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The Olympics of the Future



Japan Sport Council

A rendering of the 2020 Olympic stadium in Tokyo.

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TOKYO — From the moment in September when Tokyo won the tight race to host the 2020 Summer Olympics, locals have been unleashing ideas — some far-fetched, others tantalizingly imaginable — of what the city will offer the more than 10 million spectators expected to attend the Games.

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Self-driving cars are a given, auto enthusiasts say, perhaps reserved to whiz V.I.P.'s on designated lanes through the traffic-choked capital. To help hoi polloi navigate the city, buses powered by fuel cells will be commonplace, the futurists say. Older people in the graying country might wear robot suits to get around. Next-generation translation services, streamed through wearable technology, will help locals communicate with foreign guests. And perhaps there will be some climate engineering to ease the heat and wretched humidity of the Tokyo

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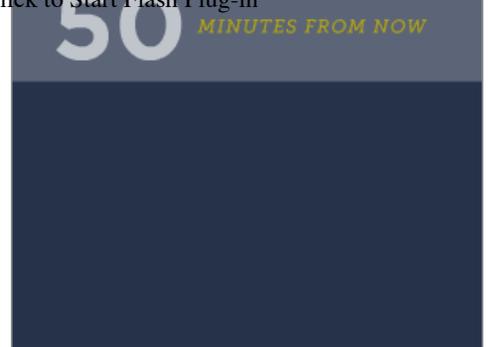
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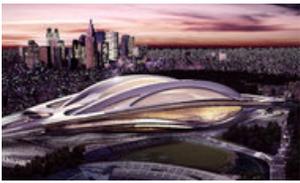
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A woman with a hybrid assistive limb to help the user walk.

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A rendering of the exterior of the futuristic 80,000-seat Olympic Stadium in Tokyo.

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Japan Sport Council

The stadium's interior. Some have questioned its size because the city's population is expected to decline.

summer.

But there are also worries about the future. Tokyo, with 13 million people, is one of the [world's most disaster-prone cities](#) — earthquakes, typhoons, tsunamis and storm surges. Experts worry about the effects shifting weather patterns will have on the Tokyo Bay section where many of its new Olympics venues will be built.

“There’s no city in the world like Tokyo,” said Hiroyuki Hayashi, a spokesman for the government’s [“FutureCity” initiative](#), which was introduced in 2010 to explore future approaches to urbanization. “It leads in both possibilities and challenges.”

Tokyo fancies itself a city of the future. A similar theme resonated the last time it hosted the Summer Olympics in 1964. It had climbed out of the ashes of World War II and was presenting a shining new image to the world with multiple subway lines, a modern airport and its bullet train system, then the fastest in the world. The country demonstrated its emergence as a technological leader by broadcasting the Olympics live by satellite for the first time.

This time, [Japan](#) wants to show a vibrant country, re-emerging from the pain of decades of recession to reclaim its position as a driving force in high technology.

For Hisashi Taniguchi, chief executive of the Tokyo-based robotics company ZMP, the Olympics will be the catalyst [Japan](#) needs to leap ahead of other countries in building driverless cars. Google and BMW are also working on autonomous car technology, which experts say is safer and cleaner and leads to fewer traffic jams because of [computer-controlled efficient driving](#). Although big Japanese automakers like Nissan, Toyota and Honda are also working on the same technology, as are smaller

Japanese companies like ZMP, the technology has not yet been showcased by a Japanese carmaker in any major way.

The Olympic Games would bring heavy traffic on well-defined routes like those from the athletes’ village to Olympic venues on Tokyo’s waterfront. A fleet of 100 or more self-driving cars and vans could shuttle athletes and V.I.P.’s, Mr. Taniguchi said, and would be easier to place in the Tokyo waterfront’s wide roads than in the congested center of the city.

“With such a well-defined target, driverless cars seem a lot more realistic,” Mr. Taniguchi said. His [RoboCar](#) uses laser range finders, infrared distance sensors and image processing to spot obstacles and maneuver its way through traffic.

The risk is that while the technology might be ready in seven years, regulators in Japan are not known for acting quickly. Tokyo officials will not definitively rule out the driverless car idea, though they point to a list of regulatory hurdles before the technology is allowed.

The country wants to showcase other transportation technology, too. Hino Motors, together with its parent company, Toyota Motor, plans to release a new fuel cell-powered bus in 2016 that reduces greenhouse emissions. And while the Japanese do not expect to be riding the [nation’s magnetically levitating train that zooms at 300 miles an hour](#) until 2027, government officials have suggested that the operator make at least part of the line



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available to visitors to the Games.

Tokyo has also promised the Games will be green, or at least carbon-neutral with efficient natural-gas turbine power stations and solar parks across the country.

Then, of course, this being Japan, there are the gadgets.

Takahito Iguchi, founder of Telepathy, a start-up, envisions a Games where visitors could constantly live-stream what they see with wearable devices like the company's [Telepathy One headset](#), which floats a microprojector and camera in front of one eye. The first version is expected this year, giving it time to catch on.

NTT DoCoMo, Japan's largest cellphone carrier, has introduced "[instant translation glasses](#)" that use cameras, text recognition technology and translation software to render Japanese signs, menus and whatever else its wearers see into the visitors' language. The company also plans to have its cellphone service ready to process data 100 times faster than current networks.

The futurists also envision wireless charging stations everywhere, flexible displays that will turn a variety of surfaces into information hubs and television featuring "super hi-vision" that is 16 times the level of detail of current high-definition TVs.

"Japan still has great technology, and the Olympics gives people like us license to suggest wild ideas," Mr. Iguchi said.

For some living in Tokyo, preparation for the Games is less about chasing utopian dreams and more about addressing the grave challenges the city faces. For all the talk of renewable energy, the nuclear crisis at Fukushima, 160 miles north of Tokyo, is not yet under control. There is a big question mark over Japan's future energy policy. Much of the city's newest developments are centered on the vulnerable coast.

Tokyo must spend the next seven years retrofitting its older buildings with Japan's advanced earthquake technology, strengthening the city's flood gates and updating its aging expressways, experts say. Tokyo could show the way forward in urban renewal, too. It recently used advanced "[stealth demolition](#)" technology — jacking down a building rather than blowing it up — to raze an old skyscraper in central Tokyo.

The aging population is also a challenge for Japan. Though the Olympic committee promotes Tokyo as a center for youth culture, one in five Tokyoites are already 65 or older, and the government estimates that ratio will rise to one in four by the time the Olympic torch arrives. Current forecasts suggest that demographically, 2020 could be Tokyo's last hurrah; after that, the city's population could enter a long decline.

The robot maker [Cyberdyne](#) thinks its robotic suits will help older Japanese and visitors get around during the games. Its Hybrid Assistive Limb is a battery-powered pair of legs that anticipates and augments body movements. Since 2010, the company has leased about 400 suits to 170 hospitals and nursing homes in Japan.

Some Tokyoites are concerned that the city's remaking will go too far. The redevelopment of some of Tokyo's most beloved neighborhoods is already underway, including the [relocation of Tokyo's Tsukiji Fish Market](#). Some question whether the city of 13 million really needs an expensive new 80,000-seat [Olympic Stadium](#) — wildly futuristic in design as it is — when its population is expected to shrink.

Christian Dimmer, an urban designer and assistant professor at Tokyo University, said that if Tokyo's population was declining, it could ill afford the white elephants that have come to haunt previous Olympic hosts.

"It's important to understand that the Games are a means to achieve a more resilient, self-reliant society and not as an end in itself," he said. "That would be a terrible waste of

resources.”

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