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WEBINAR

BECOMING A DIGITAL POWER:
JAPAN'S PATH FOR DOMESTIC TRANSFORMATION
AND INTERNATIONAL INFLUENCE

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P R O C E E D I N G S

MS. SOLIS: Hello, everyone. I am Mireya Solis, Director of the Center for East Asia Policy Studies. It is a pleasure to welcome you all to today's Webinar, "Becoming a digital power: Japan's quest for domestic transformation and international influence". Digitization is in many ways, mission critical for Japan. It will play a large role in how Japan adjusts to profound demographic change, with the aging and contraction of the population.

You also figure prominently on its ability to find new sources of competitiveness and drivers of productivity at home, and it will play an important part in Japan's international efforts to build the data governance regime that delivers on the promise of free data flows with trust. Japan's digital transformation today is a top priority for business and government.

Just this month, a new digital agency was launched to upgrade the public digital infrastructure. So, the purpose of today's Webinar is to take stock of these developments and discuss the opportunities and obstacles ahead, for Japan to realize its own domestic digital transformation, and to influence the rules of the digital govern -- of digital governance at a time when there is the risk of fragmentation of the international digital ecosystem.

So, we are very fortunate to have a leading group of experts who will help us understand this complex set of issues. I will introduce them briefly in the order in which they'll provide brief opening remarks. Keita Nishiyama is a Visiting Professor at the Institute for Future Initiatives of the University of Tokyo. Mr. Nishiyama had a distinguished career in the Ministry of Economy, Trade, and Industry, where he was Executive Managing Director of the Innovation Network Corporation of Japan, and Director General for the Commerce and Information Policy Bureau, among other positions. Mr. Nishiyama will speak today about Japan's digital strategy and its implications for eGovernment and e-Governance.

Ulrike Shaede is Professor of Japanese Business at the University of California San Diego, School of Global Policy and Strategy. She is the Director of the Japan Forum for Innovation and Technology, or Japan Zoominar, which I highly recommend to anyone who wants to follow current issues on Japan. Dr. Shaede's most recent book, *The Business Reinvention of Japan: How to make sense of the new Japan*, is the winner of the 2021 Masayoshi Ohira Memorial Prize. She will discuss how the

Japanese business sector is tackling the digital transformation.

Mihoko Matsubara is Chief Security Strategist at NTT Corporation, where she is responsible for cyber security thought leadership. She served at the Japanese Ministry of Defense, before pursuing an M.A. in Science. Her 2019 book on cyber security won an award by the Okawa Foundation for information and telecommunications, and Matsubara will talk about Japan's cyber security readiness in undertaking the digital shift.

My colleague, Joshua Meltzer, is a Senior Fellow at the Brookings Institution, where he leads the Digital Economy and Trade Project and co-leads the Forum for Cooperation on AI. Dr. Meltzer will speak about Japan's role in international digital governance and U.S.-Japan cooperation on digital rule making and AI standards. So, as you can see, we have a terrific group of experts, and they'll start by sharing some views on these important issues, and then we'll have a moderated conversation. So, without further ado, Nishiyama, please go ahead.

MR. NISHIYAMA: Thank you, Mireya, for a fine introduction. So, I have seven minutes to speak on the topic. So, I divide the topic in two agenda. One is for domestic transformation, and second is, of course, international influence in Japan. On the first topic, the thing I would like to say is, well, if you look at the personal level, not myself, but, you know, average Japanese people level, I think they're very adaptable to new technology, including digital technologies at personal level.

As you know, we are very accustomed to robots or robotics from manga or animation. So, we have, now, sort of psychological obstacles to make use of those technologies. And, on the industry side, of course, you can say that, yes, we may not have gaffe, but if you look at component or equipment level, we still have many, many world-class equipment manufacturers of component manufacturers, such as an image census or the acquaintance, which are necessary for semiconductor production.

So, what are our challenges? I would say our challenges reside with the sort of organizational transformation, or more specifically, corporate transformation because Japanese Organization, or Japanese Corporate Structures, are more or less designed as vertical integration. It's not horizontal. And because we were very good at improving skills at corporate level, we call it Kaizen,

therefore, it was rational, at that stage, to the people. Stay in the same company, and improve their skills, and make friends within company, and cooperate each other.

But the problem is digital technology has a nature of sort of horizontal nature, which is shared by different organizations. So, vertical integrated organizations do not fit digital technologies. We call it sort of layered structures because digital technologies are stacks, many layers. So, we have a -- challenges to incorporate these structures within our traditionally vertically integrated structure.

Second thing is on digital agency. I, personally, really have a great hope for digital agency because it relates to the fact that our organization, including government, is really a vertical structure. Digital agency is without saying it's a horizontal agency. It looks at the digital technology, digital substance of any lined ministries, horizontally. And I think they have three advantages. One is -- I'm repeating myself, but they have the power to look at digital systems, horizontally, because they have the power to check the procurement of digital technologies line ministries. So, they have power, that's the first thing.

Second thing is they have a recruited, talented -- talents from private sector. That's, again, something new, because, like myself, I retired from Government last year, but I was essentially in Japanese Government for 35 years. But about one third of people, about 200 people, are coming from private sector to digital agency. So, that may create some frictions, but that will certainly transform the culture of Japanese Bureaucracy or Government in general. That's my hope.

And finally, I think the core members of digital agencies have what I may call the architectural thinking, in the sense that, they have a philosophy that digital technologies need to be built in -- at layered structures, not a vertically independent structure. So, that's what I call architectural thinking. And they are working very closely with the professionals of architectural thinking, architectural design. So, that's, I think, the third strength of digital agency, though that's my -- the reason for the strong expression.

And finally, I'll slightly touch upon the international influence, and that's from my personal experience because I, in 2019, I was a J Director General, which was responsible for coordinating G20 Digital Minister Meeting, and I really feel that Japan is well positioned to coordinate the countries with the

different interests, different backgrounds, and maybe if we had weakness in the past, we were not -- we're timider to say something, umbrella concept, or big concept. But that's actually -- we did in 1929, of course, we -- thanks to the leadership of Prime Minister Abe, but we, as you mentioned already, we propose a concept of data free flow with trust and also, to build on the concept, we proposed a less known concept of governance innovation.

