THE BROOKINGS INSTITUTION

WEBINAR

ALIGNING TECHNOLOGY GOVERNANCE WITH DEMOCRATIC VALUES

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Welcome:

JOHN R. ALLEN
President
The Brookings Institution

Introduction:

JESSICA BRANDT
Director of Policy, Artificial Intelligence and Emerging Technology Initiative
Fellow, Foreign Policy
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Keynote remarks:

THE RIGHT HONORABLE NADINE DORRIES MP
Secretary of State for Digital Culture, Media and Sport
United Kingdom

Session I: Platform Governance in an Era of Digital Repression:

MODERATOR: QUINTA JURECIC
Fellow, Governance Studies
The Brookings Institution

DAPHNE KELLER
Director, Program on Platform Regulation, Cyber Policy Center
Stanford University

JULIE OWONO
Internet Without Borders
Facebook Oversight Board

ADRIAN SHAHBAZ
Director, Technology and Democracy
Freedom House

Session II: Multilateral Coalitions for Technology Governance in Support of Democratic Values:

MODERATOR: JESSICA BRANDT
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TANVI MADAN
Senior Fellow and Director, The India Project, The Brookings Institution

MARIETJE SCHAAKE
International Policy Director, Stanford University Cyber Policy Center
International Policy Fellow, Stanford Institute for Human-Centered AI
President, Cyber Peace Institute

Session III: Strengthening International Cooperation on AI:

Presenters:

CAMERON F. KERRY
Ann R. and Andrew H. Tisch Distinguished Visiting Fellow, Center for Technology
The Brookings Institution

JOSHUA P. MELTZER
Senior Fellow, Global Economy and Development, The Brookings Institution

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Senior Research Fellow and Head of Global Governance, Regulation, Innovation and the Digital Economic (GRID), Center for European Policy Studies (CEPS)

Panelists:

RUMMAN CHOWDHURY
Director, Machine Learning Ethics, Transparency & Accountability, Twitter

FRANCESCA ROSSI
IBM Fellow and AI Ethics Leader, T.J. Watson IBM Research Lab

LYNNE PARKER
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White House Office of Science and Technology Policy

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Executive Director, Pan-Canadian Artificial Intelligence Strategy, CIFAR

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Director, Data61

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P R O C E E D I N G S

GENERAL ALLEN: Friends and colleagues, honored guests, it's my sincere pleasure to welcome you on behalf of all of us here at the Brookings Institution to the inaugural symposium on Technology Governance.

Given the many ongoing threats to the global communities of democracies, and the collective impact of technology innovation across nearly all of society, the need for vigorous policy analysis, and recommendations, and coordinated strategic action, is truly great today.

Thus, we are particularly grateful for your taking the time to tune in this morning. And for us at Brookings, your participation on these issues could hardly be more important.

Now, as many of you know well, technology and the many policies that govern it, have become a defining issue for global affairs. At this very moment, digital platforms -- unrestrained by most borders and geography, and national ties -- are fostering greater connectivity and community across the globe, just at they are strengthening, and indeed, elevating and empowering the many autocrats, and malicious nonstate actors that threaten liberal democracies over the world order.

The fact that such platforms are overwhelmingly owned and operated by powerful transnational corporations is another important aspect of this dynamic, and this conversation. Currently, cutting edge advances and emerging technologies -- from artificial intelligence and quantum computing to advanced robotics and biotechnology, and so much more -- are giving rise to new breakthroughs in science and medicine just as they are fueling new forms of surveillance and repression.

And further, while the promise of great economic inclusion and prosperity is so often enabled by modern technology innovation, absent strong, value-based leadership with our friends and our allies, it can instead worsen economic disparities and increase inequality, which in turn, strike at the very core of our democratic governance.

Today then, a central -- or even, **the** central challenge that democratic societies face is how to govern and guide the development of advanced technologies in a way that reinforces liberal norms and values, while also outcompeting those championed by authoritarians.

The trend of major technological advancement will continue unabated, but the character that it will take on and, in turn, the eventual character of the entire international system will depend on the

principles that ultimately inform and govern technology's development and the deployment of this technology throughout society. Few issues are more pressing, or more consequential to us today.

Indeed, at this very moment, authoritarian illiberal regimes -- most notably China and also Russia and others -- are investing heavily in emerging technologies, both as new tools of repression, but also has pathways to military power and strategic dominance. And as they do so, these regimes are also working to rewrite established norms at the geopolitical level, while shaping new technical standards, those favorable to autocratic rule.

As we speak, the character of the international order in the 21st century, and beyond, is at stake, and the democratic world must respond and compete now, without sacrificing the shared values that have made us great, and which define us. Here we see HELTA Technology competition is truly at the core of the collective future of our global society.

That's why we at Brookings launched the global forum on democracy and technology to meet that pressing challenge. And I'm thrilled with the way so many researchers, from within Brookings and beyond, have already answered the call. They see the critical importance of the moment, just as I know many of you listening right now appreciate it as well.

And so, for today's event, we'll be focused on several of the urgent governance questions with which democracies are grappling. In particular, first: how can the global communities of democracies further the development of responsible AI. Second: what kind of multilateral coalitions and institutions will be most effective at advancing competitive, democratic models of technology governance globally. And third, what policy -- legal and ethical and regulatory approaches -- can ensure that digital platforms are governed effectively, and for the good of all society. These are some of the most essential questions of our time with the answers likely defining all that will follow.

With that in mind, we have a tremendous lineup of speakers today, as well as many opportunities for you to ask them your questions. Indeed, right now, please feel free to submit your comments and questions via events@brookings.edu --that's, events@brookings.edu -- or by tweeting with the hashtag: #techgovernance. Let me also highlight that we are very much on the record today and we're streaming live.

So, with that, thank you again for joining us for the inaugural Brookings symposium on

technology governance. Let me now turn it over to my colleague, Jessica Brandt, Policy Director of our AI and Emerging Technology Initiative, who will kick off our programming for the day. Jessica, over to you and thank you for your important leadership in support of this event today.

MS. BRANDT: Thank you, John, and thanks for all of you for joining today. We're thrilled to have you with us. We are also thrilled to have Nadine Dorries, the U.K. Secretary of State for Digital Culture, Media, and Sport. It's a role that she came into earlier this year, really leading a department that operates at the heart of some of the U.K.'s biggest economic and social issues. These are places where technology and democracy intersect.

At the center of the department's work is ensuring that government gets the international and national governance new technologies right, so that they encourage innovation, while protecting the public and fundamental value of this (phonetic).

There's a lot of ground to cover, and I'm thinking in particular about recent updates to the U.K.'s national data strategy -- the national AI strategy that it launched this fall -- and debates over online safety reforms. So, I'm going to turn it quickly over to her, but I first should say, that among many distinguished speakers, our event today includes participants from the U.K. government, IBM, and the Australian government. Each of these is among many donors that provide generous support to the Brookings Institute as a whole, which helps make the independent nonpartisan work that we do possible. With that, over to you, Secretary Dorries.

MS. DORRIES: Hello everyone. I'm delighted to joining you today, and to be part of the very first event for Brookings' global forum on democracy and technology.

I became the U.K.'s Digital Secretary just over a month ago, and while I don't want to sound too grand, I believe I've come into the role at a pivotal moment in our shared history. We are in the midst of the next tech revolution. Digital technology has bled into almost every part of our lives.

When I was growing up in Liverpool, the only tech we ever plugged into was the television to watch *Voyage to the Bottom of the Sea* on a Sunday afternoon. Fast forward to today, and from the moment we wake up and reach for our smartphones, to the moment we put them on to charge them at night, we rely on tech to get us through the day.

In the long history of humanity, this is now officially the Digital Age. And the technology is

advancing at an incredibly fast pace. In the past week alone, we've seen stories about a Texas based company that has started manufacturing 3D printed houses, and an AI machine that has completed an unfinished Beethoven symphony.

This is revolutionary stuff, but every advancement brings its own risks and challenges. For example, as our lives are increasingly conducted in the digital realm, how do we protect people online whilst also safeguarding their freedom? How do we ensure that the values underpinning tech are liberal values, and that tech is used as a force for good to improve all of our lives? And how do we make sure that truly transformative technology -- the kind that we haven't even seen yet -- is developed and used ethically and responsibly.

Almost every government in the world is grappling with these questions, but the U.K. is leading the way in answering them, including throughout pioneering digital regulation plan, as well as our groundbreaking Online Safety Bill. And I am looking forward to working with the U.S. in the coming months to further our aims, starting with my first trip across the pond in December.

Ours is one of the strongest global partnerships in history. We fought in the trenches together, literally and figurately, to protect our liberal values, and we will need to work together to make sure that the technology revolution is a democratic one.

In no area is that perhaps more important than artificial intelligence. To the average person on the street, AI can still sound futuristic, but as we all know, it’s already here and it lies behind the services that we are already using in our everyday lives.

It powers online mapping. It helps our doctors identify potential tumors in medical scans more quickly. It’s in the algorithms that recommend our new movies on Netflix. AI is already acting as a force for good in the world making things quicker, easier, and more efficient.

But like any transformative tech, if wielded in the wrong way, AI also has the potential to do harm. It can fill our social media feeds with fake news or amplify bias and hateful content. It can create misinformation through deep fake videos.

I'm sure many of you will have seen the Tom Cruise TikTok deep fake. That was harmless enough, but inasmuch as that technology is used to fabricate a video involving the President or the Prime Minister declaring war on another country, it would cause chaos.

So, between us, we've got to decide how to balance AI's amazing benefits with its risks. The excellent report from Brookings on international AI collaboration is another helpful step in that process, as are all the discussions we are having to the forum for cooperation on AI.

At the same time, we're going lots on our side of the pond to help write the rulebook for AI. We want to ensure AI works for citizens, not just in the U.K., but around the world. And so, we've worked with the World Economic Forum to develop guidance for responsible AI procurement for likeminded countries across the world to follow.

The U.K. was also a founding member with Canada and France on the global partnership on AI, and we forged research partnerships with the U.S. and other likeminded countries. But AI has the power to be truly revolutionary, and we need a vision that matches its potential.

Last month we published a new national AI strategy, our ten-year plan to make the U.K. a global AI superpower. The single, biggest commitment in that strategy is around AI governance. We will be publishing a national position on governing and regulating AI next year.

Our aim is to build the most trusted and pro-innovation system for AI governance in the world, to drive innovation in the lab and in the marketplace, to support the development of AI standards, and to do all of that whilst also protecting citizens in the potential risks and the harms posed by AI technologies.

In the meantime, the U.K. and U.S.'s partnership on AI continues to deepen. We have agreed a statement of intent which we are delivering through the U.K./U.S. Technology Partnership announced by the Prime Minister and President Biden in June. We've committed to strengthen cooperation on research and innovation on emerging tech.

And as your new report points out, this isn't just about the technology itself. Data is the fuel of the Digital Age. Nothing would work without it. And so, we have to work together to ensure the free flow of data as we agreed to during the G7 Digital Track earlier this year.

But the U.S. and U.K. can't do it alone. Tech is global by its very nature, and we have to come up with global solutions to the challenges raised every time new technology emerges.

It's been a year of international leadership for the U.K. culminating at the end of November when I will bring government and stakeholders from across the world together at the inaugural

Future Tech Forum. We will be using that new forum to discuss our collective approach to technology in the next five to ten years and to mark the conclusion of the U.K.'s highly ambitious G7 presidency.

In a room full of some of the most influential tech players in the world, we'll have the opportunity to have frank discussions about the Digital Age and about the values we believe should underpin this brave new world. In particular, I want to discuss how we can set the right principles for the regulation of AI, and how we can use tech to tackle global challenges like climate change.

The forum will explicitly look to the future. It's *me-ne* (phonetic) will be to ensure that public policy gets ahead of the next generation of technology.

So, enjoy the rest of this event and the discussion about this excellent report. And in the meantime, I'm looking forward to the Future Technology Forum and to hopefully seeing many of you in the U.S. in December. Thank you.

MS. JURECIC: Hi everyone, and thank you so much, Madame Secretary, for your remarks. We are now going to begin our panel on Platform Governance in an Era of Digital Repression.

I'm Quinta Jurecic. I'm a fellow at the Brookings Institution and a Senior Editor at Lawfare and let me just introduce my fellow panelists as they all pop on.

I'll be joined by Daphne Keller, who's the Director of the Program on Platform Regulation at Stanford Cyber Policy Center; Julie Owono, who is the Executive Director of Internet Sans Frontieres, and inaugural member of the Facebook Oversight Board; and Adrian Shahbaz who is the Director for Technology and Freedom House where he heads the organizations research and policy on human rights in the Digital Age.

Before I get started, I just want to remind members of the audience that if you like you can submit questions to events@brookings.edu, or on Twitter using the hashtag: #techgovernance.

So, I'm excited for this discussion. I think, you know, that platform governance has increasingly become a hot topic, but conversations around how platforms should moderate content, and whether platforms should be regulated, can often sort of overlook the complexities of how those proposals might interact with government efforts to repress each, which is an increasingly important question because, as Adrian has written with Freedom House, we seem to be in an era of declining freedom online.

So, Adrian, I thought I'd begin by turning to you. You and Allie Funk at Freedom House have recently released a report on Freedom on the Net 2021, in which you describe “an unprecedented assault on free expression online in the past year.” So, walk us through your findings.

What did you discover? And are there specific regulatory actions you identified around the world that you feel are of particular concern here?

MR. SHAHBAZ: Thank you so much, Quinta, and thank you Jessica and Brookings for organizing a fantastic forum with such great experts like Daphne and Julie here.

Yeah, so I'm here to bring the depressing views off the bat, which is all of the things that are going wrong with internet freedom. This stems from Freedom on the Net, which as Quinta mentioned, this is our annual country by country assessment of internet freedom, which is defined as the simple notion that the rights and protections we all enjoy offline, should also be protected while we use digital tools.

This report looks at how easily individuals can access the internet, whether it is censored, and how their fundamental rights, such as freedom of expression and privacy are respected or restricted. The report examines 70 countries, which translates to roughly 88% of the world’s internet population. So, we are able to get a good sense of what is happening around the world.

Unfortunately, in 2021, we found that global internet freedom declined for the 11th consecutive year. Part of that is what we called the “global drive to control Big Technology,” and we found that in many of these high-stakes battles between governments and tech companies, human rights are often the main casualties.

We found that authorities in at least 48 countries pursued new rules for technology companies on content, data, and competition over the past year. And it’s important to say off the bat that some of these were definitely good faith attempts to regulate many of the harms that have become apparent, or the anti-competitive practices that we continue to hear about in the tech sector, but far more common are governments that are using regulation as a cover to exert greater control over tech companies to crack down on dissent and gain access to people’s personal data.

Some of the examples that I wanted to point out come from India and Turkey. Those are places where problematic requirements on companies now require them to remove broad categories of

speech without a court order. Often in many cases, these come with requirements to set up a local office and to employ a local individual who could be held criminally or civilly liable for mistakes that the company makes.

We also found places where governments are taking the opposite approach, and instead of requiring companies to remove content, they are actually preventing them from moderating or removing certain types of content across our platforms. An example of that comes from Brazil over the past year in what we call a “must carry law”.

And the problem with these types of measures are that they effectively tie the hands of social media platforms to consistently enforce their terms of service or to reduce the spread of misinformation, hate, and other forms of harassment.

Now, we are certainly not against regulation, per se, and we think that regulation has a very necessary role to tackle some of the issues that have come up with internet freedom in this sort of decades of internet freedom agenda. But it is important to know what is the context when we are talking about it globally.

I think we have a certain idea about what regulation means in the U.K., or in Western Europe, or in the United States and Canada. It’s very different in other places in the world.

