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# 日本：現在/未来

**JAPAN: PRESENT/FUTURE**

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# Japan, America and the Post-Corona Order

The world's two most economically powerful democracies have a unique opportunity for joint leadership in the post-pandemic global arena.

For both Japan and the US, the blossoming cherry trees in Washington, D.C. this year are heavy with symbolism. A long, grim winter has passed, likely the last during which either country will be as burdened by the COVID-19 pandemic. Likewise, each nation is moving forward with renewed hope under new central leadership. As President Joe Biden pledges to rebuild relationships with traditional allies, Japan is determined to leverage this moment to forge even deeper, more influential bonds with the US.

In Japanese Prime Minister Yoshihide Suga's first speech marking the start of the year's parliamentary session, he said that Japan is prioritizing working with members of the international community, the US in particular, "to exert leadership in creating a post-corona international order." At a time when the world faces unprecedented global challenges, cooperation between both nations could shape the future for generations to come. "The Japan-US alliance is the cornerstone of Japan's diplomacy and security, and the foundation of freedom, peace, and prosperity in the Indo-Pacific region and the international community," Suga told lawmakers.

How does Japan envision this new era? As before, shared values with the US – human rights, free trade, prosperity and protecting regional security – are at its core. But now, Japan's government is highlighting the urgency of new international norms for the digital age as well as the need to fight climate change. Just like Biden, Suga has pledged to make Japan carbon neutral by 2050.

Dealing with China's growing power will no doubt be a challenge for both countries. Japan's approach is firm but cooperative. Acknowledging that stable Sino-Japanese relations are critical, Suga pragmatically says that "we will

insist on what we should insist on... and work together to resolve common issues." In his first call with Suga, President Biden expressed his "unwavering commitment" to the defense of Japan, including in the Senkaku Islands, which are subject to a territorial dispute with China and Taiwan. In the call, both leaders also pledged to work towards the complete denuclearization of North Korea.

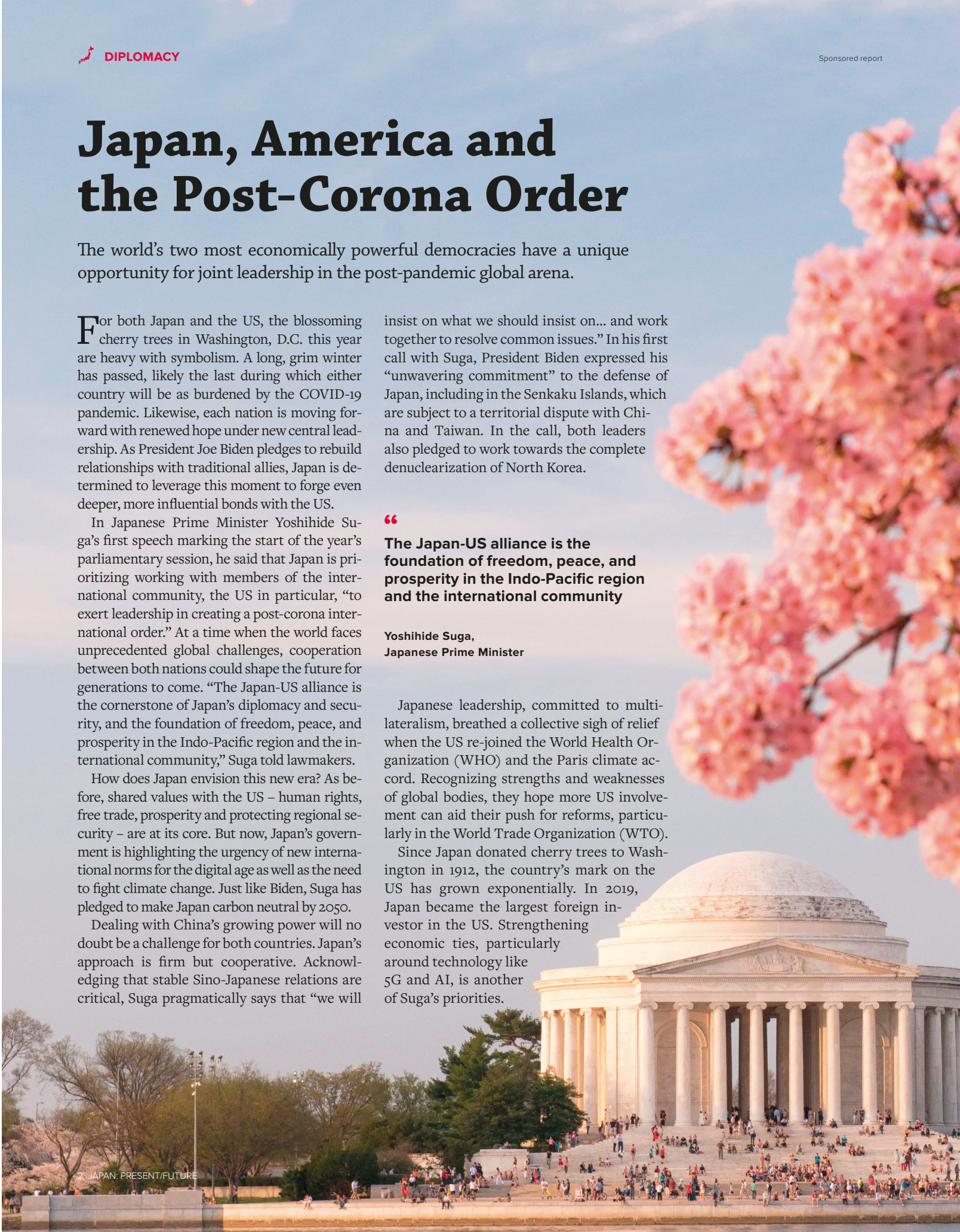
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**The Japan-US alliance is the foundation of freedom, peace, and prosperity in the Indo-Pacific region and the international community**

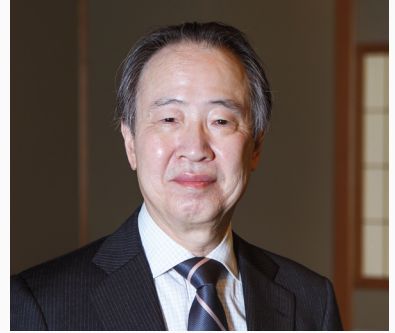
**Yoshihide Suga,  
Japanese Prime Minister**

Japanese leadership, committed to multilateralism, breathed a collective sigh of relief when the US re-joined the World Health Organization (WHO) and the Paris climate accord. Recognizing strengths and weaknesses of global bodies, they hope more US involvement can aid their push for reforms, particularly in the World Trade Organization (WTO).

