

## **Games changer: Technology that will innovate the Olympics in 2020**

A decade ago, at the opening ceremony of the 2008 Beijing Olympic and Paralympic Games, China wowed onlookers with a stunning display of pyrotechnics and choreographed color. Four years later, London welcomed the world with a demonstration of its self-deprecating humor. So, when Japanese Prime Minister Shinzo Abe—dressed as video game icon Super Mario—stepped out of a green pipe during the closing ceremony of the 2016 Rio de Janeiro Games, the stage for the next event was set.

Japan intends to make the Tokyo 2020 Olympic and Paralympic Games the most innovative and technologically advanced sporting event ever held. The Games will use cutting-edge technology to ensure the security of contestants and the public, to bring unprecedented coverage to a global audience, and to provide seamless convenience for visitors.

For corporate Japan, the Games will offer a chance to showcase their latest know-how and products in an area where some analysts suggest they are losing ground to their fiercest global rivals.

“Japan has been passed over in terms of technology in recent years, as the United States has focused on China,” said Michael Sugiura Rofe, chief executive officer of Tokyo Media Village, which aims to foster innovation in media services. “But global consumers have grown tired of poor-quality tech services and products from other countries. Quality resides in Japan, and this is the opportunity these companies have been waiting for to demonstrate just that.”

Given the well-documented problems that have beset tech brands such as Sharp Corporation—not long ago considered a titan that was too big to fail—Sugiura Rofe believes Japan is running out of chances to retain its leadership in the global tech race. That arguably makes Tokyo 2020 even more critical to the nation’s future.

### **SAFE AND SOUND**

Rising to that challenge, the Tokyo Organising Committee of the Olympic and Paralympic Games announced on August 7 that an advanced facial recognition system is to be deployed at events to automatically verify the identities of athletes, officials, staff, and media members. It’s the first time such technology will have been used at an Olympiad, and the plan is said to “reflect Tokyo 2020’s commitment to deliver the most innovative Games in history.”

The system has been developed by NEC Corporation and will store the facial images of every person with official accreditation to verify their identities at checkpoints. The technology will “drastically increase security levels” for the duration of the Games and eliminate forgery or the use of lost or stolen accreditation.

“This latest technology will enable strict identification of accredited people compared with solely relying on the eyes of security staff,” Tsuyoshi Iwashita, executive director of security for Tokyo 2020, said in a statement. “And [it] also enables swift entry to venues, which will be necessary in the intense heat of summer.”

NEC is a global leader in automatic identification technologies, such as facial imaging, iris scanning, as well as fingerprint, palm print, vein data, voice, and acoustic data recognition, said Senior Vice President Masaaki Suganuma. He added that the aim is to ensure the Games go ahead “smoothly, safely, and securely.”

Security is inevitably a key concern for organizers, with Japan’s two largest private security companies putting aside their rivalry for the duration of the event to provide personnel and the latest technologies. Secom Co., Ltd. and Sohgo Security Services Co., Ltd., better known as Alsok, announced earlier this year that they would work together to provide 14,000 security staff.

Secom intends to equip guards with smartphones that will be clipped to their shirts, turning them into “walking cameras,” the company said. Video from the phones will be instantaneously shared with a control center that will use artificial intelligence (AI) to analyze the images and potentially identify patterns among individual’s behavior that could flag them for further action.

Similarly, Alsok is working to perfect drone-based surveillance technology that should help reduce the work-load on human guards. Drones will operate at an altitude of between 50 and 70 meters, remain airborne for up to eight hours, and have the capability of monitoring an area with a radius of 3 kilometers.

There are even reports that “killer drones” are being considered that would eliminate unauthorized drones operating around Olympic venues. Equipped with lasers or projectiles, these drones would envelop a target with a net to bring it down.

“It’s a sad fact of life in the world in which we live, but security is going to be extremely important at these Games,” said David Wouters, president of InterSearch Japan and vice-chair of the American Chamber of Commerce in Japan Olympics and Sports Business Committee.