And just to give you one statistic that I think highlights the situation that we’re in, is that in the 70 countries that we examined in 2021, in 56 countries people were arrested or convicted for their online speech that was political, social, or religious in nature.

We are talking about nonviolent political expression. And that’s why what we’re seeing is an unprecedented assault on free expression online, and, I think, some of the concerns that users, and that all people have, when it comes to governments weighing in more strongly in policing the online-sphere.

MS. JURECIC: Thank you, Adrian, for setting the scene. So, Julie, I wanted to turn to you and zero in on our particular area of the world. You’ve obviously done a lot of work with Internet Sans Frontieres on internet freedom in Africa, and I know that in Adrian’s report, there's a lot there about a range of repressive actions taken by African governments recently.

So, for example, the Nigerian government restricted access to Twitter across the country

in June 2021, and it's still restricted. In Uganda, progovernment trolls flooded social media before the country's 2021 general election, and the internet was shut off and the access to social media restricted.

In Africa, is the picture as grim as Adrian paints it to be, or are we being too pessimistic? Are their bright spots that we should be looking for?

MS. OWONO: It is, and apologies for smiling. I'm not smiling because the situations are extremely serious, it's just that I forgot one door and my son just popped in. So, I might have some challenges, but the situation is pretty grim, I have to agree.

You mention the example of the Nigerian government where currently -- well, the government has decided to stifle on Twitter and suspend the platform, but if you look at the sequence of events who led to the censorship is what happened is that Twitter platforms, based in the U.S. with some offices -- including a first one in Africa -- Twitter has deleted a publication by the Nigerian government alleging that that publication was violating Twitter's policies on promotion of violence. And in retaliation -- and I think I'm using the word on purpose here because it's really what it's about -- in retaliation, the government decided -- well, **said** explicitly -- Twitter is sowing hate and disinformation which is making our democracy fragile, and in that regard, we will indefinitely ban Twitter.

I am using the word "indefinitely" here -- not me but stressing it -- because it reminds us of what Twitter told President Trump a few months before when Twitter and other platforms decided to indefinitely ban the former U.S. President from using its profiles on Twitter and so many other platforms.

So, why I am choosing this example is that, yes, the situation is grim in Africa and in many places around the world because -- partly because -- many of the nations which were -- and are still, I believe -- at the forefront of leading by example, showing what it is to be a country that favors, or that promotes, a liberal internet based on principle, and by design on freedoms, rather than an internet based on repression and coercion (phonetic), well, those countries which are still leading the way have had some quite difficult time recently.

And you were mentioning -- and Adrian, thank you so much for mentioning -- great report, extremely important report that we avidly read at my organization and so many other places every year -- you gave some examples with regards to health and governments through governing or regulating what content or what harmful content should not be on platforms. Well, actually, they are kind of putting in

there some potentially dangerous ideas, and dangerous concepts, and dangerous governance mechanisms that can be also harmful, even in the most stable democracies.

I'm thinking, for instance, about France. France is going to have elections and one of the leading candidates at the moment is a far-right candidate. And we know historically that far-right is not necessarily compatible in Europe with ideas around liberty -- individual liberties. So, this is extremely dangerous.

What I'm trying to say is, the situation is extremely preoccupying in Africa and it's extremely urgent that the nations that can lead by example, that can show us how to moderate hate, fake, and all the bad things that we see on the internet -- or most of them -- how to do that while respecting the sacrosanct and fundamental freedom of expression that we all need, and that has allowed this beautiful space -- which is the internet -- to exist in the first place, or the web, rather.

So, yes, the situation is serious, and we are really eager -- well, looking to those nations that can look another way forward because, while we are having this crisis, this democracy crisis, when it relates to content and the governance on content online -- while we are having this crisis, there are other models that are being advocated for and that are seducing increasingly in countries, especially in Africa, where governments are realizing the positive and the benefits of the society -- well, what they interpret as danger for them and for their power. And this is exactly what we saw in the case of Nigeria which is, yes, a very serious example, and very preoccupying one.

MS. JURECIC: So, Daphne, I want to turn to you because I know you've kept a really close eye on a lot of the proposals for regulation happening right now in the U.S. and Europe, in particular, but all over the world.

How do you see those proposals addressing or not addressing this tension that we are describing between, on the one hand, arguments for a need for increased regulation on social media to protect democracy, and on the other hand, as Julie and Adrian have set out, the danger that those proposals can potentially hand over a loaded weapon to bad faith actors? Is there recognition of that tension in the regulatory proposals that are being put forward?

MS. KELLER: I don't think there is nearly enough attention to that issue. As Adrian was saying, the legal changes we're seeing in authoritarian or quasi-authoritarian countries are, in many

cases, animated by the exact same concerns -- including some really legitimate concerns -- that drive policy discussions in D.C. or Brussels, or London.

For just a small example, we see high levels of takedown requests from the Russian government to platforms and some of that is extremely problematic. Takedown requests involving political speech, but a lot of it is also about takedowns of pro-suicide and self-harm content. You know, there are concerns that governments share in common that I think most of us would also share.

At the same time, we see really serious antidemocratic uses of the new laws that have been put in places like Russia -- where my former employer, Google, had a very complicated and problematic decision taking down a pro-Navalny app -- places like Turkey, Brazil, India. And those changes are absolutely buoyed by the legal changes, or proposed legal changes, that we have afoot in the EU and Europe.

So, for example, there's a pretty detailed study on how Germany's next DG law, which was one of the first kind of first out of the gate laws of this category, has been emulated in Vietnam and in Venezuela and in a number of countries, where having a 24-hour takedown requirement, backed by the threat of serious penalties, is really a recipe for abuse and over removal of lawful and human rights protected content.

Similarly, laws that we see in the U.S. trying to compel companies to reinstate content that is classed as political, but might also be hate speech, or disinformation, like the laws enacted in Texas and Florida, those have been emulated in Brazil, with an executive order issued by President Bolsonaro. There are similar proposals in legislation in Poland and in Mexico, and I don't think we should expect those laws to be used in the ways that human rights-oriented groups or countries would want to see them used either.

Last example, the laws compelling platforms to have an in-country representative on the ground in the EU have been the model for hostage provisions like the ones that we see in India, putting local staff at risk -- like serious personal and physical risk -- if the company resists demands to remove content that's critical of the government.

So, we definitely need to think hard about what we do in more democratic countries, will ramify elsewhere.

From a company's perspective, of course, when I was at Google, resisting these kinds of demands was a top priority and we put a lot of energy and effort into it. But ultimately, from a company perspective, placating the gatekeepers of lucrative markets is consistent with capitalism, is consistent with pursuing profits and maximizing profits for shareholders.

So, if people are concerned and want to create a countervailing pressure, we should be seeing way more public attention to what's going on in Russia, India, Brazil, and frankly, especially Turkey.

You know, Turkey was sort of one of the first out of the gate with these laws, and most of the platforms went ahead and put a representative on the ground, creating this vulnerability to pressure for non-human rights compliant takedowns demands in the future, and the world kind of didn't blink. There wasn't a lot of press coverage, there wasn't a lot of blow-back from civil societies, or from other governments, and I assume platforms learned a lesson from that and it's going to influence their decisions in places like Russia.

So, I think we need more attention to the actual harmful uses of laws in the world, and then we need to be very thoughtful about the powers we give our own governments, knowing that those will be emulated in places where those powers will be used very problematically.

MS. JURECIC: Adrian, you write in your report about the danger of these so-called "hostage taking laws" and how they're intertwined with a trend to what's often called "data sovereignty", so requirements that companies keep data within the country where they are operating. Can you talk us through your thinking about that? As Daphne described, these laws seem like a pretty serious threat and my impression is that they've really scaled up in recent years. How much of a danger are they?

MR. SHAHBAZ: Yes, thank you for pointing that out. So, data localization laws have been on the rise. We've been seeing them initially -- I think we thought of them with China and its strong digital protectionism approach of keeping out foreign actors and then making sure that domestic platforms have a sort of, heads-up, and are able to conquer the market first. And I think many countries are seeing what the likes of China have accomplished in terms of developing their own digital sector and want to emulate that in a certain way. That's certainly true in places like India, or even in Vietnam and Iran where data localization has, in one hand, an economic motive to it.

Now, there's obviously studies that show that that economic incentive doesn't actually work in that way and that data localization does not help a digital economy. But still, when it mixes with that national security motivation where politicians and those in government will say, we want to have access to -- we want to know what is happening in our country. And this tends to be this overemphasis on sovereignty; it's not unique to the digital world.

We see it at the United Nations where many countries resist criticism of their own human rights records as an affront to their sovereignty. And so, they are using the language of digital sovereignty today as part of that rhetoric to avoid criticism of restrictions on data flows, or restrictions on free expression in their country.

The other thing is that the impact that this has on users can be very harmful. When you give judicial authorities access to all of this underlying data -- what websites people are browsing, their Google Maps location history, what they are saying on social media -- that essentially gives governments a window into the most personal details around ordinary citizens in the country. And that can then be used to monitor not only ordinary individuals but particularly journalists, human rights activists, and members of vulnerable communities, particularly if you're a member of the LGBTQ community. Then it makes it far easier for the government to contact the local storage provider of this information to request that data.

That's different from the previous model whereas, as Daphne explained, companies did have some type of resistance when they received an order from an authoritarian government, they could push back and say, this is against our own free expression principles, or we don't have access to this data, it's stored in the United States.

Now, I think what's happening is that companies around the world are doing everything that they can to increase their leverage over tech companies in order to get greater access to data and also to force them to comply with all sorts of repressive national laws.

MS. JURECIC: So, Daphne, I think it will be interesting to talk through how a company that receives a takedown request in a repressive country sort of thinks through the different equities here. Obviously, as you mentioned, access to a potentially lucrative market is, of course, going to be a big consideration.

You mentioned the instance in Russia recently, where the Russian government successfully forced Apple and Google to remove a smart-voting app designed by Alexei Navalny's organization to push voters to elect anti-Kremlin candidates from their app stores, in part by, as you mentioned, threatening to prosecute Google employees who were in country. And recently, of course, we also saw that Microsoft announced it was pulling LinkedIn out of China, and removing, I think, one of the last big platforms that was not affected by the Great Firewall and could sort of link people in China with people elsewhere in the world.

Of course, you know, we can look at the Microsoft example -- the LinkedIn example -- and say that that's admirable and say that the company is standing up for its principles. On the other hand, there's also a loss there insofar as people who are in China have lost a connection with U.S. based employers, for example, who they might have been interested in reaching out to.

So, how would you think through these different equities? How do companies think through them? And do you think more companies should be making decisions like Microsoft's.

MS. KELLER: I would say from a company perspective there are kind of two big moments of decision. The first is, do you go into that jurisdiction, meaning put people and assets on the ground, do things that are going to subject you both legally to jurisdiction in the country; and in a very like real politic sense, to be vulnerable to pressure because you don't want your people being arrested, or you don't want assets being seized. That's a big moment. I think there's a lot of thought, I think, in any company that goes into that decision.

But this new round of laws, as Adrian was talking about, that makes that moment of decision much more conspicuously something that relates to future human rights impacting judgment calls because you are making yourself vulnerable in a way that kind of was not so explicitly the case five years ago, when I was inside of Google.

Then the second moment of decision is, supposing you went in, now the government comes to you with a takedown demand, or a demand for user data, that is not human rights compliant, or that it otherwise seems overreaching. You know, then what do you do?

If you think that you can actually challenge that order on domestic legal grounds and go to court in Turkey or in India and say, hey this order actually violates your own law, your own

constitutional protections, that's one possible course. Of course, it's slow and it makes the government more mad at you.

But if it's a situation where local counsel is saying, no Russian law really does require this, and you're looking at it and saying, well, no law that is compliant with the ICCPR or with human rights, could require this, that is a difficult moment, and hopefully is a moment that makes you question being in the country in the first place. It's also a moment that makes the emphasis on human rights, that the Facebook Oversight Board has brought for Facebook specifically, and that David Kaye, while he was the U.N. Free Expression Rapporteur, was a huge advocate for. That's kind of a good rubber-meets-the-road moment where a human rights law stops seeing this kind of like, hand-wavy, vague standard, which is, I think, the way a lot of Americans look at it, and becomes an actual hard standard to say when you do or don't comply with a government when you fight, etc.

And then, of course, finally, there's a question of if you're being asked to take content down, can you geo-block it for that country and leave it live for the rest of the world? Or is it a country that's going to try to reach out and assert jurisdiction to compel global takedown, which is something that several European courts have suggested that they have the power to do lately. That's another thing where the model coming from more democratic countries, of saying, yes, we can use our speech laws to compel global takedown, is something that's already being emulated by courts in India, for example, ordering global takedowns, and is sure to be emulated more around the world.

MS. JURECIC: So, let's talk about the Facebook Oversight Board. Julie, if I'm not mistaken the Board has really sort of come out swinging in the defense of Facebook users who have had their content taken down. I think the majority of the Board's decisions so far have ruled in favor of users whose posts were removed by Facebook, requiring that Facebook restore the content in question. In some cases, those decisions have required Facebook to restore material that's critical of governments interested in restricting speech.

So, we've been talking about Turkey, the Board ruled in one case that Facebook had to restore a meme a user had posted that was critical of the Turkish government's refusal to acknowledge the Armenian genocide. So, how does the Board understand its role in protecting users against takedowns, particularly in environments where Facebook might face political pressure to remove content?

And also, building on Daphne's point, how do you understand the Board's reliance on international law as part of that? Because I think the extent to which the Board has really built a sort of quasi-jurisprudence on international law is one of the interesting things if that would be what they're doing?

MS. OWONO: Yes, thank you so much, Quinta, these are extremely timely questions, and it's a very important conversation.

So, yes, why was the Board set up? While it is true that a lot of governments are trying to weaponize the problems, the problems do exist with the platform, specifically a platform like Facebook and Instagram. And so, the Board was created as an independent oversight that is not influenced by a company, that is not influenced by one model nation, or government, or ideology.

It's a group of 20 experts around the world located in the U.S., in Europe, in Asia, in Africa, in Latin America, and Australia as well. So, the aim is to make principal decisions on content moderation, decisions made by Facebook and Instagram. And it's not the single solution but we do think that the work we're doing can be extremely helpful in addressing and better understanding the challenges posed by the issues we are talking about.

I will share a few figures with you if you allow me, and Quinta, thank you so much for introducing the fact that out of the cases we have taken, a majority, we have overturned Facebook. So, we have accepted 20 cases so far, with 17 decisions issued and in 12 of these decisions, we have overturned the company.

So that means, we are not afraid of telling the company when it has performed extremely badly in terms of making sure it's balancing its values, its community standards with necessary international human rights commitments, which the company has voluntarily agreed to commit itself to, but also international human rights law and standards that, well, we've been using for the past 70 years, and that virtually all humanity has agreed to respect.

We've also issued recommendations, and in talking about recommendations, we've issued 75 of them to which Facebook has to respond within a month after we issue them. And I'm talking about recommendations because one of those recommendations is precisely about -- in one case which we worked on, which involved content shared by a user in Egypt, a content created by Al Jazeera page which was shared by an Egyptian user about the conflict in Palestine and Israel.

The content was related to -- well, a threat by the al-Aqsa Brigades which are forbidden on the platform, which are considered as a dangerous organization on the platform and, therefore, are not allowed to have accounts and share the messages. But here we had a user who was sharing information about -- well, something shared by an international news network. What we told the company in that particular case, we asked the company, can you be transparent -- which is not the case as we are talking -- can you be more transparent about the government request that you receive for content that is not unlawful, that is not covered by a law, but that is nevertheless, awful -- like we say in the industry jargon.