Since Japan donated cherry trees to Washington in 1912, the country's mark on the US has grown exponentially. In 2019, Japan became the largest foreign investor in the US. Strengthening economic ties, particularly around technology like 5G and AI, is another of Suga's priorities.







#### Q&A

#### **KOJI TOMITA, JAPANESE AMBASSADOR TO THE UNITED STATES**

**Japan's new ambassador to the US was previously posted in South Korea and has worked closely with the Obama administration.**

#### **How do you envision Japan-US cooperation under a Biden administration?**

PM Suga and President Biden have already confirmed they will cooperate bilaterally and on global issues. I think we can take the initiative in regional frameworks, as well as in the G7 and G20. Even as the international order faces major changes, the values of freedom, democracy, and human rights remain unchanged.

#### **“China's attempts to unilaterally change the status quo in the East China Sea are contributing to a severe increase in tensions”**

#### **Why is Biden's commitment to protecting the Senkaku Islands important?**

Here is the situation. China's attempts to unilaterally change the status quo in the East China Sea and other areas are intensifying and contributing to a severe increase in tensions. President Biden has expressed his unwavering commitment to the defense of Japan, including the application of Article 5 of the Japan-US Security Treaty to the Senkaku Islands. He has also reaffirmed the United States' determination to provide extended deterrence to Japan. My government considers the statement of intent to be highly significant and essential.

#### **How can the countries partner around climate change?**

Advancing a virtuous cycle of environmental protection and economic growth is the way forward. To achieve carbon neutrality by 2050 and help decarbonize society globally, Japan and the US must collaborate on research, development and deployment of advanced technologies. I am talking about hydrogen, carbon capture and utilization, clean energy infrastructure and nuclear power.



# HOW JAPAN NAILED THE SCIENCE BEHIND CORONAVIRUS

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With highly dense cities, an elderly population and laws that make lockdowns impossible, Japan could have been extremely vulnerable to COVID-19. But fast, lucid scientific thinking, and a government that listened, have kept deaths and contagion relatively low.

When China reported its first outbreak of COVID-19, Japan went into high alert. After having suffered the 2011 earthquake and subsequent Fukushima nuclear accident, and seeing how fast other viruses had spread in the globalized world, Japan's population and government were prepared for the unexpected.

On Jan. 16, 2020, Japan detected its first infection. Less than two weeks later, the government had set up a national anti-coronavirus task force. Filled with scientific experts to whom the government was ready to defer, it aimed at controlling spread through "implementing a series of measures flexibly and swiftly, thinking outside the box and firmly un-

derstanding the characteristics of the virus," in the words of then Japanese Prime Minister Shinzo Abe.

Dr. Hitoshi Oshitani, Professor of Virology at Tohoku University, was one of the most prominent government advisors and has been dubbed the architect of Japan's COVID-19 response. He had deep insight into SARS from working for the World Health Organization (WHO) in the Philippines during the early 2000s.

"There are no textbooks or manuals for a new pandemic," he said. "What we need in such a situation is the savage mind, or *Bricolage*, as French philosopher Lévi-Strauss said – the skill of using whatever is at hand." It was with this mindset





Japanese women dressed in colorful kimonos in Tokyo's Harajuku district on Coming of Age Day. ALAMY

that Japan's top scientists sprang into action to figure out how the virus spreads.

The tragic situation of the Diamond Princess cruise ship, which was quarantined in Japan in early February, not only cast the global spotlight on Japan but provided the country's scientists with valuable lessons about the virus. By Feb. 20, the ship was home to half of the total coronavirus infections detected outside of China, with more than 700 passengers and crew members infected with the disease.

"I believe that we were purely lucky with many incidental happenings. Japan is close to China, and thus, we had opportunities to observe various clusters in different geographic areas from February to March 2020," said Dr. Hiroshi Nishiura, Professor of Hygiene at Kyoto University, whose models and work as a government adviser were also pivotal for the Japanese response.

Observational data in hand, Japan's scientists were soon able to garner insights into the virus's characteristics that most of the Western world took months to figure out, if at all.

Perhaps the first breakthrough was surrounding asymptomatic and pre-symptomatic transmission. Oshitani had been comparing the novel coronavirus to other pandemics and it became clear to him that, unlike SARS or Ebola, people infected could spread the virus without presenting serious symp-

oms. In February, Nishiura estimated that more than 40% of secondary transmission of the virus takes place during the pre-symptomatic stage. His findings were published in the International Journal of Infectious Diseases on March 4, 2020 – a week before the WHO declared COVID-19 a pandemic.

With that fact clarified, even though it went against global scientific consensus at the time, Japan's experts and policymakers opted for a suppression, not elimination, strategy. "Due to the stealthy nature of the virus, containment by extensive testing, isolation and contact tracing was not a feasible option to contain COVID-19 in Japan," said Oshitani.

It's true that China had been controlling the outbreak through draconian lockdowns; South Korea, through extensive contact tracing with the military; and Singapore with extensive testing. But Japanese officials knew that they did not have the legal footing to collect cellphone data or lock down their population like other countries. At the same time, Japan's testing capacity was limited.

So the scientists looked at the data they had and applied it to the Japanese context to figure out the best ways of preventing transmission. Early in February, Oshitani emailed Nishiura noting how the transmission pattern of the virus appeared to be highly varied, more like SARS than the flu. Their early analysis found that >>

### The Pillars of Japan's Response

#### Avoid the 3Cs

Closed spaces, crowded places and close-contact settings

#### Cluster-Busting

Contract tracing to identify superspreading events

#### Digital Technology

Using apps to monitor spread, assist population

#### Border Control

Travel restrictions on specific countries, quarantine, testing

#### Masks & Hygiene

Mask use is ubiquitous, as is hand washing



» up to 80% of those infected didn't infect others, suggesting superspreading events were driving most contagion.

With that in mind, Japan adopted a "cluster-busting" approach. Most western countries use a prospective contact tracing system, where someone tests positive and health officials try to identify and isolate the people the positive person may have infected. Japan does that too, but its contact tracers, a powerful team of around 8,000 trained public health nurses, also act as detectives – trying to get to the bottom of where the original person was infected. This helps them find superspreading events, which not only allows them to identify more exposures but also produces key epidemiological data about the conditions that lead to big outbreaks. These field investigations are also supported by genome sequencing.