We were saying that we need a new structured governance to tackle the issues arising from digital technologies. So, I think we are in the position to make more international influence, of course in a good direction. So, maybe I used up seven minutes? So, I'll stop here, and Ulrike, please, or Mireya, please?

MS. SOLIS: Thank you so much, Nishiyama, for those very interesting set of comments, both on the domestic side, but also international efforts, and I thought it was really interesting how you mentioned how the digital transformation requires the Japanese Government to reinvent itself because it had been, you know, vertically integrated and we know that Ministries have been fiefdoms on their own, and, you know, the still piping is a real challenge to the digital transformation.

So, I'm sure that we'll pick up on that theme, as we go forward. Now, I would like ask Ulrike to please tell us about how the digital transformation looks from the side -- from the corporate side of things, the business world, where is Japan at?

MS. SCHAEDE: Well, thank you very much. And first of all, thank you, Dr. Solis for inviting such a great group of people. This is a fantastic event. I brought some slides, so let me see whether I can share those, that should work.

So, I want to talk about the business perspective. And I will make three main points. The first is that the digital transformation has a word in Japanese, which in Katakana, is very clumsy, so, they call it DX. So, the DX has already arrived, and the first use cases are, in fact, manufacturing and autonomous systems, like self-driving trucks or something.

So, I want to talk about -- so, that's my first point. And I would like to look at this for Japan as a huge opportunity to grab. There's a chance for companies to reinvent on this moment, and there -- for two reasons. One is demographic change that is happening at the same time. I'll show you

some slides here, and then I'll also talk a little bit about digital manufacturing.

And the final point I want to make is that the DX is borderless and ubiquitous. So, it's unclear who will win, but it might actually be sort of a more global question than we sometimes ask. So, let me go and talk a little bit about the demographic change. So, this is from work I've done with my -- I'm currently writing a book on this, with a co-authoritarian, he's a -- and what we're looking at is -- this is the working population of Japan, and so, we're here, and it is forecast, unless there are some serious challenges -- changes in immigration, to shrink dramatically to fewer than 50,000 people by 2050.

These are indicators of the DX. So, this is broadband use, which is already skyrocketed due to COVID-19, and this is a forecast of robot shipments, but the point here is that this DX is happening at the same time as demographic change, and that means that one can solve the problems that the other is causing. Let me give you some examples of what I mean with this.

So, for instance, there is a big issue in Japan, right now, is that the average age of small firm CEOs has been rising rapidly. So, in 1995, the average age of a small firm CEO was something like 47. In 2015, it was something like 70. So, that means 2020, so, we have to draw another graph here, the average age of the small firm CEO in Japan is over 70. We're talking -- when we talk small firm CEOs we're talking -- this is a tatami maker in my neighborhood, this is a single mom and pop store selling aroma herbs, and these are places that are on -- they're being phased out anyway.

And what are they being phased out with? Cashier-less convenience stores, where you just walk in, you grab a thing, and it's deducted from your credit card, or of course Rakuten's Delivery Drone, so, e-commerce, right? So, again, because the two are happening for Japan, who is a front runner in demographic change because it is happening at the same time, they make each other mutual solutions. The DX technologies and business models are replacing things that are on their way out anyway.

The second thing I wanted to make is -- talk about is digital manufacturing or industry 4.0. And there's a longer story here to be told about conveyor belts and automobile production, but you've all seen sort of an automobile production. Currently, this automobile production is governed by what is called an automation permit, which has several layers of software, and the future of this is a completely

connected shop floor, where all parts are talking to each other, and the internet of things enables that we can replace this automation permit. Take my word for it, it could get a little bit more complicated, but the point is, who is making money in this, right?

And so, currently, we have sort of the Gemba, the shop floor, where it's manufacturing equipment, and robots, and so forth, and some software here, and the disruption is happening right now, at the shop floor, through the introduction of integrated systems, and logistics, and planning, and process optimization, and single lot manufacturing, and so forth. And on top of that, eventually, in the future, we will have the cloud, with its big data, and AI, and so forth. However, that's far into the future. The disruption that's happening right now, with the X, on the -- in the manufacturing world is happening on this advanced equipment and advanced software solutions.

All right, so this is actually based on a METI document, and I had a student, from METI, in my class, and he actually set out to give these layers names, and so, and nationalities. So, if you look at who is playing, then what you find is there is a bunch Japanese companies, like Fanuc, and Omron, and Malco, and Kian's, and a bunch of Germans, like Siemens and SAP. There's a little bit of America in here, more or less no China.

This is the play that is played by German and Japanese companies, and if you look at the disruption, then again, we get Germany, and we get Japan, and then Kuka was bought by -- originally a German robotics maker was bought by a Chinese Company. GE has left this race. So, the point here is the disruption is happening now, in manufacturing, and it is actually happening with players from Germany and Japan. When we're talking about Amazon, and Google, and so forth, there is -- that's still in the future.

So, and there is also a software recruit playing together with -- also of course Alibaba and Huawei. All right, so, so, the point is the destruction has happened. There is also, by the way, some Japanese play in the cloud, as I just mentioned. We're going to talk about overrun soon. There's also a joint venture between SoftPoint and Toyota, that is doing some very interesting things in Southeast Asia. So, that's for another conversation, maybe, but I just wanted to mark this. So, what we -- Nishiyama just said, we often hear there is no GAFAM in Japan, and I would like to challenge that, right. It's like is that

actually true, and by the way, even if it were true, does it matter? There are lots of companies in Japan, that actually play there, right? And then I want a final note, and then I'll stop.

So, the fax machine has become the symbol, right, for how Japan is behind. And I think, actually, that that's a really interesting case. First of all, it is true, there are lots of -- there's lots of paper in Japan, but the fax machine is actually also in every U.S. office. You may not see it anymore, but did you know that there is -- these copy machines that we have in our offices are actually now fax machines. So, this idea that Japan would be better off if all Government Offices threw away the fax machines is a little bit not quite right because U.S. Offices also all have fax machines.