So, this is extremely important information that we were allowed to touch upon thanks to the work -- and thanks to the engagement -- that the Oversight Board does constantly with outside organizations, civil society organizations, especially organizations in the regions that we work on, and which relate to the case we work on.

And in this case, we were particularly interested in learning more about the existence of potential government units that have direct access to policy teams at Facebook, at the company, or that allegedly have direct access, and that can request such content to be taken down. And this information is, as we are talking, as of now, not available in the transparency reports of the company.

So, I was using this example to show the extent to which the Board's work can be impactful on the issues that we are talking about, impactful to protect the users, impactful to shed more light on this content moderation black box, or at least it was pretty much a black box until we decided to kind of impact some of the major issues around content moderation on Facebook and Instagram, and also can help us -- well, have conversations beyond, you know, the local aspect -- the very local aspect of the case that is submitted to us.

We choose cases that can help us be helpful for Facebook's community standards on Facebook and Instagram platforms. And I think this is the aspect of the work that will be extremely important for the company to better commit -- I mean, to commit, really, in the way it practices its business, to match its commitment to human rights with the way its policies are implemented and enforced through its content moderation processes.

And I think, yes, it's work in progress, it's a lot of work. We've received 500,000 cases as of, I think, September or August 2021 -- way more now, I think close to a million -- but this speaks a lot to

the expectations from the users and to the work that is yet to be done.

But we are really working hard on that, really pushing Facebook to be more transparent, really pushing the company to clearly explain its roles, and therefore, hopefully, more users will be aware of what is or is not allowed on the company and making sure that what is not allowed is not a decision made only by a CEO behind closed doors or only by policy teams, but it's part of an open process and a transparent process that users can understand.

MS. JURECIC: So, I want to make sure that we have a chance to talk about solutions, so that it's not all gloom and doom, but before I do that, I do also want to make sure that we touch on what's kind of the big story this week in content moderation, which is the really wider range of reporting that's being done on the Facebook Papers, which is a tranche of documents threaded (phonetic) to news organizations by Facebook was a (inaudible) by Frances Haugen.

And the specific issue I wanted to raise here is that one of the really striking takeaways seems to involve Facebook's failure to moderate effectively on the platform in what's often called the Global South, or in corporate drug and rest-of-world, so essentially, everything outside the West.

There's been reporting recently about how, for example -- just to pick one example -- Facebook lacked the ability to identify harmful posts in the two most commonly spoken languages in Ethiopia during the ongoing violence and ethnic cleansing in that country. So, my question is, really, is there a relationship between the failures of big platforms like Facebook, most notably, to really invest in what's needed to ensure the safety and freedom of users in these countries in the so-called rest-of-world, and potential repression by governments there? Daphne, I saw you nodding. I'm curious for your thoughts.

MS. KELLER: Sure, I mean there's absolutely a relationship. I think civil society groups from the Global South have been calling out these problems for years. So, in a way, there's nothing surprising about this and, in particular, nothing surprising about the lack of staffing in nonmajor market languages.

What I think is novel and important and should get more attention from the documents that Frances Haugen revealed, is the additional problem with algorithms in nonmajor market languages kind of running behind the times and not getting the kinds of updates that we've seen if we're English

speakers, or French speakers, or Spanish Speakers, so that the other kinds of problems that maybe don't look as big to us based on what we are seeing, are actually huge if you're speaking say, most dialects of Arabic, or Czechan, or Tamal. So, that, I think, is an enormous problem.

In terms of solutions, I mean, part of the solution is, hey, Facebook, spend more money, higher more people, etc. -- but thinking about Yanmar (phonetic), for example, so I worked in Yanmar for a little while. It's an extremely complex, multiethnic society --according to Wikipedia it has more than a hundred languages spoken -- so, is the solution that Facebook hires one person for each of those hundred languages. You know, what does a solution really look like in terms of internal corporate structure? I think part of the answer has to be just much more engagement with local, civil society, and drawing on the cultural expertise, the language expertise, of other people outside of the company to up our greater degrade (phonetic) than has happened so far.

MS. JURECIC: Julie and Adrian, I'm also curious for your thoughts if you wanted to weigh in.

MS. OWONO: Yes, well - it's clear that many people are extremely concerned, and I'm among those, about how the company is handling a range of highly consequential matters, and all the media stories that are based on these newly disclosed, internal Facebook documents -- do raise very serious questions about the company's transparency.

But what I can say about the work of the Facebook Oversight Board, is that we have repeatedly told Facebook that it needs to be far more transparent and treat users far more fairly than it does right now, including as recently as Thursday, when we released our first transparency report Thursday last week -- I didn't not mention that when I was sharing the figures. I took directly those figures from that transparency report -- and we will continue to demand more transparency from Facebook and assert our authority to improve how the company treats its users, and as we seek to bring greater accountability. I think that's really where we are standing now, and urgently standing now. And also, in bringing greater consistency and fairness to content moderation approaches.

But on a more personal and leading an organization like Internet Sans Frontieres, on that note, I agree completely with what Daphne has just said on the importance of trusting the expertise that exists in the different markets, different countries where Facebook as a company -- but I'm sure is the

same for many others -- where they want to operate. I think it's really urgent.

That's something that I'm personally working on. I recently launched a lab at Stanford, which is called the Content Policy and Society Lab which really wants to explore this idea around multi-stakeholderism and collaboration between private companies, governments also, and those local experts, local civil society organizations, academates (phonetic), to make sure we can service these issues in a more consistent matter. But, yes, we are working on the transparency side, absolutely.

MR. SHAHBAZ: Just one point to add perhaps, Quinta, if I may. I fully agree with what Julie and Daphne have laid out there so eloquently. But I will just add that one of the big questions, I guess, is what is going to happen if they do not get their act together in a lot of these countries. You know, I think that they simply haven't invested the amount of resources that are necessary to secure the platform outside of some of these major markets.

And I think that in addition to the policy vacuum that we were talking about, about how our democracies policing the online environment in a way that corresponds with our values and human rights, there is also the failure of Big Tech companies to address a lot of the harms which people, particularly in the Global South, are encountering.

And one of the things that I think we are going to see more and more is competition from local apps. We are already seeing it in India, in places in Subterran (phonetic) Africa, and Southeast Asia, where you have new entrants that are competing with Facebook. And I'm very curious to see what these new entrants are going to be like and are they going to be pursuing -- are they going to be more respectful of their users' rights to free expression and privacy as Facebook. Or, as we saw, I think it was Mark Zuckerberg on a stock meeting call, that like Facebook is doing the best of any company and other companies would be lucky to have the investment that Facebook would have.

I mean I think it's going to be really fascinating to see what the alternatives to Facebook are and are there things that we can do to incentivize greater competition when it comes to platforms.

MS. JURECIC: So, yeah, let's talk about that a little bit. We only have a few minutes, but I do want to ask you, Adrian, about some of the solutions that you propose in your report. Julie has talk about transparency and you talk about that there, you also mentioned competition, and you also point out data privacy legislation as a potential lever to pull. Just talk us through what you're thinking is there.

MR. SHAHBAZ: Yeah, well it's been fascinating with these so-called Facebook files, that it really -- for me -- it reflects how little we know around what is happening on the platforms. I think it's really the tip of the iceberg in terms of some of the data that is coming out around the levels of hate speech and what Facebook is doing.

I think the biggest thing that we need is just greater transparency. That's been an emphasis in bills like the Pact Act and some other legislation that is now up within Congress, also within good models of legislation that we're seeing around the world.

It's just the case right now that it almost seems like that the only people who know how to fix Facebook are employed at Facebook. And right now, it seems like they are not being listened to.

So, what are the ways that we can -- there's different ways that then combat that problem, you know. And I think either it's to listen to those people more, or it's to widen the sort of circle of trust around what is happening on these platforms.

And it's not only Facebook, you know -- I think it's also Twitter and YouTube too -- where these platforms, I think, have a responsibility to open up for research to academia, to regulators, and other policy resources to understand what is happening on the platform. And that way we can actually have regulations that are informed by thorough, empirical analysis about what would actually make a difference for the government to go -- or for even an agency like the Facebook Oversight Board -- in order to better respect the rights of the users on modern platforms like Facebook.

MS. JURECIC: We only have a minute, but Daphne, Julie, any closing thoughts you would like to share?

MS. KELLER: I'll just back the idea that privacy and competition are super important levers here, and among other things, they are levers that let us get away from addressing the problem through dictates that about speech and competition, which are precisely the kinds of rules that both run into potential first amendment problems within the U.S., but also create the kind of precedent that's having such troubling global effects around the world.

MS. OWONO: If I could just add raptly, stressing on the urge to, you know, the internet freedom of gender (phonetic) to be at the forefront and to be -- I don't want to say aggressive, but we need to show that there is a way to deal with the challenges that is not necessarily embedded into

repression and (audio skip). I think we really -- it's important to have that conversation.

MS. JURECIC: All right, thank you everyone for that great conversation. We are going to turn now to a discussion about how international partnerships can help ensure that democratic models of technology governance take root hopefully. So, I'm going to turn this now to my colleague, Jessica Brandt, who should pop on any moment now, and thank you everyone.

MS. OWONO: Thank you.

MS. BRANDT: Hi, everyone. Good morning or good afternoon, depending on where you're joining us from. Thanks so much for joining us for this discussion. I am thrilled that we have a great group of folks here today to discuss multilateral coalitions for technology governance. We have Lindsay Gorman, who is a Senior Advisor for Technology Strategy at the White House in the Office of Science and Technology Policy, where among other things I know she's very focused on ensuring that new technologies are designed, developed, and used in ways that are consistent with democratic values.

We have Andrew Imbrie, who is a Senior Fellow at the Center for Security and Emerging Technology at Georgetown University, who has written extensively about prospects for democratic cooperation on AI. And he's the author of a forth-coming book on how AI is revolutionizing the world and how democracies can come out on top.

We also have my colleague, Tanvi Madan, who is a Senior Fellow and who directs The India Project here at Brookings and who's co-leading a workstream on multilateral coalitions for technology governance, which is part of the Brookings Global Forum for Democracy and Technology.

And last but certainly not least, we have Marietje Schaake, who, among many other things, is the International Policy Director at Stanford University Cyber Policy Center, and who is an International Policy Fellow at Stanford's Institute for Human-Centered Artificial Intelligence. She was also previously a member of the European Parliament where she focused on technology issues. So we couldn't have, I think, a better group to discuss these issues here today.

Lindsay, if it's okay, I thought maybe we'd start with you and kick off the conversation by sort of assessing the state of play. I'm curious how the White House is thinking about working with democratic allies and partners on technology issues. And I ask that because, you know, some have argued for a broad mechanism such as a T10 or a T12, but the Administration seems to be taking maybe

a more tailored, issue-specific, fit-for-purpose approach to me. If you're willing, I'd love to draw you out on how the Administration is doing this.

MS. GORMAN: Jessica, first of all, just wanted to say a big thank you for the invitation to join this incredible panel and incredible initiative that you at Brookings are putting together on democracy and technology. I think there's probably no more important a time and a topic to be thinking about how we can steer technology in a direction that re-enforces our shared values and make sure that democratic countries and actors continue to lead the future in the 21st century on these critical technology issues. So I'm really grateful to be here. I'm grateful to appear amongst illustrious colleagues who are just, I think as you said, really the leaders in this field and whose thought leadership has just been so valuable, I think, to us as an Administration and to me personally in developing thinking on these topics. So, just yeah, a big thank you for this conversation today and for the conversations I know you intend to hold going forward.

I think while, you know, the subject of this panel focuses on international coalitions, and we definitely want to spend a lot of time talking about this, I think, you know, in the United States there's also a critical backdrop of domestic investment and renewal in how we approach our leadership in science and technology. We have an opportunity through the United States Innovation and Competition Act for a once-in-a-generation investment and commitment to our technology competitiveness and leadership by doubling down on our innovation infrastructure, and it's a bipartisan commitment that can strengthen our leadership at home and also our ability to work with our allies and partners to advance this leadership among like-minded nations. And so at the same time as we're focused domestically, we've also been hard at work putting our shoulder into multilateral coalitions on technology with our like-minded partners in showing that groups of dedicated, like-minded partners can meaningfully shape our technological future. I think there's of course always good technology realm ups and downs, and various reasons for pessimism and optimism, but I think the enthusiasm that we've seen from allies and partners as well as from civil society and in the private sector in making sure that as a country, we get this right. It has been really heartening.

I'll speak to some of the initiatives and kind of how we're thinking about them briefly, and I know the other panelists will have certainly fantastic input on these particular ones as well. With the

European Commission, as many of you know, we've launched a Trade and Technology Council to re-entrench our ties with the E.U. on topics like artificial intelligence, semiconductors, supply chains, global trade challenges, data governance, investment screening, ICTS, climate. Many of the critical technology challenges of the day in areas where we hope trans-Atlantic cooperation in particular will provide the basis for strong democratic leadership in these areas. Will we be aligned on every policy and every topic and issue? Probably not, but the intent is really to confront many of these challenges with an aim to reinforce our shared democratic values, including the respect for universal human rights.

We've developed common principles on export controls, which were released last month in Pittsburgh for sensitive and dual-use technologies to inform our cooperation, and we're seeking stakeholder input in that process. We've also produced a joint statement with the E.U. on AI and decided to explore cooperation on trustworthy AI projects that advance democratic values, for example, and to take this work forward we're interested in discussing measurement and evaluation tools and activities to assess the technical requirements for trustworthy AI, concerning, for example, accuracy and bias mitigation, and we're looking together at AI technologies designed to enhance privacy protections so that our values stay front and center for new technology development.

Part of that effort with the E.U. is also developing some clarity on the types of systems that do not support our values, even as we advance our affirmative agenda for what does. And there we've highlighted social scoring systems in Pittsburgh, which are being piloted in authoritarian jurisdictions to potentially increase authoritarian social control. And one of those areas where both the E.U. and the U.S. have now agreed really does run afoul of those values. And so, part of this agenda, I think, is on negative and sort of what we're standing against, and part of it is very much on the positive of what we're standing for, and those two often intersect, I think, as many things do in the technology realm.

On the Quad we've been hard at work with our Quad partners. It's an incredible platform with four very highly capable democracies tackling some of the many global challenges from COVID to climate, but also helping set the rules of the road on cyber and emerging technology, and it's really about the sort of affirmative agenda that these four democracies can set. So last month, for example, we published the Quad Principles for Technology Design, Development, Governance and Use that reinforced our shared values. We've also recognized the importance of people in innovation and the incredible sort

of manpower, womanpower, peoplepower that Quad countries bring to bear on really the future of innovation, and so the Quad is launching a people-to-people exchange of the Quad Fellowship, which will give 100 science, technology, engineering, and mathematics STEM graduate students each year from Quad countries the ability to study at universities in fellow Quad host countries to deepen our people-to-people cooperation on science and technology. We've got additional efforts underway focused on supply chains, the idea of a green shipping corridor to advance some of our shared climate goals, and with our Quad partners and also coordinated with the open-brand policy coalition we launched a Track 1.5 industry dialogue on Open RAN deployment and adoption with the intent to jointly facilitate enabling environments for 5G diversification.

We're deepening our coordination on standards development and pre-standardization research by establishing contact groups on AI and advanced communications. So, these are sort of just some of the initiatives we've been working on through a couple of these coalitions. It is certainly a massive agenda, and trying to, I think, you know, re-tinker the relationship between technology and governance that makes sure our technological competitiveness and leadership and ensure that that leadership works for good in the world for quality, for freedom, for our shared values. And I think there's also a recognition that as governments, we can't do this alone. And so, for like this one dialogue with civil society in the private sector with the global communities that these technology effects, and that's all of us, are going to be really critical. I think, you know, Jessica, to your earlier question, I think, you know, it's true that these efforts aren't really playing out in one single forum that can sort of be packaged up and say, this is the technology coalition, and so we don't have a single initiative, but so far, our experience has been that this kind of modular approach is results-oriented, it's flexible, it's producing results, and is effective in kind of the whole will be greater than the sum of its parts as we move forward. So that's been our experience thus far, but really looking forward to the discussion and the great comments and questions from the audience and from the fellow panelists, so thank you so much, Jessica.