When looking at data from clusters, one factor became incredibly clear: most transmission occurred in closed environments with poor ventilation. Nishiura's group had published a preprint with their evidence by March 3, 2020, just two days after New York detected its first case. Oshitani, who wrote a WHO publication in 2017 about how the main mode of transmission for

influenza is short-distance aerosols, not droplets, also suspected it was the same for SARS-CoV-2.

"Several quarantine officers and nurses were infected on the Diamond Princess. I was quite sure that they were implementing so-called droplet precautions – wearing surgical masks and conducting rigorous hand-hygiene. This fact strongly suggested that droplet precaution alone was not so effective in preventing the infection," he explained.

**WHEN LOOKING AT DATA FROM CLUSTERS, ONE FACTOR BECAME INCREDIBLY CLEAR: MOST TRANSMISSION OCCURRED IN CLOSED ENVIRONMENTS WITH POOR VENTILATION**

Early on, Japan's scientists, through close observation, understood several key aspects of the pandemic – the importance of ventilation, short-distance aerosol transmission and the pivotal role of superspreading events. Politicians seized on the advice and sent the population a simple message by late March – avoid the 3Cs. A simple communication device to remember that closed environments with poor ventilation, crowded places

and close contact settings were the riskiest. Officials didn't need to insist on masks, as the Japanese population was used to reaching for them during times of sickness or allergies.

"I don't think there was any problem convincing policymakers about scientific findings such as a cluster-based approach and 3Cs concept. In fact, the cluster task force was established within the Ministry of Health, Labor and Welfare as early as Feb. 25, 2020," recalled Oshitani.

Meanwhile, many people in western countries were focused on surface transmission. The smell of bleach and disinfectant filled the air, covered groceries and was even suggested as a cure via injection. Officials in not only the US but also Europe, advised against wearing masks. Even in April, when Japan sent two masks to every household, the WHO insisted that healthy people didn't need to cover their faces. Many countries went into full lockdown, unaware of where risk lies.

The 3Cs became so catchy that a popular publishing house deemed it Japan's word of the year. Perhaps tellingly, Collins English Dictionary chose 'lockdown.'

Clear science-based communication was not Japan's only tool to curb contagion. By March, the Japanese govern-

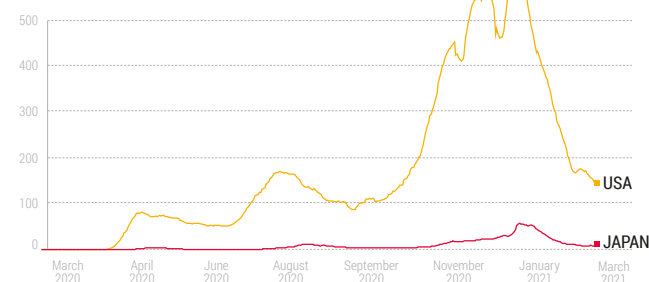


A physical education class in a Japanese high school. Schools opened in September, but masks and ventilation were key to preventing viral spread. ALAMY



### Daily New Confirmed COVID-19 Cases per Million People

Source: Johns Hopkins University CSSE COVID-19 Data – Last updated 10 March



### Daily New Confirmed COVID-19 Deaths per Million People

Source: Johns Hopkins University CSSE COVID-19 Data – Last updated 10 March



#### TOTAL CASES\*

Japan: 441,152  
US: 29.1 million

#### TOTAL DEATHS\*

Japan: 8,359  
US: 527,699

\*Updated March 10

ment passed travel restrictions for many foreign countries. Japanese residents returning from those areas were asked to quarantine for two weeks. Out of concern over new variants, Japan has recently amped up restrictions with many countries, also requiring negative coronavirus tests before and after arrival.

In spring 2020 and again in January, the Japanese government declared states of emergency. Though measures were not legally binding, the government urged people to stay home and for bars and restaurants to close early. After both states of emergency, the curves of infections reversed.

“I don’t think [the latest reduction] was just due to the state of emergency. I think it’s mainly due to people’s behavioral changes. It is possible that information about issues such as the sudden increase of cases over the New Year holidays, the death of a politician who was in his 50s, a strong appeal from health care workers about overwhelmed hospitals, might have led to sudden changes in behavior. We have very strong peer pressure in Japanese society,” said Oshitani.

Other factors, too, bolstered Japan’s response. The country has a strong

system of universal healthcare, which is well distributed even in rural areas. “We believe it is absolutely essential, especially when facing a pandemic such as this one, to guarantee equitable access to healthcare for all people regardless of their income status, which otherwise could prevent them from seeking healthcare,” said Dr. Yasuhiro Suzuki, one of the country’s top physicians who acts as a chief advisor to Japan’s Ministry of Health, Labor and Welfare.

Culturally, a widespread acceptance of masks, even outside of pandemics, is just one of the ingrained traditions that acted in the country’s favor. Talking loudly on public transportation is considered rude (not traditionally due to viral transmission, but for the peace of the travelers) as is blowing one’s nose in public. The Japanese bow to greet people has also been adopted worldwide as a safer way to say hello than a hug or handshake.

By late March, the country had also launched a voluntary chat bot-based healthcare system called COOPERA on Japan’s most popular mobile messaging app. The AI-powered system

not only collected epidemiological data but also guided people through illness and told them when they should seek medical assistance. At the same time, it proved helpful in monitoring people with exposure histories so their movement wasn’t restricted to home and advising people in quarantine such as recent arrivals to the country.

While Japan’s clever, science-based approach has kept deaths and contagions down to a tiny fraction when compared to the US, it is not out of the woods yet. Japanese authorities will continue their strategy, though variants may pose new challenges. The inoculation plan could also come across roadblocks. Due to a peculiar history with vaccinations, Japan has one of the lowest rates of vaccine confidence in the world.

“We have to be cautious in implementing vaccinations for COVID-19. It will be a big challenge to convince young people,” said Oshitani. “We have some other options to reduce the impact of COVID-19, including a cluster-based approach and more effective prevention and control measures... We should not rely solely on vaccines.”



## JAPAN'S LEADING VOICES ON COVID-19

With expertise ranging from big data to patient care, these are some of the key minds behind the country's pandemic response.