But there is something wrong in the Japanese Office, right? So, this is like what Nishiyama former office kind of looked like, right. So, there's a lot of paper here, people sleeping, and there is no space, there's -- it's overcrowded. So, definitely, there are some problems in the clumsiness of office processes, right? And the fax machine has taken sort of a symbolic role in this, and so, I completely agree with Keita. It's a thing about change within the organizations.

So, my time is up, so let me just stop here. The digital transformation is sort of -- has arrived. Japan is a global frontrunner in demographic change, which makes this an opportunity, and we have no idea who is going to win in this, so, this will be very interesting to pursue further. Thank you.

MS. SOLIS: Thank you, Ulrike, that was fantastic. And you know, there is so many things to follow up in here, but one clear takeaway is to think about demographic change not as a story of doom and decline but actually an opportunity precisely because of that intersection of when the technologies are hitting and when these demographic processes speeding up.

Second, the very, you know, textured discussion of where the advantages in Japanese advanced manufacturing are, and that there are cloud competitors. But the one anecdote I was hoping that you would share, and you didn't, but had to do with the recent interaction with Treasury, where you mentioned that you had to fax your documents because there was no other way to get it to them. So, the fax rules, not only in many Japanese Offices, but here as well.

So, we'll get into many those issues in the conversation with everyone. I would like, next, to bring Matsubara, and Matsubara is a leading expert on cybersecurity, and cybersecurity also is now in

everybody's minds. We're increasingly seeing bolder and bolder cyber-attacks, and we need to increase precautions. Just yesterday, in NPR, there was this news that we all had to -- if you have an iPhone, that there is a very critical patch that you need because of a vulnerability that has been detected, even without clicking.

And I know that this topic, therefore, that it's very important for Japan, as it considers and it's embarking in its digital shift. So, Matsubara, could you please tell us about where Japan stands, in terms of the cyber security side of the digital transformation?

MS. MATSUBARA: Sure, thank you. So, I'd like to talk about Japanese digital transformations, on challenging -- challenges and opportunities, and from the viewpoint of cyber security.

So, Gartner recently published a very intriguing Chief Information Officer Survey Report, a few months ago, based on their survey of 200 CIOs in the world, and 37 percent of Japanese CIOs believe their digital transformation has reached a mature level. And this is 10 percent lower than global average. So, I wondered why, why Japanese CIOs are not very satisfied with the stage of Japanese digital transformation?

So, here's my theory. So, I think, this is related to the Japanese digitization history and also the history of manpower and hiring. So, Japanese had end user companies traditionally outsource our IT work to vendors and third-parties because Japanese Companies started to adopt information technology back in the 1990's when the Japanese public economy crashed.

So, the Japanese companies had no choice, but had to adopt IT to cut cost. And I think that we still have that kind of mindset. So, according to Japanese IT White Paper, in 2017, 72 percent of Japanese IT professionals work at vendors. In stark contrast, 65 percent of IT professionals are in-house, in the United States, and 61 percent in Germany. So, good news is that 60 percent of both Japanese and global CIOs consider cybersecurity is a top priority for their investment in digital transformation, according to Gartner. But more reliance on information technology means a larger attack surface to such as ransomware attacks or cyber espionage as Mireya just pointed out.

But, again, Japanese end-user companies tend to outsource not only IT work, but also cybersecurity work to all third-party vendors. So, digital transformation will require them to hire in-house cybersecurity and also IT professionals. But sometimes they do not just have enough resources,

especially during this economic downturn by this pandemic.

So, to accelerate digital transformation in Japan, end-user companies also need to have leaders who understand and invest in technology and security and who can make a decision quickly enough to keep up with the speed of technology evolution. Sometimes, they are even required to launch totally new services, thinking outside of the box to be competitive and to survive in the market.

So, I'd like to introduce one Japanese company, which Ulrike didn't talk about, and then she shared other wonderful examples and really encouraging Japanese evolutions in the digital transformation, and I really appreciate that. So, for example, Sompo, which is the second largest property insurance company in Japan, has been pushing digital transformation since 2016. When they hired Chief Digital Officer Seiko Narazaki, who used to work in the Silicon Valley in the United States, and his motto is disrupt or be disrupted, and then he changed digital transformation or die because it is impossible to survive in the business environment, otherwise.

So, Sompo's projects used to be just focusing on insurance because that's the -- their main business is. However, now, their business operations are now very diversified to include our open innovations in the Silicon Valley and Israel, as well as cybersecurity services. So, currently, Sompo is the only one Japanese insurance company whose stock is categorized as digital transformation stock. This is amazing. And the 5G or 6G or beyond technology will further enable Japanese Companies to promote digital transformation by connecting more devices to the internet and offering value-added services and big data, such as mobility, financial, and healthcare.

It means security by design, and supply chain risk management will become more complicated, but also will become more important than ever. And I'm really encouraged to see these statistics that 60 percent of Japanese Companies are now very mindful of supply chain risk management, and they include cybersecurity questions and requirements in their contract documents, according to the Japanese Information Technology Promotion Agency, under committee.

So, still, there is no specific definition of security by design. Of course, everybody's now talking about, oh, security by design is so important, but what is that? So, 5G, 6G, or beyond will make the attack surface bigger and countries, including Japan and the United States, need to start discussing

how to incorporate security by design, not only to IT devices, or 5G or 6G technology, but also to incorporate in our business operations and service project.

But my final concern is a global trend of deteriorating security, during the pandemic, as Mireya pointed out. So, HP recently published an interesting report. So, 91 percent of IT leaders in the world have felt that pressure to compromise on security during the pandemic, to prioritize productivity, and 31 percent on young workers, between 18 and 24 years old, have even tried to bypass corporate policies to get work done. Eighty percent of IT people said that security was becoming a thankless task, as no one listens and no one cares anymore.

This is devastating because now we are relying on IT on digital transformation more than ever. So, the HP Survey was global, and not country specific, and not Japan or U.S. specific. Yet, because Japan, and the United States, and also Germany are now accelerating the digital transformation, we need to be very mindful about how to incorporate security in the process of this transformation. The two RIs from the Government and Industry should discuss the digital generation gap, as well, for the better digital transformation and also security, and also for better, and the free and open Indo-Pacific. Thank you.