MS. BRANDT: That's great, Lindsay. Thanks, that was really helpful. Andrew, I thought I might come to you to talk a little bit about the challenges and opportunities when I comes to partnerships on AI in particular, because I know this is a place that you've done quite a bit of research. So maybe a two-parter. I'm curious like how you see, you know, democracies as able to sort of shape the trajectories

of AI and other emerging tech in ways that are democracy-affirming rather than sort of corrosive to democratic values. And then maybe also, on the flip side, like, recognizing that sort of networks of interdependence can also be like places for competitive power plays. How can we anticipate those challenges, and what is it that we need to do to kind of mitigate some of those risks?

MR. IMBRIE: Great. Well, I'm really delighted to be here. Congrats to you and your team for pulling this initiative together in today's event. It's wonderful to be a part of it. And many thanks to Lindsay for her insightful comments and all the robust activity she's undertaking.

So, to address your question, what I'd like to do is sort of talk a little bit about the move from coalition building to coalition management, and the inevitable tradeoffs and frictions that can arise, and how democracies can work together to shape the trajectory of AI in ways consonant with their values. So I'll talk about sort of three basic tradeoffs and how we can move forward.

The first is the tradeoff between capability and vulnerability. Scholars have written about this in other areas. I think it applies to AI as well. Now there's a lot of hype cycles around AI and other emerging technologies, but I think if properly leveraged it will do a great deal for our military capability to bolster our innovation potential and our economic competitiveness. But I think our increasing reliance on AI, the integration of AI into our politics, societies, and economies does create new risks and vulnerabilities. And at CSET we've looked into this, and one of our core findings is that progress in machine learning depends on trust. And in particular, researchers rely on what we call sort of a public well of shared resources. So coders rely on the code of others, we rely on common data sets, and pre-trained machine learning models. And this is a good thing because it's allowed us to cut down on time and savings, and it boosts innovation. But these shared public resources, this public well, is potentially vulnerable to being poisoned. It's subject to attacks on open-source repositories and closed-source software. And so I think democracies can really work together here to think about how to shore up some of these vulnerabilities, and we've looked at this a little bit at CSET, thinking through how can we do detection challenges in a power red team so we can find attackers before they find us. Can we empower machine-learning supply chain advocates to better trace the supply chains for these resources to understand the critical choke points and vulnerabilities? Can we fund hygiene and clean up of these large data sets? And can we think about working with our international partners, allies, and competitors

on a dialogue on the ethics of attacking these shared resources and establishing some off-limit targets? So, I think this is just one example of a basic capability vulnerability tradeoff that's going to be important to manage.

Another tradeoff is competition and cooperation. And I say this specifically with reference to democratic allies and partners. You know, I think as President Biden heads to Europe, there's a recognition on all sides that democracies depend on each other. We have to work together to prove the valued proposition that democracies can deliver economically but also civically and for the developing world, and that's going to be really important. I think the challenges, you know, just because we're democracies doesn't mean that we share interests, and you know, in AI we are legitimate economic competitors. We compete for talent and market share. There's a broad range of views on China, and there's political economy stakes, as well. You know, it's not just country to country. You know, as Lindsay mentioned, there's a lot of stakeholders in this. It's also companies. It's academic researchers. And so there's complex interdependencies across our supply chains, and we have to really reconcile that.

But one thing I'd point out is that in AI in particular, given that we're facing global markets for talent and integrated supply chains, a coalition-based approach is going to give us a comparative advantage over any single country that tries to build a robust AI ecosystem on its own. And the good news in my view is, the field of AI is malleable, and we can work together to shape its core components of data, algorithmic development, and computing power in ways that really do favor our values. So, just some examples. You know, we can reduce the dependence on access to large data sets to train machine learning models through small-data approaches to AI, like transfer learning and (inaudible) processes. We can foster techniques that promote legitimacy and public accountability, so privacy-enhancing technologies, standards, and protocol development around those, and investments in trustworthy AI, which are all going to be really important to deal with questions of bias and accuracy. We can also work together to monitor and stress-test our supply chains and use the tools of diplomacy and other low-cost financing mechanisms to build in redundancy and resilience for our supply chains, particularly in microelectronics. And we can democratize access to computing so that it's not just the biggest players or the biggest companies that have access to it, but also academic researchers so we can leverage open data for science and push the curve of discovery in ways that will promote the public

good.

So that's the second tradeoff. The last tradeoff I just mentioned briefly is speed and safety. I think there's no question that our strategic competitors are investing heavily in AI and they're trying to use it to gain a strategic advantage in competitive systems select for success. So there's going to be downward pressure on all countries to field AI-enabled systems, potentially before they're ready. Before they've gone through proper testing, evaluation, validation, and verification. And that obviously poses risk because AI has its own safety and security problems. It's not always reliable. It can be brittle in different settings. And so we really have to recognize that and try to shore up some of these vulnerabilities through standards development, through more iterative and continuous testing, evaluation, verification, and validation of these systems by developing monitoring measuring infrastructure in our governments together as democracies and trusted frameworks for human-machine teaming. One promising effort underway is at the OECD on incident reporting. Thinking about when AI accidents occur, if can we develop common processes and procedures and transparency requirements starting slow, sector by sector, in a voluntary way to really identify not just the use cases, but some of the risks involved with these systems, I think that could help us build momentum, and it will also facilitate adoption in coalitions, which is going to be important, because trust is at the heart of this.

So, I do think it is a really big agenda. It's great to know that people as talented as Lindsay are working on this, and I'm hopeful that we'll continue to seize the initiative. And I think these tradeoffs and frictions are going to be things we can manage and we can hopefully manage them in a way that are favorable to our core values and interests.

MS. BRANDT: That's great, Andrew. Thanks for helping make that really concrete. Tanvi, as we think about sort of this coalition-based approach, I'm curious what role you see the Quad playing in this landscape. And Lindsay, you know, laid out for us a bunch of initiatives that the Quad undertook this year, like, I'm curious what you make about this emphasis on tech and which of these initiatives you think are sort of most promising and the prospects for the Quad delivering on what I think is a pretty -- pretty big agenda.

MS. MADAN: Thanks, Jessica, and thank you to my fellow panelists as well. And it's great to be discussing this issue. You know, I think the one that's not surprising is that the Quad has kind

of taken up this set of issues. And you have to step back to think about why this group has come together, and it is kind of a coalition of the willing and capable that has a shared vision. Particularly what the Indo-Pacific should look like, but also, I think it is more global as well in terms of maintaining a rules-based order within the region. You know, the kind of vision they've laid out is free, open, inclusive, secure prosperous region, and while, you know, the governments don't put it kind of starkly, there is clearly an alternative vision that non-democracies have. And you see this in alternate visions, including something Lindsay mentioned, deck futures. I do think in terms of the broader vision, you've seen the Quad, you know, essentially try to work on addressing the four countries. All see challenges to their visions in the region, not said explicitly, but a lot of that is kind of what the impact of China's assertiveness and its objectives will be on this kind of vision that they see of their own objectives in the region across a range of domains. And you've seen, I think, also for these four countries that each of their relationships with China has become more competitive in recent years, and technology as a realm on the whole has become both a source as well as an arena of that intensifying competition. So I don't think it's surprising that the Quad has taken this up. As others have said, it makes more sense for rather than kind of one country to try to do this alone, to take on some of these issues and initiatives that Lindsay laid out together.

I think cooperation on technology also fits into what I see as the true Quad lines of effort, which is one on the security side and one on the resilient side. And if you see kind of the broader set of initiatives that the Quad has, one is kind of building accountability coalition in the region, and the other is building resilience in the region, both kind of Quad members' own but also that of other countries potentially. And kind of the idea of being to strengthen, especially in the resilient side, the countries' ability to deter, detect, defend against various challenges. And I think you know that the part that Lindsay pointed out, which is, we're not just playing defense, but on a more positive side, adding value to (inaudible) and a norm setting, et cetera. And so I think If you look at what the Quad's doing in terms of the approach it's taking in the technology realm and elsewhere, you're seeing in its better understanding vulnerabilities. It's about information sharing. It's about diplomatic coordination, offering alternatives, building capacity, setting higher standards, and innovating. And I think with this in mind, you've seen the Quad develop, and I won't kind of repeat them, but the kind of initiatives that Lindsay's talked about, a lot of this is coming out of the critical and emerging technologies working group. There's also a

cybersecurity working group that's been elevated recently that will seek to improve Quad members' ability to tackle traps to digital infrastructure.

And I think as Lindsay pointed out, you've seen not just in the kind of tech core for sale to these working groups, you've also seen technology issues coming from in the climate change domain in terms of clean tech, or even in regional connectivity work, or the space working group. You know, it's going to come up in each of these. And I think with these four countries, you know, why these set of issues? I think it is because, you know, it meets the three Rs of coalition building. These countries are relevant to these particular set of issues. They have the resources to be effective in terms of setting standards, innovating, et cetera. And I think they're also ready to work together in terms of some of these initiatives, and I think that readiness is related to their kind of converging threat perceptions of China, and not all democratic partners share this view or might not be willing to tackle this set of issues because of potential blow-back from Beijing, the results for them or their companies' participation in this initiative, so as our colleague Tom Ryan (phonetic) and I are arguing, we actually think this overlapping coalitions approach is good, because it lets countries and democratic partners join the coalitions and work on issues where their comfort level is there. And so rather than kind of force issues, and nobody's asking countries to choose, you are choosing which coalitions and which issues on which to work on. Now there is some overlap on issues with the E.U.-U.S. Trade and Technology Council and the Quad, but you know, the Quad, for example, is not tackling some of those issues like data governance, tech platform regulation, misuse of tech, interpreting human rights, export controls and investment screening. It might come up, but you know, they're not original trade challenges.

But I think all the sets of issues that the Quad is covering, to me the ones that will be successful is where you can sustain momentum, but also where you can -- I think the other challenge is going to be how you bring in -- you know, it's a challenge, but it's also an opportunity to bring in, because the nature of these issues, the effectiveness of bringing in the private sector, for example, civil society, how you integrate that across these four countries.

And then finally, I think, you know, there is kind of this challenge that I think is not just about the Quad countries, it'll be across coalitions, is how do you actually integrate the work or manage these coalitions across -- integrate the work across these coalitions? How's that going to take place,

particularly given bandwidth and capacity concerns and, you know, limitations in each country.

MS. BRANDT: Thanks, Tanvi. With that in mind, I mean, the TTC is obviously the other sort of major, you know, focal point for action, and so Marietje, I'm curious for your take on, you know, progress so far, like, what can -- what should the TTC try to sort of hope to achieve in its first year, and then projecting out a little farther, like, you know, what can it hope to achieve in the years to come?

MS. SCHAAKE: Thank you so much. It's such a pleasure to be joining you and to have an opportunity to see Lindsay again. I haven't seen her since she joined the Administration, and I guess it takes a Brookings event to bring us all together, so that is very nice.

I wanted to reflect a little bit on what has been said as well, and then come back to the question of the TTC, if that's okay, but it all joins together. I wanted to talk a little bit about the political questions of coalitions, because I think the whole idea that finally democracies in organizing principle is crucial. It has really taken too long. There's been so many assumptions about what technology will do for democracy without making sure that there were safeguards that, you know, it took a lot of painful lessons, but I'm really glad to see the U.S. Administration embracing democracy the way it has, but now I think there will be a couple of very important challenges to get it right. And first of all, the whole notion of building broad coalitions is key, particularly vis-à-vis the rise of authoritarian regimes who have instrumentalized technology so successfully, perhaps not surprisingly, because you know, the top-down nature of these regimes, but it is presenting a real threat, and one that should create urgency to overcome differences between democratic countries. First and foremost, the trans-Atlantic relation, which you know, it's tempting to keep focusing on differences that have emerged over the years. Differences on privacy protection, differences in terms of the stakes of companies that reside within the territory, but it doesn't lead to good outcomes. And so, I think the global perspective and the real threat of techno-authoritarianism, for lack of better terms, is really important.

Now, perhaps we can focus on this in the discussion, but it's something that really has a lot of my thoughts, and that is about what types of coalitions would work best. And I have heard the arguments for ad hoc coalitions, ad hoc on the basis of sort of coalitions of the willing, ad hoc on the basis of shared stakes in a certain technology. Let's take microchips as an example. But I really worry that ad hoc coalitions that are built around shared technology or an opportunity of a short period of time can, at

the end of the day, fragment democratic countries. So I really hope that whichever ad hoc coalitions are thought of, the perspective of building a broad as possible democratic coalition, including countries that are 100 percent democratic but not really front-runners when it comes to technology, remains on the agenda. Because if we lose countries that simply cannot keep up -- I'm thinking about a lot of the former Soviet states that are democratic but that do not have a lot of cutting-edge technology, for example. I'm thinking about democracies in the developing world that are also not leading in this space and are not likely to be leading in the near future.

You know, we have to understand that there is the systems competition. I think that everybody here is fully aware of that, but that there's also the effort to win over countries globally into, you know, these coalitions as they take shape, roughly speaking, authoritarian or democratic. And so the door needs to be opened. That's kind of what I want to emphasize, and the effort to build as broad as possible coalition of democratic countries, I believe, is key.

Then, maybe, it's also useful to think a little bit about what can and should happen in the U.S. domestically, which unfortunately, expectations are low, let me just be honest, because of the polarized nature of American politics, and I do think there's a lot of catching up to do, so I hope that those who are working on a stronger foreign policy agenda for the United States with democracy in the lead are aware of the link between the domestic and the foreign policy agendas in order to be credible. And I think here it is essential that the role of the private sector is addressed as well. In my opinion, unfortunately democratic governments have left way too much space for companies to make crucial decisions. Also governance decisions, for lack of better words, so very powerful decisions that impact our cyber/national security, our rights and freedoms, our ability to compete, our ability to produce, the types of standards that we have to work with, the norms that are baked into technologies that actually lead ahead of democratic governance, and so on and so forth. And I'm afraid we cannot assume an overlap between the interests and the agendas of big tech companies and the countries where they originated. Even if that's sometimes in the framing, it seems to be the case, you know, we kind of assemble the Chinese Communist Party and Chinese tech giants, kind of assemble U.S. Government and U.S. tech giants, but I really don't think that the lines can be assumed, and we must critically look at it.

Now, quickly, and then hopefully time for debate, which is always better than listening to

people on the Trade and Technology Council. An effort between the U.S. and the E.U. has been a long time coming, and it was necessary to focus the minds not only on a historic, shared values agenda, but to reinvent and give meaning to those shared values in the current day and age, and I think that's what the Trade and Technology Council is trying to do. Now, there's a lot of aspirations. There's not yet a lot of decisions made. There are working groups, there are participatory processes, so I do hope the people who have thoughts share them with either the U.S. side or the E.U. side so that there is buy-in, there is multi-stakeholder process. I'm hoping that around data governance, around AI, and around oversight and accountability, including of tech companies, there can be a meeting of minds. There is obviously a lot more that can be done, but I hope that, again, this global sense of urgency will bring the E.U. and the U.S. together in a decisive way so that they can together be better leaders in a global context, which I think is, at the end of the day, really what is at stake here. So, many thanks for inviting me, and I hope that we can now have a lively discussion about what actually needs to happen and questions from people who are attending.

