in the future. As a reason for having chosen Tokushima for STE Japan's base, Dr. Takai cites not only Tokushima's high awareness, like Kochi's, of the potential risk of any Nankai Trough earthquake but also his expectation for recruitment. "Tokyo has well-equipped business infrastructure. However, because it also has an immense concentration of companies, there is fierce competition in recruiting employees. Since that competition is not as intense in Tokushima, our hope is that local residents will take greater notice of our business activities, and that this will have a favorable effect on our recruitment." As the second reason, Dr. Takai cited "the importance of conducting business at a distance where the company can meet the customers face to face." He explains, "Centralized decision-making might be effective,



From left: Ms. Fajardo, a staff member of STE Japan, Dr. Takai and Mr. Moriya, CEO of STE Japan

but STE Japan values product development made through an accurate understanding of the challenges facing local residents. To understand where STE's products fit in the local social system, as well as what STE's product users think and what challenges they face, I believe the most effective means is going out to the local area and fostering relations with the residents there." In addition to Tokushima Prefecture's original commitment to attracting companies, the governor's new ambitious policy for attracting foreign-owned companies also created a tailwind for STE Japan.

### **Challenges in personnel recruitment and Japan's regulations**

Concerning the difficulty facing new entrants, whether locally- or foreign-owned, into the Japanese market, Dr. Takai says: "The Japanese orientation toward major companies and brands constitutes an obstacle to new entrants. New entrants are sometimes asked to provide sales results from prior years before beginning a transaction." He continues, "Fortunately, our business has been going well as we entered the local market highly rated by Japanese companies through our experience of operating in the US and of exporting our products to Japan."

On the other hand, STE Japan is having difficulties in employing ideal personnel on a long-term basis. Dr. Takai attributes this situation to the abovementioned "orientation toward major companies and brands". STE Japan now has ten employees. Although it receives many business offers, it has had no choice but to decline a number due to its manpower shortage. This led to the decision to employ a non-Japanese engineer in April 2017. Dr. Takai talks about his outlook for expanding STE's business into Southeast Asia, saying, "I feel the Southeast Asian markets are attractive, but I only have a limited understanding of the social structures and cultures of those countries.

For this reason, I consider it risky at this point to even choose a business partner there. However, given STE's plans to utilize STE Japan as a platform for further business expansion in Asia in the future, if we employ a person with the nationality of a country we intend to eventually go to, I believe that person could easily help us form a bridge when the time comes and propel our operations there."

Concerning Japan's regulations, which pose a challenge to most overseas and foreign-owned companies, Dr. Takai says: "Even the disaster prevention field has established companies conducting business in compliance with regulations within a protected market. It will be difficult for new entrants like us to get our foot in the door." For this reason, STE Japan is trying to find and select an area which is free from regulations and where it can supplement existing business, rather than fighting squarely to have regulations abolished. Dr. Takai explains, "When business prospers outside of the framework of regulations, it becomes an opportunity for society to reflect on whether such regulations are really necessary. This may lead to deregulation, or even to abolition of those regulations. When we judge our service as marketable, we seize that opportunity and see how it will go." Dr. Takai adds, "Business needs to be profitable, but also needs to contribute to society. I believe that the more people are saved or helped by our technology, the more it will benefit society. It will also benefit us by giving us a sense that we are contributing to society."

### **Support from JETRO**

JETRO provided assistance to STE Japan in carrying out the verification and feasibility studies in Kochi Prefecture for medical information sharing in times of disaster using Scenargie Physical, under the Fiscal Year 2016 Subsidy Program for Global Innovation Centers. Dr. Takai says regarding JETRO's support, "It is

extremely valuable for overseas companies examining the possibility of coming to the Japanese market to obtain a subsidy for expenses for feasibility studies. I hope this subsidy program will continue. Meanwhile, while I understand the importance of such

documentation as the subsidies are granted by the government, I think that slightly reducing the paperwork would help increase the number of small-sized companies participating in the grant program.”

(Interviewed May 2017)

## Corporate history

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2007	Space-Time Engineering, LLC established in Los Angeles, the US
2008	Space-Time Engineering Japan, Inc. established in Akihabara, Tokyo

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Establishment:	April 2008
Business:	Development, sale and maintenance of, and provision of services related to, system simulation software <i>Scenargie</i>
Parent company:	Space-Time Engineering, LLC
Address:	3-27-3 Kandasakuma-cho, Chiyoda-ku, Tokyo, Postal code: 101-0025
URL:	<a href="https://www.spacetime-eng.com/jp/">https://www.spacetime-eng.com/jp/</a>

## JETRO's support

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- Provision of assistance in the verification and feasibility studies conducted in Kochi Prefecture (under the Fiscal Year 2016 Subsidy Program for Global Innovation Centers)
- Provision of an opportunity for publicity

### Notes:

- (i) ● Vehicle-to-vehicle communication system (Source: The report on “The study meeting for improvement of the ITS wireless system” by the Ministry of Internal Affairs and Communications)

This is a system of obtaining information relating to surrounding vehicles—such as their positions, speeds and the information controlling vehicles—through wireless communication among vehicles to assist in safe driving.

- Vehicle-to-road communication system (Source: the same as above)

This is a system for obtaining information about infrastructure—such as that of traffic lights, traffic restrictions and roads—through wireless communication between vehicles and infrastructure—including roadside units—to assist in safe driving.

- (ii) ● Business continuity plan (BCP) (Source: “The operational guideline for developing BCP at small and medium-sized companies” by the Small and Medium Enterprise Agency)

This is a contingency plan for when a company is confronted with any emergency, including natural disasters, conflagrations or terrorist attacks. Its purpose is to enable small and medium-sized companies to continue or quickly restore their operations while minimizing any damage to their business assets. Such a plan consists of the methods and means to continue business in times of emergency that need to be determined in advance, and of the activities that need to be carried out before a disaster occurs to prepare for such a situation.