MS. SOLIS: Thank you very much, Matsubara. That was also really terrific, I learned a lot, and very interesting point about the need to boost the IT capabilities of firms, how CEOs are looking at this challenge. But, also, I thought it was very interesting how the pandemic shock has altered the equation, both because it has created tremendous demand for digital services, and we are all teleworking, but also how we feel tempted to cut corners, and we spend so much time now online that the risks are higher.

Later in the discussion, I also was thinking when you mentioned that the deteriorating environment and how cyber-attacks are becoming, you know, more frequent and more audacious, I would be interesting to discuss how Japan is dealing with, you know, state sponsored cyber-attacks, or foreign attacks on its infrastructure and so forth. So, I would like to pocket that one later for -- in case we have a chance to address that. And with that, I would like to turn Josh, who will, you know, address international side of, you know, Japan's Trade Diplomacy, data governance, but also share very interesting work he is

doing on AI standards. Josh, over to you.

MR. MELTZER: Great, thanks, can you hear me? Yep, okay, great. Thanks, Mireya. It's great to be here, great to see you, and to meet new people and for some familiar faces. Look, you know, one of the things that, you know, Japan's been a -- like a real leader on the digital governance space, broadly, but one of the things that Japan, in many respects -- I mean, we have a debate in the United States about the extent that there's going to be decoupling from China, et cetera, but in many respects, Japan is almost at the pointy edge of that spear, in terms of what happens in the Asia Region, broadly, and the extent that it remains sort of an integrated, sort of, technology space or one which becomes bifurcated, not only around China but also other countries in Southeast Asia that gravitate in that direction and those that are sort of more open and sort of free flowing in a data sense, that the model of Japan and the U.S. and others are promoting. It's going to have an enormous implication for Japan.

I mean, Japan probably has got more stake in avoiding a splintering of sort of the technology stack and the internet, broadly, than most countries, and I think you see this in a very proactive sort of digital diplomacy from Japan, from a long time, and this I think will be very significant, in terms of shaping the opportunities for Japanese industry, you know, certainly going forward, when one looks at this as being, sort of, you know, do or die, in terms of digital transformation. How that digital space looks in the region will matter enormously. So, yeah, Japan, obviously, we know that data free flow with trust that came out of the G20, and importantly obviously China's in that, so, that's sort of a -- to the extent it's a global sort of vision for data flows, that is very consistent with an approach, which tries to avoid the splintering happening.

Japan was very instrumental, in fact, in setting up G PI, in during their presence at the G7. We'll talk a little bit about that, but that's around AI in particular. But, you know, Japan was a leader in pulling the CPTBP together. I think there's a -- and that's got these very forward-looking commitments on data flows, no data like -- localization, and so forth. There's obviously a very important question that's now risen, that China has formally applied to join the CPTBP in, you know, in eons back, when the U.S. sort of actually was engaged in Asian Digital Trade Diplomacy, this is in many respects what the whole CPTBP was, in part, set up to do, was to get China to join these high standards rules. But in the absence

of the U.S. had given now the tensions between the U.S. and the Western China, this is now a move which presents a lot more challenges, I think, for Japan, and CPTBP Countries to manage.

But, again, I think, the tension is there between wanting to encourage China into these high standards, so the open-rules based approach to data flows and digital technologies, the CPTBP is potentially a vehicle, if this sort of overture by China could be managed appropriately. The -- but, you know, on the same time, Japan's been playing a, I think, a really important sort of hedging game, in terms of building much stronger and closer ties, particularly with sort of Democratic and Western Aligned Governments. So, we're seeing the quad now, of Japan, you know, the U.S., Australia, and India are really gathering momentum, and they got a digital technology sort of standard working group they're setting up there.

The -- there's a bunch of really important bilateral announcements that Japan's had with the United States, in addition to this Competitiveness and Resilience to Partnership, announced in April this year, these ongoing bilateral internet dialogues, which also are increasingly, I think, robust, in terms of what they're doing.

And on top of that, we've seen Japan very active in sort of this broader regulatory space. We haven't spoken so much about that, but the comp limo or the cape -- additional part to a data free flow vision is this notion of trust or what Nishiyama, I think, was talking about is governance, as well. And Japan has sort of been one of the few countries in the world, for instance, that has managed to get an adequacy finding on privacy from the Europeans. It is also a member of the cross-border privacy rules in Apec. So, it looks good on paper, but I think it -- the reality in Japan has been that that's actually become attention, in terms of how these two systems interact in Japan. Again, there's a focal point to actually try to manage that.

I mean, the ultimate question for the companies has really become do you segregate personal data received from Europe, in order to be GDPR compliant, and then have a separate and essentially a kind of siloed data that you want to use for transferring more easily within the Asia-Pacific Region, that are sort of CBPR members. But again, these are Japan, I think, trying to make its way towards thinking through more complex data governance issues that should try to stick to the different

approaches together, globally.

I think Matsubara's discussion about cybersecurity is another absolutely crucial area, where that's potentially going to become a pivotal regulatory point around which sort of western democracies will ally around, and it will become this notion of who do you trust, who do you don't trust, who do you sort of include within your cybersecurity umbrella that is trusted. And if you're out, you essentially trade with them less, and so on and so forth. So, how that plays out will be, I think, another key point about whether we're going to get these bifurcated sorts of digital spaces or one which remains unified.

On the AI space, I'll just say briefly, you know, METI has been identifying, sectorally, areas for engagement on standards, so, transportation, for instance, safety, and others. This is exactly where Japanese industry has a long history of engaging in these sorts of industry-led, standard setting bodies, such as the ISO, and the ISE, and the IEEE, and so forth. This is though, another area where there's an enormous amount of attention now for what's going on in terms of developing international AI standards.