MS. BRANDT: That's great, Marietje, thank you for prompting a little bit of debate. I just want to offer -- Tanvi, I know that you have thoughts about this, so Tanvi, please chime in, and then, you know, Lindsay and Andrew as well. And then we're also getting a bunch of questions from the audience, so very happy to turn to those next too. But Tanvi, why don't I give you a chance to respond.

MS. MADAN: So, very quickly, and Jessica's saying she knows that because as I mentioned, Tom Ryan and I are actually writing something on this, and we've been giving it some thought about kind of this grand alliance, techno-democracy alliance vs. overlapping, interlocking coalitions, and I actually think for some of the reasons it's mentioned that, you know, why we actually think these coalitions are kind of preferable for where we are today. And some of it is speed. You know, there is a concern that because there are differences amongst democracies on some of these issues, if you wait for consensus to build on them or try to bring them up in a kind of one T10 or T12, you actually -- it'll end up in gridlock. So, you know, I mean I can give an example of something I know better, which is, you know, if you have India in the room, you're going to have a gridlock conversation, for example, on data localization, or on platform regulation. Or, you know, for example, you could actually have the E.U. and India together like having a view on privacy that the U.S. doesn't share, for example. Or kind of data

privacy or date protection. So I actually think, you know, this idea of because there is a premium on time is not to -- and I don't think of these as ad hoc coalitions so much as they are kind of more structured coalitions where you are having them in presumably the E.U., the TTC, and the Quad working groups, they are now kind of semi-institutionalized, so you're not going to have this be something that's just a one-off.

And so I think what we could -- the way to marry the two is to find ways to actually -- whether it's a G7+3 meeting or something else -- the way to actually integrate the work that is done. I actually think these coalitions also make it more likely that we'll be able to attract others to join, because a lot of other countries don't want to get into this democracy vs. authoritarianism, and so if they see a big techno-democracy, you know, they'll say, we don't want to choose between -- because they'll see it as a choice between either, you know, the U.S. and China or the U.S. and Russia, and so I think, you know, they'll be less willing perhaps to work on some of these issues with these kind of groupings, and then the question is, you know, where do you bring in countries, partners that are not kind of democratic, including, for example, Viet Nam. We want to take them along. And so I think, you know, like-mindedness, you want people to be as like-minded as possible for these groupings. So I don't think, you know, there's -- I think there are different ways of doing this, but I just think because also how different some of the tech issues are, and how many tech issues are involved on which democracies have differences, that this coalition approach works better.

MS. BRANDT: Thanks, Tanvi. Andrew, did you want to chime in too?

MR. IMBRIE: Yeah, I think this is a really interesting discussion. I wanted to offer a frame that looks at it maybe through a slightly different angle, which is networking alliances. So, I think historically, you know, we've had a multilateral security architecture in Europe. And in the Asia-Pacific we leaned on bilateral hub-and-spoke model. And as it's developed today, I think these coalitions offer real flexibility. I think Tanvi made good points on readiness, relevance, and resources. We had some work at CSET that's looked into the question of how to make the Quad truly quadrilateral by tightening linkages between the other players. If you look at the data, for example on AI, and some of our researchers, Husanjot Chahal and Ngor Luong have looked at this. The levels of research and investment and patenting inventions really tend to flow to the U.S. vis-à-vis all these other countries. But how do we

strengthen the ties between them? Because they have comparative advantages. It could be strengths and leveraged appropriately. So take, for example, on research collaboration. India actually produces quite a high level of AI-relevant research output, but its collaboration rates are much lower than that of Australia or Japan. And so that could be an opportunity for India to collaborate with them on AI-relevant research.

On investment, Japan is looking to diversify its investments away from China and also to shore up its supply chains, and India and Australia have comparative advantages in that regard. We benefit as the United States from more collaboration, more innovation, and more opportunities happening between and among our coalition partners, and we also have comparative advantages on semi-conductors. When we think about resilience, each part of that supply chain can be advantaged by building this networking kind of coalition, so the U.S. in the design side, Japan on semi-conducting manufacturing equipment, Australia on minerals, and India on the human capital. And so, there's a lot of opportunities to sort of shore up that micro-electronics supply chain, to stockpile relevant materials, to think about environmentally friendly substitutes. So I think there's really interesting work there, and just the broader, big picture point, which is that I think America also gains when more and more of our partners are stewards for the rules-based order, for peaceful resolution of disputes, for freedom of navigation, and so the more we can build those connections, I think the stronger those normative principles can be, especially in places like Southeast Asia. So the more voices we have carrying that message, I think the better. So this idea of networking alliances and coalitions could also be quite relevant to the next work program ahead.

MS. BRANDT: Lindsay, did you want to come in on this too?

MS. GORMAN: Thanks, Jessica. I think these are really interesting discussions, debates. I love all of what's been said. You know I love sort of Tanvi's three Rs. It's a really nice way of thinking about the Quad. The points Andrew made about sort of transitioning from coalition building to coalition management and the networking ideas are really interesting. Also I wanted to sort of foot-stomp a point that Marietje made on the fact that our approach to technology should be with an open door, both in the existing coalitions and at ones that may not be formed, but that democracies in the developing world, democracies that, to her point, are 100 percent democracies but may not be the natural places we

think to look at when it comes to technological leadership really need to be part of this conversation too, and I think it's probably the number of challenges and the number of technology areas that even we've surfaced today and that I'm sure sort of surfaced in many other conversations that we have are so immense that I think there really is room for a broad, multi-stakeholder and global look at this, but that is inclusive and that does bring in all segments of society and all segments of the globe. Even the countries that we might not naturally think of as sort of the first movers (inaudible) areas I think are really important in this quest. So that's, I think, you know, all I have to add on that.

MS. BRANDT: Marietje, you brought up the competition of systems, and a question that's a common theme in some of the questions that I'm seeing from the audience, it sort of is this question of, you know, how much are Russia and China -- we're talking about collaboration and cooperation among democratic allies and partners, what about authoritarian challengers? Are they cooperating, and where are we seeing this, and how? So welcome thoughts. Andrew's written about this in the context of AI in particular, so we could go to him first and then anyone else who wants to jump in.

MS. SCHAAKE: Yes, I think there are a couple of ways to look at this. Investments in infrastructure, for example, by China in a lot of developing countries I think is a real point of concern, and an area where frankly, I believe democratic countries, the E.U. first and foremost, has really left a lot of space. Because there has been an enormous amount of development support going to the global south, but not so much paired with, for example, regulatory assistance. So, if you are going to roll out digital or telecom infrastructure in countries but you don't support or encourage a data protection law, you actually end up making the population more vulnerable if the government has more abilities to abuse their power, you know, through these new avenues, just as an example.

Now, clearly, Chinese technology is cheap for a number of developing countries. I do also think that the sort of boomerang effect of the reckoning with, you know, what cheap infrastructure means, that's it's not always working as well, that there are other strings attached, is really, you know, rapidly being realized, so I think there is plenty of momentum opening for democratic leadership vis-à-vis these countries, so not to consider a country sort of lost to another coalition indefinitely or something like that. Between non-democratic countries there is unfortunately a lot of collaboration in multilateral and international organizations, whether it's standards, sending bodies to the United Nations or elsewhere,

where if we are realistic, it's not always easy for democracies together to get the types of majorities that they wish for. This is another reason why I think strong cooperation in as large as possible democratic coalitions is crucial. And also to offer countries something to join, indeed. So yeah, I think there are a number of areas where authoritarians/non-democratic leaders are working together to strengthen their own interests. The whole digital silk road being another example of that. And where democratic countries are sometimes working together but not always as successfully, maybe because of the legacy of having had a bigger role in the world and having been used to doing things alone. We clearly see this in the E.U. where some of the nations that used to have empires, that used to be, you know, significant economic and political powers in and of themselves, are still in the mindset that this is today's reality too, where it's not. And so, we need to really reckon and I'm talking especially about the E.U. at this moment in time, with new geo-political dynamics, and with the perspectives that that offers. And I think whereas the U.S. is very much focused on Asia right now, Europe is not. Europe is, to a large extent, still focused on the United States with all the frustrations that that brings along but does not have significant enough focus on the Asia Pacific and should. So, lots of work to do.

MS. BRANDT: And very little time left. I'm conscious we have about one minute, so Andrew, with apologies for compressing you here, I think I might give you an opportunity to take us over the finish line with a thought about how you see Russia trying a collaboration and the tasks ahead. Thanks.

MR. IMBRIE: Great. Well, I mean I think that, you know, the broader context, we've seen an uptick in collaboration between the two countries, especially since 2014, but even going back to the early 2000s. And when they demarcated their border, we seen it across a range of issues and sectors for a variety of reasons, especially compatible political and economic interests shared in antipathy toward United States and the international order that it's built, and its own domestic concerns to tighten control over their populations. So we've seen this across areas, but there are also divergences, lack of trust, power asymmetries, and potentially persistent concerns over things like cyber threats and espionage. So the two aren't perfectly aligned or harmonized, and there are potential fissures there, but we have seen them growing closer together, and the question is, are we seeing that in AI and how do you separate headlines from tread lines? And we looked at two specific metrics. AI-related research

publications and AI investments. And what we found is that there is increasing collaboration between them on both, but there are important caveats with regards to the scope of this, and the rhetoric doesn't always match reality. On AI research, for example, we've documents 296 AI research collaborations between China and Russia, but you put that in context. That's about .1 percent of China's overall AI research output and 2 percent of Russia's overall AI research output. And they both collaborate much more extensively with the United States. If you look at U.S.-China research collaboration, it's significantly more times productive than it is between China and Russia.

Same on investment. We saw an uptick in the investment figures from 2016 to the present, across only about 12 deals worth slightly less than a billion, and there were some deals of undisclosed value. The data is not always complete, so there's real limitations on what we can tell. But we've seen an uptick in the investment relationship in a variety of areas, but again, if you look at it in context, the investment relationship between the U.S. and China is more extensive. And China-Russia AI investment has surpassed U.S.-Russia investment, so that's notable, but it's interesting that Russian investment into private AI companies in China is higher than China's investment into Russia's AI ecosystems. So there's some asymmetries there, and it's definitely something to watch, and so what we thought is we developed a prototype indications and warnings set of metrics to look for to better understand the evolving relationship, which I think is a first-order test.

MS. BRANDT: That is fascinating, and I think going to be very helpful to policy makers as they sort of navigate these waters. Thank you to all of you for contributing to what I thought was a very rich discussion and could really go on quite a bit longer. I have many topics on my list to ask you all about, so we'll have to have you back. But for now, our great thanks, and let me turn it over to my colleague Josh Meltzer, who is in our Global Economy and Development program. That conversation is really going to build on this one, because it's talking about opportunities to build international cooperation around AI, and I know that there's going to be folks on that panel from many countries, including Canada, Australia, and others, so let me not delay in handing it over to Josh, and again, thanking our panel for their contributions today.

MR. MELTZER: I might just start launching into the introduction, and we'll start the video shortly. On behalf of my colleagues, Cam Kerry and Andrea Renda, I want to welcome you to this event.

We're certainly very pleased to be part of the Brookings Symposium on "Aligning technology governance with democratic values".

We're very grateful for Secretary of State, Nadine Dorries' support for our paper in her earlier introductory remarks and certainly look forward to working with her team at DCMS, going forward. Following a discussion of the paper's recommendations, we also have a high-level panel discussion, and there will be more on the paper and panelists shortly but let me just start with some context.

As governments have recognized the strategic, economical, and social significance of artificial intelligence, governments are developing strategies to meet the challenges and opportunities of this technology. This started with declarations and frameworks, including from public and private organizations aimed at guiding the development of responsible AI, AI that is ethical, trustworthy, and reliable. In the past three years, I've seen efforts to put AI principles into operation, through fully fledged policy frameworks.

Since 2017, when Canada became the first country to adopt a national AI strategy, at least 60 countries have adopted some form of policy for artificial intelligence. This includes Singapore's Model AI Governance Framework, and Japan's Social Principle of Humancentric AI, and the UK Guidance on understanding AI Ethics and Safety. There is now a U.S. Guidance to Federal Agencies, on regulation of AI, and an Executive Order on how these agencies should use AI, and, most recently, the EU's proposed AI Act is a first attempt at a comprehensive legislative scheme governing AI.

Effective governance including the R&D and investment that AI requires raise issues that transcend national boundaries and where effective international cooperation is needed to ensure truly responsible AI and to maximize opportunities for AI R&D and investment, and Cam will shortly provide more data on why we need to strengthen international cooperation on AI.

The importance of international cooperation on AI increase increasingly part of national policies, and we also see international bodies discussing AI, including the G7 and the G20, the Global Partnership on AI, the OECD, which hosts an AI Policy Observatory. There's work on developing AI standards and international standards bodies, and AI is increasingly a focus in International Trade Agreements. Given these global developments, we saw a need for deeper exploration of international cooperation in AI, and, in early 2020, established the Forum for Cooperation on AI, or FCAI.

It's a partnership between Brookings and CEPS in Brussels, led by myself, Brookings colleague Cam Kerry, and Andrea Renda, from CEPS. And over the last 18 months, FCAI has convened nine high-level multistakeholder AI dialogues amongst government officials from the U.S, EU, Canada, the UK, Japan, Australia, and Singapore, along with leading experts from academia, the private sector, and civil society. In these dialogues, we've discussed issues, including risk regulation, AI standards, AI R&D, and how to cooperate on AI projects.

These dialogues, along with various bilateral meetings with AI experts, have been the basis for the paper we are launching today, on Strengthening International Cooperation on AI, co-authored with Cam Kerry and Andrea, who you'll hear from shortly, as well as Alex Engler and Rosanna Fanni. And as the title of the paper makes clear, this is interim report, as we are planning additional AI dialogues, as we explore ways to implement the report's recommendations and discuss new topics. Andrea, over to you.

MR. RENDA: Thank you very much, Josh. And it's a pleasure to be here, and thanks to Brookings for organizing this event, and giving us, also, the possibility to present this report that is out, now, since a couple of days, the result of 18 months of work, as Josh was saying. It's a report that -- we didn't call it interim report, but progress report, I think, because perhaps we wanted to raise some enthusiasm on the fact that we believe we have made some progress with this report, and we present interesting ideas for future steps in strengthening international cooperation on AI.

What you will find in this report is basically the why and the what of -- on international cooperation on AI. You will have, first -- we -- you have a first section where we really discuss the main reasons why strengthening international cooperation on AI, it's worth, and can add value, and it is absolutely needed at this moment. I think it's something that echoes what was discussed in the previous panel, that I was following. Then, we actually observe and describe the landscape of what is happening at the moment, at the national level, at the international level, among nonstate actors, in public and private initiatives, in standardization bodies, in the factoring, the three standards development.

And this is something that helps us then discuss the what next, meaning the potential areas that we see for fruitful cooperation, and we identify four main areas, and you will hear our thoughts of those four areas, going forward, in this presentation. One is the era of regulatory cooperation. The

second one is cooperation on data governance, data protection and data flows, more generally, cooperation on standardization, and cooperation on research and development projects.

In the remainder of this report, you will, then, find 15 recommendations that really play along these, the lines of the four areas that I just described, and then we also illustrate what we want to do next at FCAI, meaning what topics for future dialogues we consider to be most appropriate and most timely. So, we might briefly touch upon this to give the audience the sense of the fact that this is a work in progress, as I was saying before, and the fact that we are not going to stop here. We plan to continue our cooperation and to stimulate the debate at the international level, through a number of future dialogues, and, next year, hopefully, a future report.

Now, I will stop there and hand to Cam Kerry, who leads us into the intricacies of the first section of this report and why international corporation on AI is important. Cam, over to you. And you are muted, Cam. Cam, I believe you are muted, so -- at least, I don't hear you.

MR. KERRY: Can you hear me now?