Read the full interviews at [foreignpolicy.com/japanpresentfuture](https://foreignpolicy.com/japanpresentfuture)



**Dr. Hiroshi Nishiura,**  
Professor of Hygiene,  
Kyoto University

**His modeling and statistical analysis has been behind some of Japan's big breakthroughs about how the virus spreads.**

**Are you worried about what mutations could do to Japan's fight against COVID-19?**

The new variant 501Y, first found in South Africa, has completely changed the story. The mutation makes it more infectious than others, and some evidence is beginning to suggest that the infection with that variant could be more severe. We are very concerned by some of the mutations that have emerged. Once the variant is introduced and widespread, originally planned hospital caseload demand would have to be revised.

**What lessons can be learned from Japan's response to the COVID-19 pandemic that could be applied to pandemic preparedness in the future?**

For both focused interventions on high-risk groups and population-wide voluntary lockdown, I have shown that a scientifically sound approach is vital to controlling the COVID-19 pandemic. Epidemiologists and modeling experts should be scientifically honest to advise policymakers on infectious disease control.

**Dr. Hitoshi Oshitani,**  
Professor of Virology,  
Tohoku University



**Drawing on his experience from SARS and other respiratory viruses, his insight into viral spread proved fundamental to Japan's response.**

**Could the US shift to a cluster-busting approach?**

The cluster-based approach is more effective when transmission is below a certain level. Now that cases are decreasing, it may be useful to implement some of its

components. I believe that the 3Cs concept is a general rule for COVID-19 and maybe also for many other infectious diseases. People need to understand which environments are risky, and risk should be reduced through measures like improving ventilation.

**You've said the world needs to adopt a new lifestyle. How do you envision that?**

Unfortunately, our world is becoming more vulnerable. This is true not only for infectious diseases but also for economic crises, frequent mega-disasters, the division between poor and rich, food crises and so on. I believe that we are at a turning point in history. We have to decide whether we will continue moving in the same direction or create a truly sustainable world.

**Dr. Hiroaki Miyata,**  
Professor of Health Policy  
and Management,  
Keio University

**Professor Hiroaki Miyata's research revolves around how tools like big data and AI can be used to improve health and wellbeing.**

**What has COVID-19 taught us about the importance of data in public health?**

COVID-19 has taught us how important it is not to hoard data, but to utilize it for the benefit of the people. The early sharing of genome sequences with the world has facilitated the development of vaccines at an astonishing speed. Sharing data on mutations can also help our fight against the changing virus. The most important point about data, unlike oil, is that it can be



shared. If you share the data of one person with 10,000 people, you can get a better prognosis. If you share it with 1 million, then the true power can be unleashed. I believe that we can think about how to share the data in a way that ensures transparency and traceability and that measures the protection of rights in a way that is not just based on individual consent.



**Dr. Yasuhiro Suzuki,**  
Chief Medical & Global  
Health Officer,  
Vice-Minister for Health,  
Japanese Ministry of  
Health, Labor and Welfare

**One of Japan's most esteemed physicians, Dr. Suzuki has worked with Japan's Ministry of Health, Labor and Welfare for 30 years.**

**How can societies prepare for future pandemics?**

We had the avian flu in 1997, SARS in 2003, H1N1 in 2009, MERS in 2012 and now COVID-19. Pandemics have been hitting the world every four to five years. We need to prepare our healthcare and even socio-economic ecosystems for such frequent waves of threats. But the world cannot be on high alert all the time. We must identify our core capacity and preparedness before the actual pandemics and how quickly we could surge our capacity in response.

**Should Japan and the US boost collaboration around global health?**

We share many values, and I believe we can achieve an incredible amount of global health initiatives by collaborating. One of the many potentials is to establish an 'Asian Centers for Disease Control' together. The US already helped establish an African CDC after the Ebola outbreak, an initiative that has been considered successful.





The Fugaku supercomputer has been used to simulate how factors like masks, humidity and distance influence viral spread. RIKEN

## World's Fastest Supercomputer Cracking the COVID Code

Conducting around 442 quadrillion calculations per second, Fugaku was the world's first supercomputer to be top-ranked in speed, data processing, deep learning with AI and practical simulation calculations.

In the global competition to develop the world's fastest supercomputer, Japan's Fugaku displaced the IBM Summit for top spot last June. Yet the driving factor behind its development was never to win. Instead, it was created with an application-first philosophy aimed at tackling the world's biggest challenges.

As COVID-19 raged, the supercomputer, developed jointly by RIKEN and Fujitsu, was deployed earlier than planned so it could be added to the global arsenal against the pandemic. Researchers knew it would be an ideal tool to run real-world simulations about viral transmission.

"We have put out a press release every month or two. It would take a year or more to do the same with the world's fastest supercomputer of the previous generation," said Makoto Tsubokura, team leader at the RIKEN Center for Computational Science.

The research has helped turn the invisible visible. By communicating results, people around the world have been able to see how factors like masks, visors, ventilation, airflow, humidity and distance influence the likelihood of contagion.

Researchers found that risk is determined by four main factors – distance,

### FUGAKU WAS DEVELOPED OVER A DECADE AT A COST OF \$1.2 BILLION

duration of contact, vocalization (like singing, talking, silent, or exercising) and ventilation. "It is advisable to develop a habit of thinking about the risk of infection in various situations by always assessing the relative contribution of these four factors," said Tsubokura.

The computer's simulations have underscored the importance of wearing well-fitted masks, even though they do not eliminate exposure risks completely. They also found that face shields are much less effective, but can be helpful in situations such as eating or drinking.

For other harm reduction strategies, Fugaku's results say that when dining with a group, there should be empty seats in front of and beside each person at the table. Likewise, for partitions to be effective, they should be above head height. Now, the supercomputer is focused on analyzing different ventilation strategies in music venues.

Moving forward, Fugaku will also be leveraged to work on critical areas like medicine, pharmacology, disaster prediction and prevention, environmental sustainability and energy.





Inside the world's first digital art museum, located in Tokyo's Odaiba district. ALAMY



# Government as a Service

The Japanese government is embarking on a digital transformation aimed at streamlining administrative procedures and providing round-the-clock services to citizens.

The COVID-19 pandemic has laid bare the shortcomings of governments around the world. In Japan's case, management of the health crisis was hampered by an outdated and cumbersome administrative system. While the country may be famed for its futuristic technology, some aspects of government appeared to still be operating in the last millennium.

As social media was being used to conduct widespread surveys and provide support for people with the disease, many healthcare providers were faxing information about infections to public healthcare centers, where data was aggregated manually. When the government tried to send out nearly \$1,000 to each resident, the process was significantly delayed by paper-based administrative procedures. People were told to submit applications online, but an unprepared system forced some local governments to accept mail-in requests only.