I think, again, thinking about this through the lens of where Japan sits at the intersection between wanting to sustain the global approach to technology and avoiding bifurcation, the important thing is that China is engaging in these standard setting bodies. Now, there's a lot of sort of concern about how they might use these standard setting bodies to specifically push, you know, party agendas and for standards which are not technically driven but are really kind of strategically sought to prop up longer term sort of communist party goals here. But the reality is, I think, also, that the standards processes are working quite well and that the processes of developing sort of best-in-class technology still remains the driving force for producing their standards.

So, you know, real ongoing sustained Japanese industry participation in these bodies, possibly with some more beefed-up cooperation with the U.S. and other allies on approaches in these standard bodies certainly to avoid them becoming too geopolitical I think is going to be another important dimension here, in terms of sustaining a global approach of the technology stack, broadly, but certainly to AI, specifically. I think I've used up my seven minutes. Let me stop there, Mireya.

MS. SOLIS: Thank you very much, Josh, that was great. I was very intrigued and I agree with the point you were making on the challenges of trying to be a bridge between different regulatory approaches and, you know, how you handled data coming from Europe and how you handle Asia Pacific privacy standards, and there is great merit in trying to be the integrator, but there's also, I imagine, challenge when you have these different approaches that you are trying to bring together. And, also, very much on point on the standard issue and the fact that it's a concern of mine, too, that geopolitical considerations can run rampant and that when economic security can become everything. And we obviously want to lower the temperature on some of these things and prevent the fragmentation of the intellectual systems, and, you know, Japan and many other countries are in the middle of this, and they thrive when there is an open multilateral system. And when we begin to fragment it, then I think there are great losses there.

So, thank you very much for covering a lot of ground in just a few minutes. So, kudos for that. And let me then open this conversation and ask you to please jump in, in whatever part of this conversation that you want to participate, but let me just start with what I think is perhaps a question driving to this program, and that is, is Japan a digital power? And how would you -- do we define one? I mean, there is, you know, shortcuts you -- we can go to, you know, rankings, and there is a digital competitive ranking. If we go into first tab, Japan ranks 27 out of 63. So, it's in the middle of the pack. But I think it gets more interesting when you begin to see in which areas, in that index, Japan excels and in which areas Japan is actually really weak.

And, you know, I think this resonates with some of the points Ulrike was mentioning that when you think about robotics, automation, manufacturing, Japan -- Monozukuri, Japan, in Japan, that's very good in craftsmanship. It still stands out. But when it comes to the human capital, the IT professionals that I think Matsubara had said -- was also referring to, we're bringing foreign professionals and having a talent pipeline built into -- in higher education. Then, I think it's where Japan -- some of the Japanese challenges begin to shine.

You know, we can also -- there are a number of indicators, and, again, this might not be the right way to read this, but, you know, cashless payments, you compare Japan to China and that many

people are still carrying a lot of cash. That might be changing. You know, the use of eGovernment Services, I think Nishiyama said that's why the push for the digital agency because there is very little uptake on digital services, so. And then, on the international sphere, Josh, you were saying, yes, Japan has pushed this digital data with trust, but trust is a very scarce commodity these days in international politics. So, how far can you really take this?

So, I welcome your assessments to the very simple but I think important question, is Japan a digital power or not? Ulrike, go ahead.

MS. SCHAEDE: Yeah, so, let me -- so, let me take a first shot at this, and then I'm -- I'll be curious to hear what the others have to say. But I think, right now, nobody is a digital power. This is just happening, right? So, we don't know -- I think where Japan stands out is how much it is a topic. So, you could not open a Japanese newspaper today, or, you know, these days, and not have the X on the first or second page. And I don't see this kind of discussion of the impending digital transformation in either Europe or the United States.

So, in terms of where Japan is ahead is I think that to use this moment as a goal to make big changes is an activity that I think Japan has fully embraced, right, rather than fear it. It's like a sort of - - so, and then we've seen this in the past, when Japan likes deadlines and goals, and so, the Olympics uses it. It was supposed to be a goal and that kind of came to end, but. But the digital transformation is sort of a goal to make a lot of changes, and this is being addressed.

So, I don't know of any other country that has actually established a digital agency already, other than Japan, and so, in terms of effort, Japan gets an A, in terms of being able to push this because of the things that Keita was talking about, which is that this deeply rooted or deeply entrenched sort of processes that actually have to change, it might take a while to change companies around or even to change government and switch to a different way of thinking about what software can do for us. But in terms of effort, I think Japan really is at the front of the pack.

MS. SOLIS: Thank you, Ulrike. And Nishiyama?

MR. NISHIYAMA: Yeah, thank you. Of course, my simple answer is yes or potentially yes, and the reason is coming out of the Japanese positions in two areas. One is as I already mentioned.

I think the -- when you use the term digital power, it, and particularly in the amount that we are setting, is that country -- does that country have a sort of influence over sort of the rulemaking or consensus on the future agenda in digital area?

I think that's my -- it's not only my personal feeling, but I think not only as a flattering, but people say, who gathered in G20, that they really expect Japan to play such a role, and it's not the same as you -- if you were very big at something, that doesn't necessarily mean that you're well positioned in coordinating something. So, I think the first thing is Japan is well positioned, internationally, globally, in coordinating such a future agenda.

And the second thing is that something Ulrike had mentioned because we are moving from the era of sort of digitalization within internet to sort of a cyber-physical integration area. So, we need a governance scheme institution, which are compatible -- which is compatible with the new reality. So, for that matter, the some -- someone who looks on both sides, meaning -- and simplicity saying digital service and manufacturing are better at proposing a -- the ideas on the future governance of these areas.

And as Joshua mentioned, yes, if we just utilized the first position, you might see Japan as saying, oh, I agree with you, and -- but, also, I agree with you, so, you are agreeing with almost everybody, and what's your position? Yeah, that may happen, but my -- the reason of my optimism is that if Japan can propose something, the future way of governance, which can incorporate both cyberspace and physical space, that's something we can play a positive role. And the reason why I say potentially yes is because we haven't realized yet, but my simple answer, then, is, therefore, potentially yes.

MS. SOLIS: Thank you. Very interesting, Nishiyama. Matsubara, I don't know if you raised your hand. I wasn't sure. Please, go ahead.