MR. RENDA: Yes, indeed.

MR. KERRY: Okay. I thought I was unmuted, before going on, but maybe somebody muted me. So, we start with the premise that, you know, in the 21st century, really, almost all in scientific research involves international cooperation with teams working across multiple institutions and national borders, and that is especially so for research and artificial intelligence. Let's go back to the slide, before.

Because this shows the collaboration in co-authorship among countries. This is here, the EU, the U.S., China, the UK, Australia, Canada, India, Japan, Iran, and Korea. And the lines running across the chart show the sort of the depth of co-authorship among those countries. And this is, really, a reflection of, so, what makes AI different? So, let's go ahead and move ahead.

You know, AI operates on a different scale. It takes large data sets, great amounts of computing power, high levels of knowledge and talent, broad knowledge and talent, you know, the open-source use, that Andrew Imbrie talked about, and, as a general-purpose application, it cuts across disciplines, it cuts across sectors. So, this scale magnifies the impact that AI has on international cooperation and the way that international cooperation affects development.

The first is in affirming principles of responsible and trustworthy AI, among the

participants. You know, no one government, in today's world, can go it alone on AI. Secretary of State Dorries said that about the U.S. and the UK, it's true of the U.S. and EU, as well. AI is simply of such magnitude, across multiple dimensions, that it requires nations to work together to make AI work for humanity. And, you know, conversely, while some of amount of national experimentation, divergence in regulation is helpful. You know, too much divergence can produce barriers to entry, costs that impede the development of AI.

And this kind of fragmentation can work to the disadvantage of smaller countries, specialized entities. Next bullet please, Aaron. And which can carve out niches of competitive advantage, in a global marketplace, can provide complementary skills and services. In addition, fragmentation also results in barriers to trade, to promotion of national champions, investment or technical barriers. So, countries need to work together to address supply chain issues, in ways that don't result in fragmentation. All of the national policies, many multilateral statements, endorse using AI for the UN sustainable development goals, and working together can achieve scale and impact through cooperation.

And all of these points, really come full circle, when it comes to the issue of China, which has run -- been a thread through the previous panels, and, you know, we've heard about how China has erected barriers to information flows, how -- and, effectively, China is seeking to go it alone. It's big enough and has enough resources that it can do that. The 14th five-year plan targets strategic research in technology, including AI. And this is likely to reduce publication and transparency of the kind that we've seen.

And it's consistent with the broad increases, over the past 10 years, in economic and social control, and barriers in, and control, in the economy and trade policy. So, this presents, really, a very different model, a very different vision of the benefits of artificial intelligence in technology and, you know, may fork technology and everything else into two systems. So, democratic countries need a strong and a coherent counterpoint. Promoting democracy and technology really requires nations to work together. That's certainly a foundation of this symposium and of our report.

So, in our report, as Andrea mentioned, we have 15 fairly specific recommendations of ways to move forward on -- in the dialogues and to promote cooperation. Broadly speaking, those involve regulatory alignment, research and technology driven standards, and joint research and development.

So, I will come back later to talk about the projects, the research and development, but, first, we'll hear from Andrea, on regulatory cooperation, and then Josh.

MR. RENDA: Thank you very much, Cam. On the side of regulatory cooperation, it's very important to say that, and to state that, obviously, cooperating on regulatory policy is possible, if all countries agree that some form of -- or some policy framework will have to be built around AI, and I think, there is growing consensus on this issue. But, obviously, cooperating on regulatory policy doesn't mean harmonizing regulations around the world, that this is the theme and a topic that we've been discussing over the past 18 months, quite a lot. There are several degrees of international regulatory cooperation, an extent of cooperation, that one can imagine, going from the sort of light versions of international cooperation, which might take the form of exchanging practices or establishing a platform for discussion of common themes, all the way through alignment and convergence, or even joint actions and joint cooperative schemes, in order to achieve the same goal through concerted and joint action.

So, for each of the recommendations and the areas for cooperation, that you see, you see in these boxes, in these slides, we also imagine a feasible extent of cooperation, at the moment, and perhaps an incremental path towards strengthening the cooperation, over time. So, not everything is possible on day one.

The other thing that I want to mention, already, at the outset, is that some of these recommendations are built in and incremental way, meaning that perhaps recommendation two requires, or is going to be even, you know, more feasible if recommendation one is implemented, and so on and so forth. Not all of them are like this. Some of them, and I will mention, are actually, potentially, standalone recommendations. So, but the first one and perhaps the most foundational recommendation that we've come up with, and we have been discussing that at length, also, with all of the FCAI Group, is the need to -- for countries to really nest international regulatory cooperation into the development of their AI policies and strategies, which means thinking about the impact of actions, at the domestic level, on international regulatory cooperation, and, also, refraining from adopting initiatives that would harm the international regulatory cooperation process in an unjustified way, right?

And that is very important. There are countries that have already incorporated the international regulatory corporation, in their better regulation agenda, such as Canada. But most

countries, as you will see from the report, have mentioned, you know, at least mentioned, but, in most cases, committed, explicitly, to international regulatory cooperation in their AI policies or strategies. So, that is very important, and we are trying to build consensus. I think we are successfully building consensus on the need for swift action in this direction.

A second area is the sharing of experiences and the development of common criterion standards, for auditing AI systems. And auditing AI systems might mean auditing them before they are placed on the market, so, you know, on an exemptive -- in an exemptive way, or it could also mean monitoring the function of AI systems, over time, once they have been placed on the market. And this is an area where there is a lot of technical work that is going on. Some of our discussants and panelists today have done quite a lot of work in this area. So, we might want to ask them how they see this recommendation unfolding, going forward.

A third area is perhaps something that might seem to be straightforward, but it's not, if you look at the different definitions that have been adopted in different countries on AI. They are similar. They tend to be similar. Not all the definitions that are used are fit for regulatory purposes, and, in some cases, there are some major differences, in terms of the scope of the definition. So, if agreeing on a common and possibly technology neutral definition of an AI for regulatory purposes is important, also, to enable cooperation in many other areas, and, to some extent, also, on the side, for example, projects, that Cam will talk about later.

A couple of recommendations are dedicated to this other area, that you see at the top right of this group of boxes, which is agreeing on the need for a risk-based approach and on the contours of a risk-based approach to AI regulation. Talking about a risk-based approach, again, seems easy. It seems intuitive, but approaches to risk change significantly across countries, and the interpretation of what is a risk-based approach might change significantly. So, there is a lot of work to be done in that area. So, we offer a couple of recommendations in that respect, and we will continue to work in that area.

And so, you go down, the bottom left, we believe that the future of cooperation on AI is also a future of sectoral cooperation between sectoral regulators and policymakers because it -- this is where the AI use cases and the actual risks and benefits, that AI applications might generate, materialize, and, thereby, strengthening cooperation at the sectoral level appears to be very important. And perhaps

related to that, although not exclusively related to that, is our recommendation of number seven, which evokes the need for experimentation.

And sharing experiences and establishing a joint platform for regulatory sandboxes and experiments, where regulators could actually even join forces and exploit not only the scale, that Cam was referring to before, but also the economies of scope of putting together resources to test the trustworthiness of specific AI applications, in specific contexts, in specific sectors. And this platform actually could be an open platform at the global level, meaning, that is, any country who wants to experiment under specific conditions could, you know, should be able to do that and contributes to the platform. And at the same time, it could be a very good occasion to develop guidance on how to properly design and implement regulatory sandboxes, which is something that is still largely missing at the international level. There are two of our recommendations, eight and nine, that deal with AI using government and, in particular, how to develop criteria for government accountability, but also good practices, standards, and criteria for procuring AI in government, as we believe that most of the AI that will be deployed by governments will actually be procured and only in some cases will be developed inhouse.

And finally, there's what appears here, of one recommendation, but it's indeed an area for cooperation which is pretty big and perhaps foundational for most of what can be achieved with AI, is the area on cooperation on data sharing, data protection, and data governance. Here, we know that there are some outstanding problems, in particular between the EU and the U.S., following the Shrimps II decision of the Court of Justice, the pending adequacy decisions on the EU side, with respect to the EU framework for data protection and privacy.

There is also an emerging framework for data governance, in particular, for industrial data, at the EU level, which seems to be, still, potentially incompatible with the completely free flow industrial data across borders. There are several other elements that need to be sorted out, but we do believe that doing work on sharing data across borders, in many respects, and in many -- from many different perspectives, is absolutely essential to really step up regulatory cooperation, and it will bring value to all likeminded countries that work on this scheme.

So, that said, this is only part of our recommendations, and the report moves on with

recommendations dedicated to standardization and these recommendations will be illustrated by Josh, and so, I give the floor to Josh for this. Thanks, Josh.

MR. MELTZER: Right, thanks, Andrea. And next slide, Aaron, please. This slide attempts to present what's a very complex environment, regarding standardization. But certainly, as countries move from developing frameworks and policies to more concrete efforts to regulate AI, a demand for international AI standards is going to grow. International AI standards can enable global interoperability, both in terms of the technology and the business management practices that will be needed to ensure its development and use. It's consistent with responsible AI.

Sound AI standards can also support international trade and investment in AI, expanding AI opportunity, globally, and increasing returns to AI R&D. Now, currently, international AI standards are being developed in a variety of forum. As part of work with FCAI dialogues, we focused on work going on in the ISO, the IEC, and the IEEE, as well as, somewhat in the ITUT. And these are multistakeholder standard setting environments, which include government, civil society, and industry, with seats at the table, with a key role for industry, often referred to as industry lead.

Just to -- which underscores, I think, the importance of experience with the technology, its implementation and management practices, in developing sound and practical standards. And all the governments that are participating in the FCAI recognize and support these industry-led standard setting processes. Next slide.

In terms of the actual recommendations, we've got four key ones in our report. The first one, recommendation 11, is to adopt a stepwise inclusive approach to international AI standardization. So, a stepwise approach to standards development is needed to allow time for technology development and experimentation and to gather the data and use cases to support robust standards. So, this should start with foundational standards, such as terminology, and reference architecture, risk management standards that guide management practices, as they relate to AI development and use.

And to support a stepwise approach to AI standards, we recommend establishing a database of AI standards, at -- under development at both national and international levels. Such a data base would improve understanding of the landscape of AI developments and support cooperation and coordination, where desirable, on AI standards development. The next recommendation is to develop a

coordinated approach to AI standards development that encourages Chinese participation, consistent with an industry-led research driven approach. So, the approach of FCAI participants, that emphasizes an industry-led approach, to developing international AI standards stand, somewhat, in contrast with the overall approach of China, where the state is at the center of the standards making activities. There is, however, currently, a risk of disconnect between growing concern amongst government international security officials, alarmed by China's engagement in the standards process, on the one hand, and industry participants' perceptions of the impact of China participation, on the other.

At least anecdotally, it seems that efforts by China to push China-centric standards that lack technical credibility have not progressed in the case standards bodies working on AI. So, we should be careful about responding to the Chinese state's role in standards body, to the similar response, which risks turning standard setting into another forum for geopolitical competition, slowing down or stopping the standards making process. Instead, FCAI participants should work together to support international AI standards setting, consistent with outcomes that are technically robust and industry driven, while also agreeing on cost for actions that use standards strategically, or standards bodies strategically, to slow down or stall the standards making process.

The next recommendation is to expand trade rules for AI standards, and there are various ways trade policy can play a more central role, when it comes to supporting AI standards. This, in fact will be a subject of future AI dialogues, but, to give you a sense of some of the following outlines for further consideration, would include to expand existing trade rules, such as what we have in the WTO and in Free Trade Agreements that currently require use of standards for goods to include services. As many AI standards will apply, mainly, to services, there's also, I think, significant opportunity to use trade policy to formalize cooperation on AI standard setting. And this will part of broader work we're going to do on trade policy, more generally, in strengthening international cooperation on AI.

And, finally, their last recommendation is to increase funding for participation in standards development bodies. This will be funding for academics in industry participation, particularly small businesses, as well as for meetings in both FCAI countries and less developed countries. This can expand opportunities, speed up standards development, as academics and others can help draft standards, and by hosting meetings of standards bodies in additional countries. This can broaden

exposure to standard setting processes around AI and critical technologies, more broadly, strengthening the legitimacy and ultimately adoption of the resulting standards. Now, let me leave it there, and, now, I'll turn it over to Cam.

MR. KERRY: Thanks. Andrea talked about some of the challenges of regulatory alignment, and one of the lessons from that is the importance of use cases to solve differences in approaches to law, regulation, risk to other things that are difficult to do in the abstract. And that leads us to a proposal to work through some of the challenges of alignment in the context of solving important global problems, the kind of things that are addressed in policies that focus on UN sustainable development goals, and where achieving solutions to those provides an incentive to work together and to overcome those differences in law, and regulation, and risk management.

So, to get there, to select the projects and develop the governance, we propose for a discussion a few criteria. One is that the projects should address problems of global significance, in which there are broad stakes. They should operate on a global scale to meet the importance of those problems. They should warrant public investment, as public goods, and the outcomes, the benefits should be public goods. They should operate and function as, essentially, a broad-based regulatory sandbox, as Andrea talked about, to work through differences in approaches to AI. And they should be aimed at concrete and assessable impacts. And they should include civil society, academia, the private sector, they should be multistakeholder efforts. These will be part of what we continue to explore.

The models that we look at reflect, I think, the ambition and the scale that these efforts should take, the International Space Station, CERN, the Particle Accelerator, the Human Genome Project. President Kennedy said we should go to the moon, precisely, because it's hard. And I think that is the idea of the ambition here.

So, now, we will move onto our panel discussion. And, now, I've participated in or moderated many panels, in Washington and elsewhere. I think this is the first panel that I've participated in in which all of our several panelists have backgrounds in computer science. So, we have with us today, I'll introduce in alphabetical order, Rumman Chowdhury, who's been a leader in thinking about algorithmic fairness. She's now the Director of Machine Learning Ethics, Transparency, and Accountability, at Twitter, which is, I think, my cue to remind you, as well, to submit questions, either to

events@brookings.edu, or over Twitter, with the #TechGovernance.

So, in addition to Rumman, we have Lynne Parker. She is usually a Professor of Computer Science and Electrical Engineering at the University of Tennessee, in Knoxville, but currently directs the National AI Initiative Office, at the Office of Science and Technology Policy. We have Francesca Rossi, of IBM. She's an IBM Fellow and the AI Ethics Global Leader, and, before that, was Professor at the University of Padova, Padua, for 30 years and a member of the EU's High-Level Expert Group that advised on the development of the EU AI regulation. We have Elissa Strome, of CIFAR, the Canadian research organization which was appointed to execute the Pan-Canadian AI Strategy, and she is the Executive Director of that effort. And we have, in a similar role, from Australia, Jon Whittle, who is Director of Data61, in Australia's National Science Agency, which is investing significant resources in data science and digital technology.

So, we'll start with Jon. We could pick up with Australia's role here. Tanvi went on and talked a little bit about Australia's membership in the Quad, but the investment that I mentioned, by the Australian Government, has been reflected in the recent release of an AI Action Plan, with a new National AI Center. And in addition to the Quad, to Australia, there's part of the G7 discussions of technology issues and part of other global discussions, so. Jon, I wonder if you could sort of explore a little bit of that role, you know, as a medium-sized power but a significant player in AI. You know, how does international cooperation play out for Australia? How do you see it mattering here?

MR. WHITTLE: Sure. Thanks. Thanks. Thanks a lot, Cam. And first of all, let me just say that I -- this is a really timely conversation to be having, for us in Australia. So, as you mentioned, earlier this year, Australia launched its National AI Action Plan, which commits to a range of investments supporting AI, as part of a $1.2 billion digital economy strategy that the government is spearheading. And I just want to -- I won't mention all the initiatives in that plan, but there's probably two big initiatives worth mentioning.