Looking to distance himself from his predecessor and address this glaring problem, Prime Minister Yoshihide Suga made the digitalization of Japan one of his top priorities. Within hours of taking office last September, he created the post of digital transformation minister and tasked the latter with creating an agency within a year to lead the national effort.

The project is moving forward at record speed and the Digital Transformation Agency is expected to be operational by September 1 of this year. It will be staffed by around 500 experts, including at least 100 IT engineers hired from the private sector through a fast-track process more readily associated with a business start-up than a public organization.

"I believe that the pandemic is why Japan has been moving forward with digital

transformation at an incredible speed. It's provided a strong lesson to the entire nation," says Takuya Hirai, Japan's first Digital Transformation Minister.

Hirai's agency will act as a command center, reporting directly to Prime Min-

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**This is an agile, expedited process, similar to starting a company from scratch**

**Takuya Hirai,  
Minister for Digital Transformation**

ister Suga. Within five years, it hopes to integrate, standardize and digitalize government processes, ahead of a nationwide transition to the cloud. Simultaneously, the agency will create architecture for new public sector systems while promoting initiatives to

encourage digital transformation in the private sector.

"The establishment of the Digital Transformation Agency is an agile, expedited process, similar to starting a company from scratch. Eventually, once the Digital Transformation Agency is in operation, we will have 'Government as a Service,'" explains Hirai. "This means government services will be accessible and available 24 hours a day, 365 days a year. The convenience of digitalization in various fields such as medical care, education, and disaster prevention is that it will be available whenever and wherever you want."

The agency will also be different from other government departments in its rejection of traditional, top-down bureaucratic thinking. Instead, it will put user experience at the center of its strategy as it strives to make administrative services simple and intuitive >>







From Japan's National Diet, the Suga administration is spearheading the process of digital transformation. SHUTTERSTOCK

» for everyone, including the elderly and people with disabilities.

One of the agency's key goals is the promotion of Japan's personal identification cards, called My Number Cards, which will serve as passports to the digital society. These cards are already equipped with IC chips that act as electronic certificates, verifying identity for some online government services. They are also hooked up to an online portal where residents can check what information governments have about them, as well as perform a few administrative tasks. But the government's strategy is to make the cards much more versatile.

By this spring, the ID cards are expected to also begin operating as health insurance cards. By early 2023, the government aims to hold their functions in cellphones. The year after that, they are expected to act as valid driver's licenses, all while the government continues to improve their authentication functions.

"At that point, it will become possible to digitally identify the person and check the necessary information on the spot, providing finely tuned services. This should lead to greater convenience in people's daily lives, with citizens able to file tax returns or complete childcare-related procedures on-

line from anywhere using a computer or mobile phone," said Hirai.

Aspects of the new system are already being piloted. Moving in Japan can be a notoriously long and complicated process. The change of address has to be reported to various government agencies and private businesses. The processes vary from place to place and person to person, leading to frequent mistakes and omissions. To reduce the burden, the government is going to launch an online one-stop moving service allowing residents to report their new contact information to local governments and private enterprises all in one place.



“We need to think about how digital infrastructure, despite being invisible, brings about huge value for society, just like physical infrastructure does. This is the key to revitalizing Japan’s economy on a global scale,” says Mickey Mikitani, Chairman and CEO of Rakuten, a leading Japanese digital company. “Digital transformation is endless. There is no finish line.”

The government understands that for digital transformation to be successful, it will have to protect users’ privacy and security. Authorities are working on a system in which an independent regulatory authority will monitor and supervise how personal information is being handled by both the public and private sectors. And new legislation is expected to be pre-

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**We need to think about how digital infrastructure, despite being invisible, brings about huge value for society, just like physical infrastructure does. This is the key to revitalizing Japan’s economy on a global scale**

**Mickey Mikitani,**  
Chairman and CEO of Rakuten

sented to the government this year, renewing basic regulations around personal data with the aim to strike “an appropriate balance between the protection and utilization of data,” in the words of Minister Hirai.

Beyond its borders, Japan has spearheaded the Data Free Flow with Trust initiative. First discussed under Japan’s G20 leadership in 2019, the initiative seeks to develop international rules for the digital age that protect sensitive information while allowing productive data to flow across borders. This, and other ideas related to digitalization, will be highlighted when Tokyo hosts the World Economic Forum’s first Global Technology Government Summit in early April.

IN CONVERSATION WITH  
**TAKUYA HIRAI,**  
JAPANESE MINISTER FOR  
DIGITAL TRANSFORMATION

**“We need to use  
this momentum.  
We cannot take  
a step back”**



**Considered one of Japan’s most tech-savvy lawmakers, Minister Hirai is leveraging the knowledge garnered in his post as minister of information and communications technology to create Japan’s Digital Transformation Agency from scratch within a year.**

**What did the pandemic teach you about the importance of digital transformation?**

I believe that dealing with the COVID-19 pandemic has served as an opportunity to underscore Japan’s lag in digitalization. In my opinion, the main cause for this is that we have been half-hearted in our efforts, and we were not thoroughly keeping the users’ perspective in mind. On the other hand, I believe that working from home, online medical care, and online education have somewhat taken root in society by now as an effect of COVID-19. We need to use this momentum. We cannot take a step back. It should become the engine of the digitalization of society and it presents opportunities for digital transformation.

**How would you describe Japan’s vision for a digital society?**

The purpose of digital transformation is to promote a human-friendly digital transformation to create a society where no one will be left behind, where citizens can choose the services that meet their needs and find fulfillment through the use of digital technologies. Digitalization is just a method, not a purpose. The government will create a society where, even when everything becomes digital, people will still help each other and that traditional spirit is

further leveraged through the use of digital technologies. We also want to establish a more enriched lifestyle where people can lead quality lives with a variety of choices, regardless of location or age. Efficiency would increase free time, which could be used for further investment and socioeconomic activities, contributing to economic growth, as well as for a variety of community activities and leisure.

**What role does the Digital Transformation Agency have in bringing this to fruition?**

The Digital Transformation Agency will oversee and supervise the central and local governments’ information systems. Besides that, we will also put in place essential systems. In this way, we will be able to offer the services that people rightfully hope to receive, designed thoroughly from the ordinary citizen’s perspective. We believe that implementing digital administrative procedures in a way that applies to all citizens will have a significant ripple effect beyond the public sector. The government must set the example in terms of promoting society’s digitalization as a whole. Its role is to create a society where people can get the services they expect and experience the convenience of digitalization. To realize these goals, I strongly feel that I must take the lead in vigorously promoting digital transformation and the Digital Transformation Agency. As the command post for the formation of a digital society, the agency must be given a robust overall managing function, including the right to issue orders.