“The facial recognition technology that NEC has rolled out should help make things move more smoothly and quickly, while the drones are also a positive,” he told The ACCJ Journal. “But those companies have to make sure—over the next two years—that the technology is perfect, because, while this is an opportunity to impress millions of people around the world with your capabilities, it could also be very damaging if the technology goes wrong in front of that audience.”

Wouters believes technology needs to be applied with common sense and not simply for the sake of it.

“It is helpful if it is kept simple and easy to manage,” he said. “I have seen and tried to use some of the advanced computer technologies on the market today, and it has not always proved useful to me. I prefer the basics and rely on my common-sense approach. If the technology goes awry, we are in trouble.”

## **VIEW FROM AFAR**

One segment of sports fans will be more reliant than most on technology: those unable to visit Japan. This group will be watching the Games from the comfort of their homes, and thus will be relying on Japan’s state-of-the-art broadcasting technology for their Olympic experience.

Once again, drones will be tasked with delivering that service.

“Footage captured by drones with a 360-degree capability in 8K real-time video and transmitted over 5G cellular networks is an example of what could be applied to many live sporting events in 2020,” said Sugiura Rofe. “This would give viewers a bird’s eye view—or even multiple views—that will change the real-time enjoyment of that sport and create new fans. Think of how the marathon could be covered, or cycling or sailing, just for starters.”

In July, NTT DoCoMo Inc. announced that it has developed the world’s first drone-based, 5G-enabled live streaming and viewing system capable of showing live events in 360-degree 8K virtual reality (VR) video. A head-mounted viewing system creates highly realistic VR experiences and “allows viewers to feel as if they are actually at the venue,” the company said.

Equally, national broadcaster NHK has drawn up a research and development plan for the next two years that includes technologies for future media that make use of spatial imaging. These broadcasts go beyond the two-dimensional screen of the traditional television to provide a realistic 3D viewing space. The company is also working on three-dimensional sound and holography, as well as a new generation of coding, multiplexing, and transmission technology.

Sugiura Rofe believes the Games will be the catalyst for creating the world’s first 5G interconnected city. “5G is coming, and it will definitely change the way we live in Tokyo in many ways,” he said.

Intel Corporation has announced plans to blanket the city in 5G, creating a “smart city” with even more video streams, including 4K video in moving cars. Toyota Motor Corporation is also on board, with plans for traffic management or tracking through the city’s congested streets.

And Sugiura Rofe said many more technologies are bubbling under the surface and will be revealed closer to the opening ceremony, including self-driving cars, AI, robots, and the use of hydrogen as a clean fuel for vehicles.

## **SHOOTING STARS**

Roy Tomizawa, assistant vice president for leadership and talent development at MetLife Insurance K.K. in Tokyo and co-chair of the ACCJ Olympics and Sports Business Committee, has identified on his blog a number of the most eye-catching new technologies that we will be seeing during and after the Games.

One of Tomizawa’s favorite ideas has been dreamed up by ALE Co. Ltd., a Japanese startup that is planning to create a man-made meteor shower as part of the opening ceremony. To create its artificial shooting star project, called Sky Canvas, the company plans to launch a series of microsatellites that will release more than 5,000 pellets that will circle the Earth before burning up spectacularly in the atmosphere. By changing the chemical composition of the pellets, the company will be able to create a multi-colored display that is literally out of this world.

Fujitsu Ltd. is working with the International Gymnastics Federation to use laser technology to provide data that will be used by judges to supplement what they see with their own eyes before scoring performances on the horse, beam, and mats.

Elsewhere, robots are being deployed at Tokyo’s airports to help visitors navigate the facilities and make their way either into the city or to their departure gates, while an offshoot of Toyota is working on a flying car that its designers hope might be employed in the opening ceremony to light the Olympic flame in a truly memorable manner.

The 2016 Rio de Janeiro Olympic and Paralympic Games smashed all television viewing records by racking up a cumulative audience of more than 4.1 billion in more than 150 countries and territories. That was up from the 3.8 billion who watched coverage of the London Games and a mere 1.8 billion who tuned in to events in Athens in 2004.

Tokyo will quite comfortably surpass the Rio figure, analysts believe, and provide tech companies with an unprecedented opportunity to show the rest of the world what Japan still does best.