One is the creation of a new National AI Center, which will be launched later this year. And, really, the purpose behind that is to try to better connect up the AI ecosystem, within Australia, and I think that's relevant to the conversations around international cooperation because, you know, we talk a lot about kind of fragmentation, internationally, when it comes to AI. But there's also fragmentation even

within countries, and we certainly see that in Australia, where we've got, you know, multiple very strong R&D institutions pursuing AI activities, but perhaps aren't necessarily as well connected up as they could be.

So, we've got the new National AI Center, and also, the other -- one of the other major initiatives is something called Next Generation AI Graduates, which is really trying to address the skills gap. And that will fund up to 500 student scholarships in AI, across the country and in different sectors. But it's a little bit different from a kind of standard scholarship program because it's not just giving out 500 individual scholarships. It's really looking at a cohort-based approach to those students and having them work in groups of 10 to 20, together, with key industry partners, so that you can get some scale.

And this AI Action Plan, that's on the back of a number of kind of earlier initiatives that date back to, at least, kind of 2018. So, there was the release of Australia's National AI Roadmap, which identified the three key areas that we thought Australia could take a leading role in, when it comes to AI, and also the AI ethics principles framework, which, I think, was one of the earlier principle framework.

Now, when it comes to international collaboration, so, particularly, with respect to the National AI Center, I would say that international cooperation is really a key driver for that. It's one of the things that we are kind of laser focused on. And our vision of that, really, is to try and create a global network of AI centers. You know, there are, of course, a number of, you know, high-profile AI centers around the world. You've got the Turing Institute in the UK, you've got the Vector Institute in Canada, you've got the NSF-funded AI instates in the U.S., and many, many others. And much as it says in your excellent report, you know, we want to avoid the duplication and redundancies and build on each other's strengths. And I think a great way to do that is to work through those national AI centers.

I think a good question to ask is why are we interested in that? And I think you can look at that from two perspectives. So, why is Australia interested in that? But, also, why would other countries be interested in cooperating with Australia? And, certainly, for us, in Australia, I mean, we're obviously a relatively small country of about 25 million people. We do punch above our weight in AI. So, if you look at a lot of the kind of global indices on AI, we often appear kind of top 10 or higher, which is great for a country of our size. But it's obviously very important for us to connect globally because, at the scale that we naturally are, you know, we can't get the levels of investment from government that, you

know, the U.S. and some other countries are able to commit. So, to have any kind of impact, we need to collaborate internationally. Like, it's a given.

But the other, perhaps more interesting, part of it is why would other countries want to collaborate with Australia? And we've had some interesting developments on that front. So, we've had quite a number of kind of emerging conversations with other countries about creating that kind of global network of AI centers. And perhaps to my surprise, I found that those countries often felt that they could learn as much from us as we could learn from them. So, it wasn't just that, you know, Australia was this small country that was trying to jump on the bandwagon of bigger players, but that some of the things that we're doing are quite innovative. And perhaps because we're on that smaller scale, we can be a little bit more agile, and we can be a little bit more innovative.

And just to give a couple of examples of that, so, we're taking, in our National AI Center, very much, a focus on translation, business adoption, commercialization of AI, rather than simply basic research, and that's something that's being looked upon very favorably by other countries, and they are very interested in how we're going to take that approach and see if there are things that they can replicate. Again, this cohort industry-led approach to PhD students is very interesting to many other countries. Some countries, like the UK, already do that with their Centers for Doctoral Training, but some countries still have quite a traditional approach to PhDs or funding individual scholarships, and so, that's seen as quite an innovative way.

And also, I think, related to your talk, Cam, we are very much kind of pursuing a missions-based approach to R&D, in Australia, CSIRO, Australia's National Science Agency, we've essentially restructured ourselves around a set of a dozen kind of grand challenge problems or missions that we're using to bring expertise together, from lots of different disciplines, but also from industry, and government, and academia. And that, again, is something that other countries are very kind of interested in exploring whether they could do that.

The other maybe -- the kind of other thing that I would mention is that I think we've already got some some great examples of where countries have come together to do international collaboration in AI. You mentioned in your talk, Cam, some of the kind of grand ambitious projects, like CERN and so forth, that are going on. But the one that's uppermost in my mind, at the moment, is the

DARPA Challenges we've just finished participating, actually, in Australia, and the DARPA Subterranean Challenge, which was all about AI and autonomous robots exploring underground environments. And in that we came second, by a whisker, in that competition, but it was an international collaboration with Georgia Tech. So, you've already got your U.S.-Australia collaboration.

One of the interesting things about the way that that Challenge is set up, which is, I think, an important point to bear in mind, is it's not actually just about cooperation. It's also about competition, healthy competition. Those DARPA Challenges are built on kind of decades of experience of how you do this kind of thing and are a wonderful environment for, you know, getting people to compete against each other, but in a way that promotes that collaboration.

And then I might just finish just by leaving a few thoughts kind of in the air about the wonderful report. So, having read the report, it's a great report. I did feel, though, that there, perhaps, were a couple of areas that were maybe not emphasized as much as they could. And very quickly just to reel those off, but I think there's three.

So, first of all, on the kind of standards part, that is, of course, very important, but I think the other area that's very important is how can we develop technologies to operationalize the policies and the standards, and how -- and we need international collaboration to do that. We've got some of the big tech companies, now, producing kind of tools and techniques to help people do responsible AI. But, again, we're getting a kind of fragmented ecosystem because each company is kind of doing their own thing.

The second point that maybe could be emphasized more is that -- I'm always nervous about the focus on AI, actually, because, as pointed out in the report, it's a bit challenging sometimes to define what AI is. It's a very broad-brush term, and that, I think, we risk getting into arguments about, oh, well, I'm not really doing AI, therefore, I don't need to be regulated. And I always argue that, actually, we should be looking more broader than that and talking about embedding human values in software systems, rather than simply AI.

And then the third area that I think is absolutely critical for international cooperation is actually around the education of the skills piece, which I didn't see emphasized so much in the report, because we actually -- you know, we're all computer scientists on this panel, but I think we need to

actually fundamentally change the way that we teach computer science and bring more of that ethical lens to it and that multidisciplinary lens to it. And I think the great way to do that is to come up with a kind of -- a green approach, internationally, for how we can do that. So, I look forward to the rest of the discussion.

MR. RENDA: Thank you. Thank you very much, Jon. I think those three points that you have highlighted, again, are very, very good suggestions for us. I think we continue the conversation, also, in this panel by keeping them in mind. And, also, we keep them in mind for the future dialogues that we want to organize, as this, what we are presenting today, is a progress report. But I think these are extremely, extremely thoughtful suggestions, and, certainly, some of the other panelists will have ideas on how to -- these areas could fit in the work of FCAI.

Since all of you have been regular attendees and active, very active, participants in our dialogues, I want to turn, now, to Elissa to ask her a question because we've heard about talent attraction, we've heard about responsible development of AI, we've heard about mission-based approach to research and development. In all these areas, Canada actually stood out quite early on, right, in the area of AI. And it's another example of a country that has been punching above its weight in this field. And it was also first mover in really defining principles and criteria for using AI in government, with a directive that has been widely read, consulted, and perhaps almost emulated in other parts of the world.

And so, and as I -- as described at the beginning of this session, Canada is also, to many that study regulatory governance, the homeland of international regulatory cooperation, if you wish, because it seems to be very present and salient in all the policy approaches. And so, I turn to you to ask you to elaborate a little bit on -- as you are in charge of the execution and orchestrating the -- actually, of, obviously, not yourself, alone, but orchestrating and coordinating the execution of the Italian-Canadian AI Strategy. How do you see the interface with what you have to do at home and international cooperation? So, thank you for being with us, Elissa, and the floor is yours.

MS. STROME: Thank you so much, Andrea. It's really a pleasure to be here. I so much enjoyed participating in the dialogues over the last 18 months, and now to be here to review the progress report and really reflect on those conversations and think about next steps is really wonderful. Jon, I really appreciated many of your comments. For the record, I'd like to state that I am not a computer

scientist. I'm actually trained as a neuroscientist and have spent my career in research policy strategy. So, thanks for your question, Andrea.

I think, from the very beginning, Canada really has been investing in and focusing on advancing AI research and innovation for more than 40 years now. It's an area we've been working on for a very long time and building up our capacity, our talent, our expertise in this space. And I think that that long history allowed us to build a real critical mass of AI expertise and skills. And, you know, when the opportunity arose in 2017 to think strategically about advancing a national AI research and innovation strategy, we were well-positioned to do that because of the very strong clusters that we had, particularly in places like Edmonton, and Toronto, and Montreal. And so, those really helped to form the foundation of our national AI research and innovation strategy, and those centers of excellence, now, that we have in the three centers really work together and collaborate across the country.

Somewhat like you described as an ambition for Australia, Jon, we're doing very effectively in Canada. And those three centers really -- they act as, you know, the central hub of their respective AI ecosystem, bringing together stakeholders from across academia, the private sector, venture capital policymakers to really collaborate and work together to advance AI research and innovation. But they also serve as a focal point for reaching out internationally, and that has been really effective, as part of our approach.

From the very beginning, in Canada, you know, not only did we focus on talent and ecosystems in advancing research and innovation, we wanted to focus on understanding the societal implications of AI. And so, that was a pivotal pillar of our strategy from the beginning, and we particularly understood that international cooperation was essential to really examining the policy implications, the ethics of AI, the economic implications of AI. And so, we formed a partnership, very early on, with both the UK and France, to undertake a series of international collaborative R&D workshops on the societal implications of AI.

This was really one of the key activities under our AI and society pillar. And we brought together researchers, scholars, leaders from the private sector, from civil society, across about a dozen different themes on implications of AI, things, of course, like privacy and ethics, but also sustainability and climate change, looking at AI in healthcare, looking at the impact of AI on developing children, looking at

the impact of AI on indigenous communities, and what indigenous communities can bring to the development of AI, so, a whole series across the spectrum of the scope of implications of AI on society.

And those dialogues generated a lot of great conversation, a lot of new ideas that we would not have been able to generate if we had simply had, you know, a Canadian-centric conversation. The fact that we had researchers, not just from the UK and France and Canada, but from all around the world, contributing to those conversations really led to a very vibrant set of outcomes. Those reports are available all on the CIFAR website.

So, international cooperation has been essential piece of our strategies, especially in understanding policy and societal implications. And I think the other area that Canada is really proud of is our work in helping to establish the Global Partnership on AI. This was really a concept that Canada and France brought as an initial idea forward in 2018, when Canada held the Presidency of the G7. Prime Minister Trudeau and President Macron announced it at that point, and over the next couple of years it really grew into truly a global movement, such that, in 2020, when it was announced as a formal organization, we had members from across North America, Europe, and Asia, 19 organizations, part of this now international cooperative and collaborative space where we are working together, I think, really effectively to understand the societal implications and to start to develop some policy solutions for them. And we're looking forward to the next GPay Summit, which is coming up in just two weeks' time. So, that's another area where Canada has been really privileged to play a foundational role in helping to establish that work.

Thinking into the future, I'm really excited particularly about the final recommendation in the report. I also agree very strongly that we have a major opportunity and a gap, right now, in our international cooperation around R&D. I think that AI really is a technology and really a suite of technology, as Jon has mentioned, that has the opportunity to really help us tackle some of the biggest challenges facing society, some of those UN sustainable development goals, for instance. We can't do it alone. We can't do it with a Western-centric viewpoint. We really need to make sure that we're being very inclusive and that, really, science and research provide a wonderful platform to help advance cooperation, a model that we've used, really, for generations in science. Those examples we saw around CERN, and the ISS, and the Human Genome Project are great examples to look to. And so, I think that

there's a tremendous opportunity to bring countries together to advance AI research and innovation. Thank you.

MR. MELTZER: Great. Lynne, great to have you here, great to see you. There's been a lot happening in the U.S. on AI policy. We've had the OMB guidance for regulation of AI, various executive orders, including EO13859, that references the need for collaboration with foreign partners and allies on AI, and recently progress on the National AI Research Resource Taskforce, which looks very exciting. So, I'd like to hear more from you on how these bits and pieces are coming together and particularly what these developments mean for international cooperation on AI.

MS. PARKER: Well, thanks, Josh. And like the others, I really appreciate the opportunity to talk about these issues with everyone. It's true, there has been a good bit going on in the United States, as it relates to AI. And I think those developments, even with the change in administration, demonstrate the continued prioritization of AI for the United States. And I'll start with the launching of the National AI Initiative. That was defined in bipartisan, bicameral legislation, that became law in January of this year. And I want to point out a couple of the goals of the National AI Initiative and how they feed into the importance of international cooperation.

The first stated goal of the National AI Initiative is to ensure continued U.S. leadership in AI research and development. And I couldn't agree more with the comments that we've heard already about the importance of international collaboration, as it relates to AI, and the importance of, you know, breaking down those stovepipes and having multidisciplinary research, as well. So, we're very proud to have, at this point now, launched 18 large-scale, multi-partner AI research institutes across the nation, and these do include international partners, as well. Investments so far total $360 million, over five years. And the people participating in the institutes are based in 40 states across the country and the District of Columbia. These institutes are, of course, led by the National Science Foundation and have other partners in government agencies, as well as the private sector. And so, I think these institutes -- I love the idea that was suggested by Jon of having a network of institutes around the world. I think that would be a great thing to build on because now, we have so many institutes, both in the U.S. and around the world, that are digging into these AI issues. So, I think that's a great area of opportunity.

A second area that, as you mentioned, Josh, that we've been working on, as it relates to

R&D and particularly the infrastructure for AI R&D, is our work with the Taskforce on the National AI Research and Resource. Just this week, on Monday, we had our third meeting of that taskforce. And the goal of this effort is to support foundational AI research. It's to also advance the use-inspired AI research. And I very much agree that the grand challenge approach is a great approach to make those advances, and so, a number of our institutes are digging into a particular domain to accelerate discovery across a lot of different kinds of fields.

And then we've also heard about the importance of education, and that's another goal of this -- of these institutes, is to, really, to increase the number and diversity of researchers and organizations that are participating in AI research. There's a lot more I could say about that, but I'll move onto a second goal of the National AI Initiative, as defined in the legislation. It's for the U.S. to lead the world in the development and use of trustworthy AI system in both the public and private sectors. And, Josh, you've mentioned the OMB memo, in particular, along with some other areas, and I've gotten a number of questions about what the status is of that memo.

So, I think, just as a summary for those that haven't tracked it recently, the OMB memo reflects the growing international consensus that the regulation and governance of AI should be taken under a kind of use case, sector-specific approach, rather than a one-size-fits-all approach. The OMB memo calls out some important principles for guiding that approach that include, you know, many things that we all agree on, of course, promoting public trust in AI, ensuring issues of fairness, nondiscrimination, safety, and security, respecting intellectual property, and assessing risks, cost, and benefits.

This guidance also emphasizes a performance-based and flexible regulatory approach and really lays out the importance of doing that risk assessment and looking at nonregulatory approaches, when appropriate, such as regulatory sandboxes. And this will help us support AI innovation and growth, and that AI innovation can actually help us solve some of the challenges that exist today. And that goes back, again, to the importance of research, so that we can overcome some of the shortcomings of AI today, but as well advance their applicability to really solve hard problems, like the sustainable development goals.

So, based on this memo, agencies have, indeed, begun and will continue to work on their

plans. What they're doing is inventorying their use cases for areas in which they intend to think about AI regulation in alignment with this approach. Some agencies have submitted plans, others continue to work on them, and we continue to work with the agencies, and particularly -- in particular, some of those agencies have use cases that I think are of particular maybe higher risk or cause higher concern for the possible harms that might be caused. And so, this is an area, also, that is ripe for international collaboration.