MS. MATSUBARA: Thank you. So, I'd like to take a different angle to introduce now how Japan is actually empowering other countries to be a digital power.

MS. SOLIS: Interesting.

MS. MATSUBARA: So, first, I'd like to talk about the Tokyo 2020 Summer Olympics and Paralympic Games. So, Japan has been enormous pressure, even to cancel Tokyo 2020 in this

pandemic, but Japan has been able to successfully and safely complete the operations of 2020 Tokyo Summer Olympic Games. And Japanese political leaders and police agency already admitted that we have no major cyber-attack to disrupt any part of the operations of Tokyo 2020. And Tokyo 2020, even though we had -- unfortunately, we had no spectator. However, we had so many digitized technologies to move forward the operations of Tokyo 2020. So, now, we have a success story of digitization and cyber security to have a safe and secure huge international event, even in this pandemic. So, I think that Japan should be very proud and share the success stories and lessons learned with not only 2024 Paris and 2028 Los Angeles and other countries, as well.

And second, I'd like to mention that the Prime Minister Shinzo -- former Prime Minister Shinzo Abe introduced a concept on data free flow with trust, and this constituted a crucial part of the free and open Indo-Pacific. And the free and open Indo-Pacific is not only about countries in this region, but the European countries are also keen on -- in developing on the national security strategies around that. So, I think that Japan is empowering other countries to be more secure, and also more be digitized because digitization is an integral part of security nowadays.

MS. SOLIS: Thank you Matsubara. And, you know, your last point actually allows me to ask my next question because you mentioned Prime Minister Abe's formulation of the pre-data flow with trust, and then, you know, Prime Minister Suga also embraced digitalization as one of his landmark initiatives. So, I think that the common theme that I'm trying to pull from there is the importance of political leadership to advance these agenda. And, you know, in some ways, and here I'm just, you know, trying to peak you -- to intervene, but in some ways, you could read the presentations with her that, you know, today, that the business sector has been ahead of government, that, you know, Ulrike said, you know, we have already arrived and there's already a lot of change happening in the business sector.

But, you know, in the government, clearly, there was a lack in embracing digital architecture and IT capabilities and so forth. So, my question is, of course, we all, that follow Japanese and Paris closely, know that there's going to be a major change coming to Japan, that Prime Minister Suga rather suddenly announced that he is not going to pursue another term, and, therefore, we'll have a new Prime Minister very, very soon.

So, what happens to the push on digitalization when there is a change in the highest office? Is it safe to say that, now that the digital agency is in place and given the high stakes, that we will expect that, whoever comes next, this stays on, or could we think that perhaps a new leader has a different set of priorities, and, therefore, fewer resources, fewer political capital because, after all, Nishiyama, when you're trying to break through these vertical power holds of different ministries, you need the political capital to do this. So, how do we think the change in political -- in the political equation might affect Japan's effort that Ulrike already gave an A? Maybe it'll become a B+. So, what do you think political change will mean for this agenda?

MR. NISHIYAMA: Thank you. If I may, two things. The first thing is, as everybody mentioned, I think, the Japanese challenge is a structural issue, or if I may say so, it's a mindset issue. If you have been thinking something vertically, then you need to change your mindset thinking horizontally. And that is not a product of an individual leader. It needs to reside with everybody's mindset. And for that perspective, of course, the departure of the leader is -- may be a something, but I think that does not directly influence on a structural issue or should not influence a structural issue. And, again, as Ulrike mentioned, maybe it's not a politically correct idea in the Brookings Institute, but maybe 20-30 years ago, it was a -- you know, create friction and pressure that changed the Japanese economic structure.

But internally, the pressure is clearly coming from the structure chain, like the population. We cannot escape from the fact that we are facing the depopulation. Therefore, if, let's say, I try to forget the direct digital transformation, I cannot do that because we all know that our society is facing a structure change that requires something big, something big shift, in our own mindset. That's one thing.

But at the same time, the second thing, as you kindly -- all kindly mention in the data free flow with trust, of course, we need certainly a political leadership to engage with foreign countries on this specific concept or idea. So, for that matter, I -- of course, I don't know who will be the next Prime Minister. But we certainly expect that next Prime Minister also will have the -- would have the -- will engage the foreign countries on that, on these agenda, with his own skill of leadership. I'll stop here. Thank you.

MS. SOLIS: Thank you very much. Anybody else who would like to jump on this

question?

MS. SCHAEDE: Could I ask a question? I don't know whether Keita would be willing to answer this. But what strikes me as the big challenge with the digital tool, which is the digital agency, is that the vision, certainly that Prime Minister Suga had, is that it could actually begin a complete reorganization of the Japanese government by reallocating industries, for instance. So, in agriculture, the farmer of the old is going to go out and agriculture is going to become an AI and machine learning controlled vertical farming, where, you know, the farmer of the future is this very highly educated chemist and an engineer. So, why not make the Ministry of Agriculture part of the Ministry of the Economy in Trade and Industry, right? And so, so, the digital agency has an opportunity to reorganize the entire government. And how likely is that going to happen, Keita? Would you put some bets on whether that's actually going to happen or whether that's going to fall by the wayside?

MR. NISHIYAMA: Well, as I mentioned, and I only have a huge expectation that will happen, and as Ulrike mentioned, two things. One, for any country, digital transformation requires a -- five to 10 years. You cannot accomplish everything in one year, even with the, you know, the best leadership. It cannot happen. And I always take example from India. They have a digital platform system, which is called IndiaStack. Actually, they took 10 years, and it took two Prime Ministers from different background, one from previous Prime Minister, Prime Minister Xin, and current Prime Minister, to build this structure. So, it needs time.

But secondly, it needs a plan, of course. And the why I point out the need of the plan is, again, architecture is, by nature, it's a -- IndiaStack is actually -- of course, you don't explain it in this English environment. I always explain to Japanese people stack is horizontal structures. So, it's not like - - yeah, I understand that the idea of let's -- why don't agriculture move into some other ministry. And so -- but my theory is you -- we need to have an imagination of the future government, not in the "horizontal line industry" aligned ministries that, A, division moves to be, or B-C combined, but rather you need to think -- if you think of the future to government, what are the stacks or the layers, the architectures they require? And I believe there are certain people in the leadership of this agency who've tried to accomplish that, of course, not in the short term, but in the long term. So, that's my sort of expression,

my huge expectation. Thank you.