# Society 5.0: Japan's Roadmap for the Future

When it comes to technology, Japan's government is no passive bystander. Its vision for Society 5.0 encourages innovation for a more sustainable, inclusive and human-centered future.



A young girl making friends with a robot in the Kuromon Market in Osaka. UNSPLASH

Japan's government believes that technological innovation has been the driving force of societal change. First the agricultural revolution, then the industrial one. Now, the rise of the internet has led us to the information age.

But with the unprecedented speed of technological advances, Japan's government believes civilization is again at the dawn of a new era. Soon, almost everything will be able to be digitally connected. At the same time, through tools like AI, we will have the power to analyze the massive amount of data

coming from connected devices and derive insights in real-time. Cyberspace and physical space will further converge, creating a super-smart society.

With this revolution still in its infancy, societies still have a choice for where it can go. One is for policy-makers to watch indifferently as technological innovations disrupt society for private profit. Another is for governments to harness the technology to reinforce power and control populations on a scale never before seen.

Japan presents an alternative. Its Society 5.0 concept

draws on these technological breakthroughs to achieve a more human society. Instead of looking at improving big, complex social issues as a fiscal trade-off, it aims to leverage technology in a way that boosts economic development while simultaneously tackling societal problems and improving individual well-being. Humans are not to be the components of the system, they will instead be at its center.

"In the past, we as a society strove for the greatest happiness for the greatest number. But already, by using AI and

## Transforming Society:

### Healthcare

Personalized care, early detection, empowering individuals with health information

### Mobility

Autonomous driving, shared services, live data on driving conditions, reduced emissions

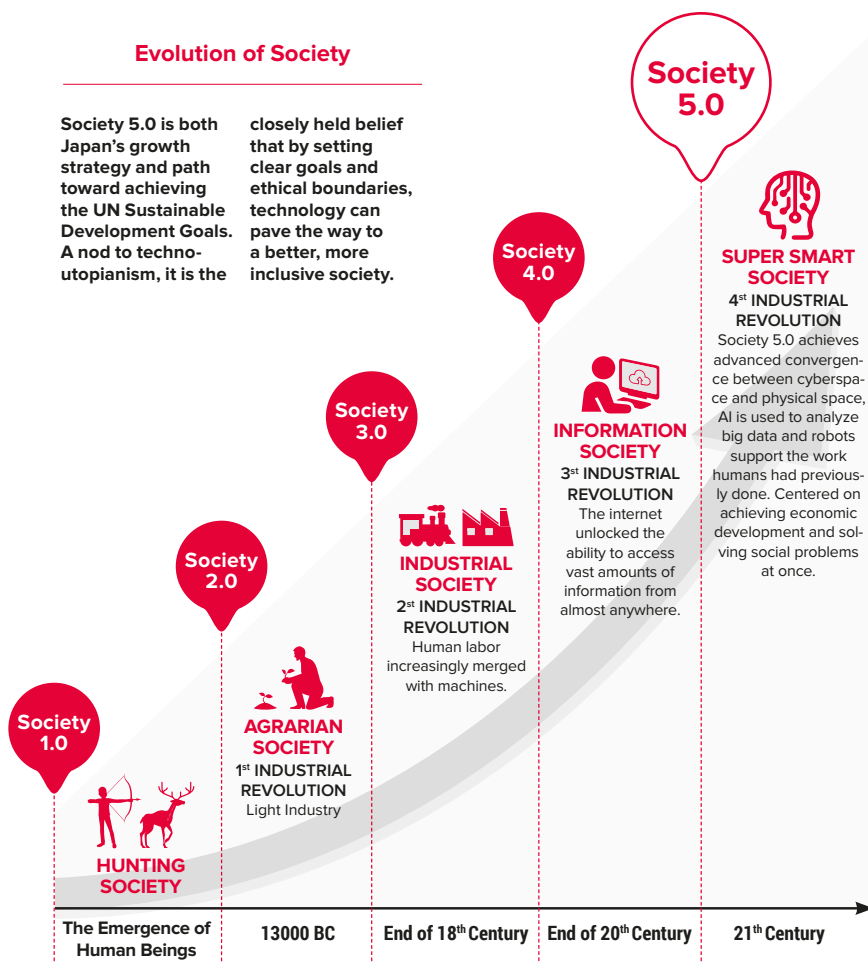
### Manufacturing

Use of AI and robots for efficiency, cooperative shipping, linking up supply chains



## Evolution of Society

Society 5.0 is both Japan's growth strategy and path toward achieving the UN Sustainable Development Goals. A nod to techno-utopianism, it is the closely held belief that by setting clear goals and ethical boundaries, technology can pave the way to a better, more inclusive society.



SOURCE: GOVERNMENT OF JAPAN

data, it is now possible to significantly reduce the cost of covering individual needs while ensuring that no one is left

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**In the past, we strove for the greatest happiness for the greatest number. We can now aim for a society with the greatest happiness for the greatest diversity of people**

**Hiroaki Miyata, Professor of Health Policy and Management, Keio University**

behind. We can now aim for a society with the greatest happiness for the greatest diversity of people," said Hi-

roaki Miyata, Professor of Health Policy and Management at Keio University.

Enthusiasm for this vision has rippled across Japan's sectors. Keidanren, Japan's main business association, has adopted working toward Society 5.0 as a main focus. Meanwhile, the government has prioritized funding for science and technology. This January, the government announced it will be setting up a fund worth as much as \$100 billion for innovative research in universities.

"We strongly promote Society 5.0 by working to help solve social issues in Japan and internationally," said Takayuki Morita, President and CEO of Japanese technology company NEC.

## Q&A

**JUN MURAI,  
PROFESSOR, KEIO UNIVERSITY**



**Known as the Father of the Internet in Japan, Professor Jun Murai was a pioneer in bringing the internet to the Asia-Pacific region. He remains a key figure for his work on the future of connectivity.**

**What is the main challenge for the internet today?**

Abuse versus proper and ethical use. To solve abuses, we need to achieve technical sophistication in terms of security and trust frameworks. To promote ethical use, the technology should work toward solving the main challenges of human society such as health and natural disasters. It should be a force for good in the world. I think that proper and ethical use of digital data for our society should be the goal of Society 5.0. The internet certainly is the basis of it, so we should keep enhancing it – making it a better platform for society.