The memo explicitly does call us out, and it refers back to the executive order from 2015, that directs our U.S. agencies to engage in international regulatory cooperation, particularly in emerging technology areas. So, there's much in this space. I think there's a lot of work that can be done to help harmonize some of the approaches, particularly in light of the example that we now have with the draft EU AI Act. And so, obviously, a key question that we're all working on, all over the world, is really how do we actually -- how do we do this? I agree with the point that we really need to look at what are those tools to move from, sort of the fundamental ideas, into practice. And so, we have a fairly strong international consensus on all the principles for trustworthy AI and the responsible use of AI, but it's turning those principles into practice and figuring out how do we actually govern AI, that that obviously needs to be done. Clearly, there's a lot of work that's happening all over the world, some of it in governments, some of it in industry, and figuring out a way to leverage all of those good ideas and turn those ideas into some common practices or -- it's not that everyone has to do it the same way, but that it helps people understand what an appropriate way is to govern a variety of different use cases. So, that's certainly an area that we, very much, welcome international cooperation on.

And maybe, probably, this audience is also aware that one of the new U.S. efforts in this regard is the work that NIST is doing in developing an AI risk management framework, as well as their work on AI technical standards. So, the AI risk management framework is intended to provide that common framework to help us better manage AI-related risks to individuals, organizations, and society, so that we can incorporate our ability to have trustworthiness considerations taken into account in the design, development, use, and evaluation of AI products, services, and systems. So, throughout this process of developing this AI risk management framework, it's a very open process, and this is engaging with stakeholders from all over the world, including international partners, obviously. And

so, this is, I think, an example of the type of work that we need to do across the board to help us better turn in some high-level goals, as it relates to regulatory approaches to AI and turn them into the tools and the frameworks we need for actually achieving that trustworthy AI in practice.

And so, I've touched here on two of those goals of our National AI Initiative, the R&D piece, the use of trustworthy AI, both in the public and private sector. I'll just quickly mention the other two. I won't go into details. A third goal of our National AI Initiative is in the education and workforce development space and how do we prepare our current workers and the next generation workers to engage in AI work, AI-enable work, across so many sectors of society. And then the fourth goal of our initiative is to make sure that we're coordinating all these activities across the Federal Government and with our partners, both in the -- in academia and industry, private sector, civil societies, and internationally, to make sure that we're learning from each other and that we're taking best practices, that we look at synergies and ways that we can work together. And so, this is certainly a role that I fill now, in the National -- as Director of the National AI Initiative Office, to try to look at that coordination. And so, I think, in looking at all of these activities, I think international collaboration -- it can play a key role, and so, we, very much, welcome continued engagement in these areas. Thanks.

MR. RENDA: Thank you very much, Lynne. I think this is a very comprehensive overview in a few minutes. It also echoes some of the comments that have been also made by your colleagues from other countries. And at the same time, we see this coexistence, right, the many countries of the horizontal, let's say, crosscutting dimension, which might take more regulatory or more as a soft law forms, as, for example, in the case of NIST's work on the risk management framework. But then, I think every country, and this is something that we have been discussing, every country will then feel the need to go into use cases and go into sectors. So, regardless of where you start from, I think there will be fertile ground for cooperation on concrete cases that require a consistent and meaningful definition of policy approaches.

Now, in all of these conversations that we've had until now, the role of technical tools and the role of, also, nonstate actors, in the private sector, in particular, in contributing to the definition of common standards and criteria, has been evolved several times. And our two last panelists actually come from the private sector, although they have taken on institutional roles, in more than one occasion,

in academia and in expert groups for government.

I want to turn to Rumman, now. And, Rumman, we've been following your stellar career, for years now, and though you're very young, but you have had a fantastic trajectory, a pioneer in responsible AI development. In many respects, you're a startupper with Parity, with -- and now at Twitter, as explicitly also you signal with your t-shirt, but also as a member of the Advisory Board at the Center for Data Ethics and Innovation in the UK, which makes transnational and public-private, if you wish, so, a perfect panelist for us to really start a conversation on how those in the private sector that have very research-intensive, anyway, activity in the private sector, can contribute to the glue that we need at the international level to really consolidate those common standards.

And I was reading, a few days ago, your blog post on the amplification of political content, on the algorithmic amplification of political content, with Luca Belli. It was a very interesting one. It echoes a more technical paper that I -- that has been produced in your group, right? So, I think it's a very good starting point for a question that I'm asking you, really. How do you think and how do you approach a responsible AI development, and how do you think the international cooperation between countries and the private sector, at the global level, can facilitate your work and can amplify not political content, but the impacts of what you want to achieve with your work? Thanks for being with us, Rumman. I give you the floor.

MS. CHOWDHURY: Yes, absolutely, and thank you so much for the invitation, Andrea, happy to be here among such esteemed company. So, from my perspective, of course, I have, in my career, always been tasked with developing product solutions and delivering on responsible AI. And, over time, what I've seen that's quite positive, and I think a really good indicator, is that the average engineer and machine running practitioner is much smarter about ethics and AI. Where we are today, and I've heard this echoed by a bunch of folks in the policy area, is people have bought into the mission. Now, they need to understand how to be able to deliver.

So, as the Director of the META Team, so, I've been in this role since March, what we're really focused on is developing tools, enabling an infrastructure for responsible ML at the company, which includes the democratization of tools that we're building, so that my team is not the bottleneck, but also the ability to improve transparency with external groups and organizations, so. And thank you for your

kind words about the blog post that we had published last week. You may have noticed, towards the end, we alluded to something that we are working on, and over the next few weeks, once the ink is dried on that deal and our partnership is cemented, we hope to announce the development of privacy preserving machine learning, infrastructure to enable researchers and external parties to be able to securely access the data that we used for that analysis in order to enable reproducibility.

Now, we're seeing a lot of that discussion today, where, you know, how can we verify, you know, the determined security exists, trust's been verified. We recognize that people trust what we're trying to say, what we're -- you know, how we're framing the conversation, but we also -- and, you know, as a social scientist and a data scientist, myself, you always want to dig into the data, and you always want to verify. But how do we do that in a way that protects the privacy of the individuals who are utilizing our platform? But how do we also do it in a way that we can ensure that it's being used appropriately and, you know, not being reused for inappropriate purposes?

The other thing we're working on in the organization is standardizing our audit methodologies and increasing what we're able to automate and collect. So, we have an entire workstream on model governance. That workstream consists of two parts. One of them is being led by a Senior Staff Engineer on my team, Nick Matheson, and what he's doing is what I keep calling responsible MLOps. So, folks who are sort of more familiar with the engineering side of things probably have heard of the term MLOps, which is a standardized way of moving a model into production. What we are building is what I'm calling Responsible MLOps. So, how do you collect, and how do you standardize the collection of data you would need in order to automate as much of the risk flagging process as possible, and how do you couple that with the human auditing, and that's the part I'm meeting, is how do we develop a standardized process for doing internal auditing of our tools? And the other thing that's sort of the glue in between, as you were talking about between what industry is doing, what policy is doing, or what folks in the public sector are doing is, you know, we look very much to our public policy counterparts to help us have some guidance on how we should be building our tools, what we should be prioritizing. I wish all of our teams had unlimited resources and unlimited funding and unlimited people to address all of the very, very serious concerns and questions that we have and, you know, rabbit holes we want to go down. Unfortunately, we do not. So, we have to prioritize. So, how do we think about

how to prioritize? Those are the signals that we love to look for, from our regulatory counterparts, our research counterparts, externally. What are the most important and pressing issues to our governments today? What are the most important and pressing questions that they want clarity from, from us? My understanding has been largely that, you know, folks are looking for guidance on how an audit should be conducted, and I wholeheartedly agree. I think there are a lot of regulations and documents being written about what audits that should be conducted. But I have not really seen a standardized approach to how an audit -- of what an audit exactly is, and I have not yet seen it written explicitly into legislation. The closest we have, of course, is the EU regulatory guidelines.

The last thing I'll add here is, and I'm going to take off my data scientist's hat on, and put my political scientist's hat on, and, you know, it's an ask that I have been doing in a lot of different audiences in how we think about governance. Data science and the field of machine learning is built in a very, very different way from a lot of fields and industries, in that, you know, we have always been in a culture of open sharing, open-source, collaborative resources.

So many data scientists I know got their start with Andrew Ng's class on Coursera, which you can do for free. We use tools that you're able to download from the Internet in five minutes, Python and R. We are actually not used to a world in which you have strict guidance and control mechanisms. This isn't necessarily about not wanting to be accountable. It's actually about a complete paradigm and a culture shift. It's one that's needed and one that's necessary, as we professionalize as a field.

But one thing I would like to think about as you think about governance is what are some ways in which we can enable bottom-up governance and collaborative governance? And that's why, this year, at Twitter, we launched the Algorithmic Bias Bounty. What the Bias Bounty did was open source, was take one of our algorithms, our image copying algorithm, and opened it up for public scrutiny. What we created, as our Risk Assessment Team, at Twitter, is the structured rubric by which we would grade submissions, and we opened it up, and we provided cash prizes, and similar to your traditional bug bounty style.

Now, the big reason we did that was to be able to, first of all, get a global perspective in a way that I know I could never staff on my team. There's no way I could get perspectives from 10 different countries and 30 different viable submissions in a week, from my team, alone, as hardworking and

phenomenal as they are. The second thing that's incredibly valuable from that was the rubric we created was very applied and made that bridge between policy to application, and it was a rubric around the concept of representational harm, something that's usually quite nebulous.

What we also ended up doing with the competition is enable folks to use it, and implicitly and explicitly vet it, and tell us if it works or it doesn't work. And then, what we're able to do is, then, take that and utilize that, within Twitter, but, also, it's a free tool for anybody to use. And, you know, in the spirit of how this field tends to grow and build things, what we want to do is make things that are democratized, publicly available, and publicly used because that's really what shifts standards. It's creating new norms and methods of adoption.

There's a reason my team sits as an engineering function, not as a risk and compliance function. I see our goal as building better product. I see machine learning engineers as my counterparts. They're not people I'm trying to govern, but they're not people I'm trying to, you know, slap on the wrist and tell them they're doing things wrong. I'm actually here to make them build -- help them build better product, and that's always been my goal as a data scientist. So, I would love for, you know, this panel, or at least, maybe even beyond this room, for us to have more conversations about what does it mean to get meaningful collaborative conversation from the bottom-up.

MR. KERRY: Rumman, thanks so much. I want to turn to Francesca Rossi to pick up on the role of the private sector and also pick up on a question that's come in from our audience about the role in this space of public-private partnerships. That's something, Francesca, you know something about, from your participation in the EU High-Level Experts Group and in your global role. Could you talk a little bit about how you see the sort of role for multistakeholder cooperation here, both in national development of AI policies and in international collaboration?

MS. ROSSI: Okay. Thanks, Cam. Yeah, so, yes, so, Andrea and I were together in the High-Level Expert Group on AI of the European Commission that delivered, among other things, the European guidelines for trustworthy AI, the ethics guidelines. And that was, for me, a really learning experience. It was a group of 52 people. I think the AI experts were definitely less than 10. And everybody else was from all the other disciplines and stayed representing different categories of people, constituencies, and stakeholders, so, consumer rights, application philosophers, businesspeople,

academics, and many others.

And I have to say that, in many cases, during this discussion that lasted for two years, we really had very intense discussions, I would define, during the meetings. And, definitely, the result was much better after those discussions and definitely was much more agreed by all the stakeholders in the room. And that's what we wanted to achieve, even if, of course, it would have been much easier for the European Commission and also for the group to just have, you know, AI experts only or other -- and there would be much faster and much easier discussions.

So, that was really, again, a learning experience that helped define better, not just the guidelines, but even, Andrea may remember, even the definition of AI or even the discussion about the redlines, whether to have them or not, how to frame them or not, and so on. And so, that multistakeholder approach that then I have used in many other, and IBM has used, in many other contexts, like, for example, within the Partnership on AI that is also another international multistakeholder organization with companies but also a civil society organization, academia, and so on. Also, in our co-partnership with academia, within IBM and MIT, Notre Dame, others, as well as others already mentioned, the Global Partnership on AI, well, you have, in each working group, you have these experts that come from all over the place, and they bring very different expertise to really tackle the issues in the various projects of the Global Partnership on AI.

I see that need for multistakeholder conversation and more, also, in my research hat, as the President-Elect of AAAI. That's the Association for the Worldwide Research of AI Researchers, where you find, really, many different disciplines. I understand that, from the outside, AI may seem like one thing. But, actually, AI is many different disciplines inside, and more and more, the community realizes that you need all of these to talk to each other to really advance AI and its capabilities.

So, overall, I think that the main bottom line here is that these delivery, effective and responsible delivery of AI, raises issues that are sociotechnical. They are not just technical issues. So, they need sociotechnical solutions and approaches to be handled, which means that we need to put people at the center and the environment, as well, and we need technical and non-technical solutions to address those issues. So, you need to educate people, to train them. And with respect to education, it's very important, what was said already, people are not educated to multistakeholder and multidisciplinary

work. And, instead, that would be very, very important. They need to know because it's not the same as working with your peers, people that know your terminology, know what you mean, as working with people where, you know, you -- they don't even understand what you are saying because you are using a terminology that is not their own, so, really, education on multistakeholder and multidisciplinary work.

Also, inside the company, we learned -- I learned a lot of lessons within IBM because we immediately realized, after having stated our high-level principles for trustworthy AI, the main issues and pillars that we want to tackle, but, immediately, we realized that, to go from principles to practice, we needed to employ, internally, a multistakeholder approach.

We have reality sport with all the representation for all the divisions. So, people that usually don't really know each other, but now they need to know each other at the various divisions, can be aware of what each other is doing, in order to really define -- bring effective outcomes in AI ethics, for example. So, it's not enough to give a tool to a developer's team. You also need to make these teams diverse. You also need to give them enough training and methodologies to integrate the tools with the rest of things that they're doing, and so on, so, multistakeholder approach, also, internal to companies. And that can find -- can be challenging, at times, but it can also allow you to learn a lot of lessons, especially in a global company, like IBM and also many others, that have to deal with the fact that there are many cultures that are touched, you know, where this company operates. So, you have to deal with these cultural differences, for example.

So, again, I think that international cooperation, of course, is essential, but it needs to be supported. And one way to support it is to start from within the companies, where these companies need to be educated and know how to tackle the challenges of multistakeholder work and also to support it by facilitating education around the multistakeholder work because people are usually educated in a very vertical way, and rarely they really know how to work across disciplines and with other stakeholders. So, I really welcome -- I mean, I didn't say that, but it's obvious, I really loved the report, and I welcome, you know, future discussion on these various recommendations that the report put forward.

MR. KERRY: Well, Francesca, thank you very much. Thank you for those kind words. I think that's going to have to be a very nice note to end on. One of the challenges of having such a high-level and broad-based group of panelists is you each need to have your do. So, we are coming to the

end of our time. So, I want to thank all of you for being here today and for helping to educate us about international cooperation on AI, today, and over the past 18 months, or two years. So, with that, I will turn this back over to Jessica Brandt to close the proceedings. Thank you again.

MS. ROSSI: Thank you.

MS. BRANDT: Hi, everyone. It is my pleasure to thank everyone who participated today, our panelists and, most importantly, all of you, who submitted questions online and enriched the discussion with your own insights, and in the many ways that you were a part of the conversation. So, thank you. We are delighted that all of this work is part of the Global Forum for Democracy and Technology, which is a Cross-Brookings Initiative. So, we hope that you'll visit our website and that you'll come back for more live events and other such undertakings. So, for now, our thanks.

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