MS. SOLIS: Thank you, Nishiyama. And, you know, let me just move into the next question because I'm mindful of the time, and Josh actually has to leave soon. So, I want to ask a broad question for everyone on UN-Japan cooperation, but I'll probably give Josh the first go at that. And, you know, we hear a lot of these things about tech democracies. I think that has become a really important framing of the emerging of geopolitical and geo-economic interests, so to speak, and the idea is that these tech democracies can cooperate on supply chain resilience, on emerging technologies, on maintaining high standards for the digital economy.

And we know that this has become very important to the U.S.-Japan dialogue and the leaders meeting. It figured prominently, there was the launch of the Competitiveness and Resilience Partnership. That's how it was framed in that communique. And again, you know, 5G, and Open RAND, supply chain resilience, cyber, digital connectivity impaired countries, we now have a very full agenda in the U.S.-Japan landscape. But that doesn't mean the cooperation is always easy and smooth.

So, I want to ask, what are the opportunities and what are the challenges in realizing these ambitious set of objectives? Were they -- are the U.S. and Japan fully aligned, where they might have different ways about how you implement some of these initiatives, where their interests might not be as clearly convergent? So, Josh, why don't you get us started on this question?

MR. MELTZER: Oh, thanks, and let me just preface this by saying that I think Japan is -- you know, to your early -- earlier question is undoubtedly a digital power. But, you know, there are -- you know, and Nishiyama and Ulrike have, and everyone, really, has sort of outlined that there are challenges on the horizon, clearly, and I think, you know, the population is important talent. I think it's just fundamentally going to be key to how dynamic Japan is and innovative, going forward.

But if you look at Japan across broadband capacity, governance, rules, IP, cloud, computing update, and so forth, you know, they do extremely well, and, to Nishiyama, some about convening power, you know, the ability to pull the -- you know, to gather around, you know, key, you know, governance standards and visions for this is, I think, testament to that. And I think this is why, also, the U.S.-Japan cooperation, or the XC, around building these out, globally. I mean, the EU is a key

partner, as well, but they're in a slightly different place and present their own set of challenges. And in many respects, actually, technology has become central, I think, to so much of what drives now the bilateral relationship and cooperation in that front.

But the way these ultimately work is they only work when the partners, themselves, are capable, domestically. You know, the most powerful bilateral partnerships are not ones where you'd look to the other partner who'd essentially prop you up when you lack the -- you know, whether it's the capacities, or the capital, or the talent, domestically, but one when where you are both bringing your strength to that partnership and then you build on those strengths.

And I think, actually, the U.S. and Japan are well-partnered in that respect. I mean, Japan brings enormous strengths to any type of bilateral cooperation on technology. And as I sort of said earlier, I think given Japan's sort of position, geographically, its integration, its supply chains, really, throughout Northeast Asia and Southeast Asia, its stake in how this plays out is really what is the most dynamic and key region now, in terms of what one thinks of, in terms of how governance will develop, you know, is really absolutely central.

So, I think Japan actually also brings that sort of like perspective into the bilateral relationship we've -- for the U.S. to essentially be sensitized to the challenges that its key partners are facing, as the U.S. essentially battles this out with China. Primarily, I think it's also sort of the key part that Japan brings to that. There are other countries in the region that do that, as well, but Japan is absolutely key to that.

The one area that I think that -- you know, Japan has been, I think, a really great partner, when you think about what Japan's been doing on Open RAND, for instance, which is absolutely important. The key area is ultimately going to be, I think, also collaboration on R&D. I mean, I think this is where there's probably more that can be done. I mean, just on the small AI area, Japan's budget for FY2021, I think, was about \$1 billion. You know, I think, you know, this is not only just about spending money, but I think they're -- this is -- you know, AI R&D has inherently always been a distributed sort of research driven effort. It's still, despite all the attention, a very much a -- an emerging technology, where innovation and basic AI R&D remains key. The U.S. is really scaling in that area, and I think that's one

area where it is a focus of the bilateral cooperation. I'd like to see a lot of substance built around this because I think it's one area that -- where both countries, together, can do a lot of good work.

MS. SOLIS: Look, Josh, and I know that your time is short, but, if I may, one focus question about the potential of U.S.-Japan cooperation in the digital domain. It would seem that an obvious one would be to take their bilateral digital agreement and build that into a plurilateral agreement or coordinate, you know, in joining other digital agreements, like the Digital Economic Partnership Agreement. What is your sense about the USTR or the Biden administration's willingness to undertake a digital trade negotiation with a greater degree of ambition?

MR. MELTZER: Look, I think that they -- you know, it's a strategic no-brainer for the U.S. to reengage, at least on digital, in the Asia Pacific Region, whether it is rejoining CPTBP unlikely, but all -- but maybe pulling together some likeminded partners to do something new. I know that, I think, the Japanese would be very supportive of that, as would others in the region. I think it's hard for USTR to take that step right now, given how much of their trade policy is through this lens of worker-centric trade policy.

And how do you explain -- and what would you -- at least the fundamental question is what would you do that has not been done before in a digital trade agreement that would, you know, make it more worker-centric? And it's not an easy answer. But I do think there's a lot of attention being given to this at the moment, given, I think, their understanding and administration of how important it is for the U.S. to reengage on these issues.

MS. SOLIS: Thank you. So, I would like to bring the other panelists, tech democracies, U.S.-Japan, 5G, Open RAND, supply chain, thanks, Josh, semiconductors. I mean, the sky seems the limit. So, what are your thoughts on where the U.S.-Japan partnership is heading? Nishiyama.

MR. NISHIYAMA: Yeah, thank you. Again, I was -- in the government, I was also directly involved in the 5G cooperation between U.S. and Japan, and I think it is a -- very promising in the sense that the geopolitical situation actually matches the shift in technology because even if you want to cooperate something in the technology area, if the nature of technology doesn't match with the -- what you will like to do, diplomatically or geopolitically, that wouldn't realize. But the -- you mentioned the

Open RAND, and Open RAND is, as you know, it's a system where the 5G system will be divided in different modules and parts and also tries to make sort of transparent -- systems transparent to each other, mutually.