**"I believe this is a historic moment to re-challenge the status quo for better internet governance together"**

**What are some interesting technologies coming out of Japan now?**

To name a few, stratosphere communications for the internet such as Loon and Hapsmobile, which are somewhere between wifi/mobile technology and satellite technology. I think they are very promising for post-disaster internet infrastructure recovery. Plastic optical fiber for high-speed, short-distance connection is also becoming practical with its energy effectiveness. Quantum internet technology for post-public key encryption internet security is another interesting and competitive field.

# Why Japan's Open Technology Stands to Revolutionize 5G

Increasing concerns over 5G supply chain risk have given new impetus to Japan's open approach to next-generation mobile networks.



Research suggests that the 5G consumer market will be worth an estimated \$31 trillion by 2030. SHUTTERSTOCK

The US-led clampdown on Huawei's 5G technology gave fresh momentum to Japan's next-generation telecoms equipment. That's not only thanks to Japan's commitment to human rights but also because of the country's open approach to 5G, which promises to shake up the future of mobile networks.

For now, the 5G space is something of an oligopoly. In 2020, just three companies – Ericsson, Huawei and Nokia – controlled 77% of the entire global 5G

base-station market share, according to research group TrendForce.

Traditionally, network suppliers have provided mobile carriers with all-in-one bundles. As networks grew increasingly complex, just a few large companies became dominant, building entire networks or large components with proprietary technology.

But Japan's government and technology companies are hoping to help turn the tide. Companies like Rakuten, NTT DOCOMO, Fujitsu and NEC are build-

ing key 5G technologies around open specifications that allow networks to work with a multitude of components from a range of companies. This could help destroy entry barriers for new companies in the 5G space, not only in Japan but worldwide.

“Our new generation of mobile phone tech infrastructure is unusual in that it draws on technology vendors from Japan, the US, Finland, Taiwan, Korea and elsewhere, but not from vendors that have been spotlighted due to secu-



erty concerns. Not surprisingly, US and European authorities have been watching our progress,” said Mickey Mikitani, Chairman and CEO of Rakuten, which launched the world’s first large-scale open-architecture network last year. “The new network’s advantages are clear: 30-40% percent savings compared to traditional networks for present 4G technology and up to 50% savings for next-generation 5G networks.”

Japan’s emphasis on open networks aims to diminish real threats that could come with reliance on single suppliers. A European Commission report found that this approach increases the exposure not only to cyberattacks but also to technical weaknesses and vulnerabilities. Increased competition could also help get rid of supplier lock-in and lead to significant price drops for mobile carriers and consumers.

### **THE PUSH FOR OPEN TECHNOLOGY COULD HELP DESTROY ENTRY BARRIERS FOR NEW COMPANIES IN THE 5G SPACE, NOT ONLY IN JAPAN BUT WORLDWIDE**

The UK, after virtually barring Huawei technology in its 5G network due to unresolved security concerns, found that it would be relying entirely on Nokia and Ericsson for its critical 5G infrastructure. Even though they are European companies, Digital Secretary Oliver Dowden said it still represented “an intolerable resilience risk.” The country looked to Japan for alternatives. Now, the British government is partnering with Japan’s NEC to launch a 5G Open Radio Access Network (RAN) this year.

While Japan looks to launch more of its 5G technology at home and abroad, the country has already set its sights on 6G. Continuing with the public-private partnership approach that has helped grow its 5G technology, the Japanese government is set to earmark \$475 million this year to promote the advancement of 6G mobile networks. Development of core technologies could be well underway by 2025, with 6G commercial launch pegged for 2030.

### **IN CONVERSATION WITH RYOTA TAKEDA, JAPANESE MINISTER FOR INTERNAL AFFAIRS AND COMMUNICATIONS**

***“The indispensability of ICT as basic social infrastructure has been reaffirmed”***



**Ryota Takeda has been Japan’s Minister for Internal Affairs and Communications since Sept. 2020. One of his main tasks is accelerating the deployment of quality Japanese information and communications technology (ICT) like 5G on the global market. He also hopes to stimulate more multilateral cooperation around international norms and standards that promote ethical use of mobile technology.**

#### **How has the pandemic impacted your approach to ICT in Japan?**

The COVID-19 pandemic has largely expanded the demand for remote activities such as working from home and distance learning. As a result, the indispensability of ICT that supports these activities as basic social infrastructure has been reaffirmed. Besides, the use of big data, such as applying information from mobile phone base stations, is spreading internationally as key to creating the best countermeasures against viral contagion.

#### **What’s your evaluation of the growing global trend that emphasizes the security of 5G networks?**

ICT, including 5G, is expected to be harnessed for use in every aspect of society, and it is important as a foundation for future social development and economic growth. Therefore, ensuring the safety and security of the ICT network is an urgent and critical task. Meanwhile, there is also growing concern that ICTs, which are making rapid progress, might bring about dark scenarios involving surveillance societies. We believe it is important to foster ICT solutions that respect privacy, human rights

and the norms regarding ICT usage. Since it is difficult to solve these issues through the respective efforts of individual countries, international cooperation is crucial. Since Japan’s secure and quality ICT is gaining increased international attention, we must live up to these expectations and contribute to the security of global ICT networks.

#### **Why has Japan emphasized open 5G architecture?**

We are well aware of security concerns such as the supply chain risk caused by the issue of “vendor lock-in,” where network operators have little flexibility to adopt vendors other than those that were initially adopted. To cope with this problem, we are internationally promoting an open and interoperable 5G network architecture. Domestically, some operators have already introduced openness into their network and the government has been implementing various promotion measures such as tax incentives and support for R&D. While the global trend to ensure openness and interoperability of 5G networks aims at enhanced network quality and security, this also creates a more competitive market, opening new opportunities for various businesses, including Japanese ones.

Indeed, the strength of the Japanese 5G model lies in its openness, secureness, high quality (e.g. low power consumption), and flexibility to meet various needs. Since Japan was one of the first countries to institutionalize private 5G, Japanese businesses can propose 5G systems with solutions using their own rich experience in private 5G.

# VOICES FROM THE CUTTING EDGE

Japanese companies have long been leaders in innovation and technology. Inspired by the government's vision for a more connected, sustainable and inclusive world, they are creating the tools and infrastructure to support that future. With world-class technology in areas like robotics, artificial intelligence and 5G, they are poised to make global waves in the years to come.

