

Bringing the construction site into the Industry 4.0 era

With 140 years of history in civil engineering and construction, Tobishima Corporation is today at the forefront of the construction industry's shift to Industry 4.0.



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Masahiro Norikyo,
President,
Tobishima Corporation

Established in 1883, Tobishima Corporation has played a vital role in building modern Japan for almost 140 years – overseeing a diverse number of iconic projects during the 20th century, including the original Haneda Airport (later to become Tokyo International Airport) in 1931, Korakuen Baseball Stadium (1938), the Tomei Expressway (1968), Tokyo's Toei Shinjuku rapid transit line (1977) and the Onaruto Bridge between the islands of Honshu and Shikoku (1981).

Today, guided by its mid-term plan focusing on digital transformation, innovation, co-creation and building a 'Smart Solution Service' business, Tobishima continues to undertake important civil engineering and construction projects in Japan and abroad, across Asia and in Rwanda, Africa.

With Japan increasingly suffering from natural disasters in recent years, Tobishima has built deep expertise in disaster prevention solutions, which today comprises four major activities that president, Masahiro Norikyo, describes as the "full package of disaster-preventive functions".

"First is the disaster-preventive measures. Sensors are installed in the disaster areas or at vulnerable places that already have a history of disasters occurring in that area. Information is also a key factor here. Second is mitigation, getting ahead of time, and equipping vulnerable areas with emergency kits. When a

disaster occurs, one needs to have access to water, food or communication services," he explains.

"Third is recovery methods. It's about knowing what to do after a disaster has taken place and to be able to recover as soon as possible. Fourth, is decreasing the disaster to a level as low as possible; this is connected to on-time information. If you know that a disaster is about to happen or if we can analyze and predict when a disaster is coming, then we can evacuate the people or decrease the level of damages that might be caused from that disaster."

Digital transformation

Indeed, adopting the latest technologies such as sensors, Big Data and IoT to gather data and information now underpins almost all of Tobishima's construction activities. Having placed itself at the forefront of construction IT, Tobishima is working in collaboration with other companies to develop the digitalized construction sites that will become the norm in the era of Industry 4.0. Such collaboration lead to the development of e-Sense in conjunction with Rosetta Co., Ltd. Aimed at improving operational efficiency, e-Sense offers simultaneous automatic interpretation and rapid information sharing – which is extremely useful in multi-national construction sites where engineers and workers speak different languages.

"e-Sense is one part of our activity, obviously other products are coming up and it's a big part of our approach," says Mr. Norikyo regarding the company's digital transformation. "The first idea is to simplify the construction site operations with easy access and understanding. The accuracy of delivering information is very important in order to understand what is happening on the construction site."

Overseas expansion

Amid the dwindling domestic market that has prompted a wave of international expansion, Tobishima has joined the legion of Japanese companies looking to play their part in building developing Asia, where it has projects in Brunei, Pakistan, Timor, Indonesia and Myanmar. While Japanese construction companies face stiff competition from China in the re-

gion, they continue to maintain a competitive advantage through a focus on high-quality, technology and customer service.

"Japanese construction companies are more adaptive towards listening carefully to what the customer wants and implementing projects according to their needs. Some Chinese contractors are winning the bidding phase and then drop the project midway or are unable to provide good quality," Mr. Norikyo explains.

"Our company not only provides high-quality, high-reliable projects but we also ensure the highest standards of quality possible, and we can negotiate a better price range. It is difficult for Chinese companies because they all set up as low a minimum cost as possible. Japanese companies, therefore, can be more flexible and adaptive towards the customers."

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