So, I think that this very good example, why we call it a distal free will with trust. Because if you are procuring the system, which is a, by nature, black box, that wouldn't possibly give you the comfort of trust. So, what I'm trying to say is, in 5G cooperation, because its technology shifts match with the geopolitical reality and also the possibility of the corporate strategy of U.S. and Japan company. This is fairly promising.

And secondly, I think the -- if there are any sort of differences between U.S. and Japan, potential differences, that maybe it's -- again, this is something Josh already mentioned. Because the -- Japan is trying to -- of course, we have no reservation in starting something between likeminded countries. But we are, as a country, pursuing, if I may say so, more sort of multilateral approach. Therefore, we would like to involve other countries as much as possible on board, not only as a U.S.-Japan bilateral relationship. So, of course, whether you see it as a Japanese role on the U.S. perspective or its attention between bilateral approach and multilateral. It's, of course, depends on your perspective, but there are certainly difference in approaches, or I should say the approaches Japan is focusing build on -- building on the U.S.-Japan bilateral relationship. I'll stop here. Thank you.

MS. SOLIS: Thank you, Nishiyama. I would like also to bring questions from the audience. So, we have a lot of interest, so, there have been several questions, and I'll try to group them because, you know, time is beginning to run short. There were two questions that I think have a common thread and that has to do with the human capital question and whether Japan has the right level of skills, so, engineers, scientists, specialists. So, let me find -- and I should probably put my glasses to find -- oh, yeah.

So, Ashok Ashta, from the University of Kitakyushu, asked the following question, what progress has been made since 2000, when then Prime Minister Mori visited India to move IT engineers to work in Japan? At that time, there was a reported shortage of 90,000 IT engineers. How is the manpower or womanpower situation improved in these past 20 years? And if I can tag another question

thread to this, Betsy Matsunaga asks, what does the future classroom look like in support of the digital transformation? So, how do we get the people with the right skills to enable the digital transformation? What is the situation in Japan? Any thoughts from the panel? Ulrike and then Nishiyama.

MS. SCHAEDE: Yeah, I'll keep it short. So, I just looked at some of the data and some of the initiatives. So, the Cabinet Office has announced an education reform, which has -- which mixed -- the ministry in charge is pushing through, and it's a typical example of Japan taking forever to decide what to do, but once it's decided, it's actually pretty fast. So, so, there is a decision now made that the curricula will change. The universities are changing the curricula. All that said, though, to the first question, I think there is, right now, a recognition about every country that we are short IT skills, right? And so, what I like to also point out is that Japanese companies, this is one of these areas where sometimes tradition helps you.

Japanese companies, of course, given the tradition of lifetime employment, have always done training on the job, and so, here, this is a moment where reskilling can actually happen on the job, without a lot of resistance by the workers because it's always been done, right? So, the large Japanese companies have all already launched reskilling programs, and they're sending their, you know, their various folks into classrooms, learning how to think about applications of AI in their particular area. So, there's a lot of things happening. We will not see the results any time soon, but the action is definitely there.

MS. SOLIS: Nishiyama -- thank you, Ulrike. Nishiyama, you had a comment?

MR. NISHIYAMA: Yeah, thank you. Because the first question came from the, you know, India connection, and so, I -- we also, just as -- for example, promoting the relations between India-Japan for this human resource issue because we all know that there are many human resources, particularly architecture, software engineer, in India. We can work closely with Japan. And we've started with, for example, IIST, India Institute for Science Technology, to direct talk with Japanese large companies to recruit people from India, and so, things are moving, I think. That's the first thing.

And secondly, on the shortage of digital skills, I think it's common to U.S., as well. I think we need a redefinition of digital skills because the technologies are developing. As a result, if you are a

user of digital technologies, you don't have to write the programs. Maybe I'm exaggerating, but, essentially, that's the truth. Therefore, if we are back in 20 years, 30 years ago, you need -- if you need to introduce IT technology, major -- you need somebody who can write programs. But that's not reality today.

I just was at the manufacturing medium size companies in Nagoya Region yesterday, but they use digital technologies, but that does not mean they write programs. They use slacks and those are preset tools to help their manufacturing process. Therefore, again, Japanese people have an adaptability in such area, so that I think it's very quick if they change their mindset that they can become very good users of digital technologies in their Gemba, I mean, factory or offices. Thank you.

MS. SOLIS: Thank you very much. Let me ask one more question. This comes from Tetsuro Hisano, of Mitsubishi Heavy Industries of America. And he says, in order to achieve security by design, we need a security clearance system. It seems to be essential for the digital transformation. But there is no such security clearance system in Japan. So, what challenge does that pose? What should be the next steps going forward? How do we achieve that security by design? Matsubara?

MS. MATSUBARA: Oh, sure, I can take that question. So, so, I do not necessarily think that all of the organization need to have security clearance systems to adopt a security by design because, right now, because the digital transformation is a must on -- and part of our Japanese and also global business strategy. And not every single organization is involved in the secret part of our national security, and security by design, even though that definition is so ambiguous these days. But then, as I said, during my initial remarks, I strongly believe that security by design should be incorporated into the business strategy and also the design of our new business operations and the services.

So, in that regard, security clearance is not needed. However, if you are involved in a national security or economic security, and I think that not only Japan but also the United States and then Germany and other countries need to rethink that, okay, so, how to apply security clearance systems to security by design in a different part of critical infrastructure sectors because now we are expanding the definition of economic security. It's a very new term.

MS. SOLIS: Thank you. Thank you very much. So, this has been a terrific discussion.

Unfortunately, we have come to the end of our time. I want to thank each of the panelists for sharing their insights and for engaging in this really dynamic conversation, but also to thank the audience for joining us. There are many questions we didn't get to, but there'll be more on these topics, for sure. Thank you very much.

MS. MATSUBARA: Thank you.

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