Read the full interviews at [foreignpolicy.com/japanpresentfuture](https://foreignpolicy.com/japanpresentfuture)

## NEC



**“We are working to protect data privacy and security across our business operations”**

**TAKAYUKI MORITA,  
PRESIDENT AND CEO,  
NEC**

**NEC Corp is one of Japan's leading ICT and electronics companies. In its 120-year history, it has pioneered a range of global technologies, most recently cutting-edge biometric authentication, 5G, facial recognition and AI.**

**As the new CEO, what is your vision for the company?**

The world is becoming increasingly connected and network technologies will play a transformative role in not only changing how we communicate but how business is conducted across verticals. We expect industries to undergo important

transformation in the next five to 10 years, and NEC has significant assets and capabilities to help drive this transformation.

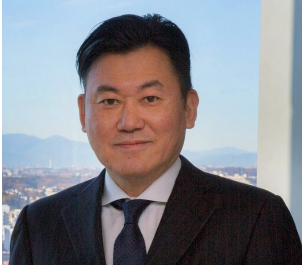
**What is your strategy for the US market?**

NEC is continually working to further align our US business with our goal of being a social value innovator, and we plan to continue helping US customers securely meet their identity management, communications, and other technological needs. We are proud to have longstanding biometric identity management partnerships with US public

and private entities. As an example of our commitment to leveraging our technologies to help tackle ever-evolving societal challenges, this past year we were excited to provide the Hawaii Department of Transportation with a multimodal biometric solution that can detect elevated body temperatures and help keep travelers and employees safe in Hawaii airports. We are also helping to build strong, secure, accessible communication networks as a trusted vendor across the United States through 5G initiatives supporting Open RAN (Radio Access Network).



## RAKUTEN



**MICKEY MIKITANI,  
CHAIRMAN AND CEO,  
RAKUTEN**

Rakuten is often compared to Amazon, not only for its e-commerce platform but also its vast ecosystem of innovative activities. Present in 30 countries, including the US, its services include fintech, ICT, e-books, health and more.

### **What's been your approach to creating the Rakuten Mobile network?**

Last spring, we built and launched the world's first large-scale commercial open-architecture network. It is horizontal, bottom-up, and open software-driven, constructed from off-the-shelf parts and powered by cloud computing. When creating the Rakuten Mobile network, we sought to do

**“We are working hard to personalize the online shopping experience. Thanks to AI, we hope to replicate online Japan's famed *omotenashi* spirit of selfless hospitality”**

something that's never been done before. Our goal was to democratize the telecom industry by lowering the cost barrier not only in Japan but around the world. And now, with 5G, as the world stands on the cusp of a telecommunications revolution – one that resembles how personal computers replaced mainframes – we are bringing Japan back into the telecom field globally.

### **How can Rakuten play a role in the digital transformation of society?**

We can be a leader. Empowering society through innovation and technology has always been our most important goal. It's why we're investing heavily in pioneering mobile technology. It's why we are developing our capabilities in AI, cloud computing, autonomous drone delivery, smart logistics and more. We are working hard to personalize the online shopping experience. Our image recognition of products utilizes deep learning, classifying items automatically based on images. We aim to have computers recognize products without human intervention – helping both our merchants and their customers.

## NTT DOCOMO



**MOTOYUKI II,  
PRESIDENT AND CEO,  
NTT DOCOMO INC.**

With 79 million customers, NTT DOCOMO Inc is one of the world's largest mobile phone operators. Internationally famed for creating the emoji, it now aims to lead the way in digital transformation.

### **How do you envision NTT DOCOMO'S future in the US?**

NTT DOCOMO is currently providing solutions mainly focused on the Internet of Things (IoT) to corporate users in the US through our US subsidiary. We will continue expanding our global business in terms of 5G and IoT networks and solutions by utilizing the NTT group's assets in North America and other locations abroad. If we have the opportunity, we would also

**“We are collaborating closely with US companies to create new value for 5G services”**

like to deliver the capacities that we've acquired in the BtoC Smart Life business, such as the payment platform business, to the global market – US included.

For the next generation 6G and IOWN networks, we are partnering with leading companies in the US such as AT&T, Verizon Wireless, Qualcomm, NVIDIA, Intel, VMware and Dell Technologies, to promote the activities of the O-RAN Alliance, which was formed by telecommunication operators and manufacturers to drive embedded intelligence and new levels of openness in the radio access network of 5G, and next-generation wireless systems.

We will continue to utilize our world-leading technical advantages and support the growth of our customers doing business in the US market.

## FUJITSU



**SHINGO MIZUNO,  
CORPORATE EXECUTIVE OFFICER/  
VICE HEAD OF SYSTEM PLATFORM  
BUSINESS, FUJITSU**

On the cutting edge of the technologies set to define the 21st century, Fujitsu is behind breakthroughs like the world's fastest supercomputer, advanced artificial intelligence and leading 5G technology.

### **How do you think 5G will change business?**

5G offers the potential to accelerate the digitization of field operations, solve various social problems, and transform customer operations. By connecting everything in real time, 5G optimizes data processing models that leverage the cloud and edge computing. I'm confident that the use of such data across industries will eliminate boundaries among different industries and create entirely new business models. Ultimately, the transition from 4G to 5G will be a continuous process. We believe 5G technology will emerge seamlessly and steadily with the evolution of digital transformation.

**“Carrying out digital transformation has become an urgent challenge not only for governments but for all industries”**

### **How can Fujitsu contribute to American 5G networks?**

We believe that 5G represents the vital network infrastructure underlying efforts to make digital transformation a reality. To create this open 5G ecosystem, we look forward to working with a variety of partners to deliver different products and solutions and system integration services to help contribute to the realization of North America's 5G networks. We believe that policies to exclude products of sensitive origin and the promotion of Open RAN offer significant market opportunities not only for Fujitsu and Japanese vendors, but also for many new vendors. We are a trusted partner of governments across the world, and we take pride in our high security standard.





01

We still can't travel but we can always dream. And the moment it becomes safe to explore the world again, let Japan blow your mind.



02



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08

1. Autumnal branches shape Mount Fuji as it reflects off Lake Kawaguchi.
2. Snowboarders pass by the famous 'snow monsters' of Mount Zao.
3. The Sumida Fireworks Festival lights up Tokyo skies each July.
4. A springtime boat ride on the moat of Himeji Castle.
5. A woman in a kimono strolls through Kyoto's Arashiyama Bamboo Grove.
6. Scenes from the Awa Dance Festival, held in August on Shikoku island.
7. Kyoto's Kinkaku-ji (Golden Pavilion) temple, first built in 1397.
8. Japanese macaques warm up in the Jigokudani hot springs.

PHOTOS: SHUTTERSTOCK