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WEBINAR

WHY THE WORLD IS AT A TURNING POINT
WITH ARTIFICIAL INTELLIGENCE AND WHAT TO DO ABOUT IT

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P R O C E E D I N G S

MS. TURNER LEE: Good afternoon, everybody. I'm so happy that you have joined us this afternoon. I am Dr. Nicole Turner Lee. I am a senior fellow in Governance Studies and the director of the Center for Technology Innovation.

I wanted to also share before we get started the work that I do, which is probably why I'm sitting here today, is on technology, as well as artificial intelligence. At Brookings I work on regulatory legislative issues related to technology policy and I run our AI Bias Initiative. So I'm very excited to be here, given the fact that we at Brookings care about this. In fact, if you missed it we just launched a new podcast on these issues that appears biweekly, with the first issue being on race and tech.

But enough about me. I want to talk about some new housekeeping and then we're going to go right into the conversation. And I'm going to tell you, the pressure is on. I've got two of my bosses on both sides. So if I mess up, I plead the Fifth.

What we are actually going to do today involves you, and so we ask you to do a couple of things. One, if you have questions, please think about those questions and email us at Events@Brookings.edu, or put it on Twitter under #TurningPoint. If you also would like to get into the conversation in some way and, you know, you don't get a chance to ask your questions, obviously please feel free to continue to submit them and we will try to answer them.

I also want to make sure that you know that this a conversation around a new book, "Turning Point", which I actually have here in the backdrop, which I'm really excited to talk about, one, because these two gentlemen I think are at the helm of the type of leadership and scholarship that we actually need right now on this area and, two, if you like what you hear today and you have an interest in AI — I'm going to repeat it at the end — you can purchase the book today by using the link that will be available as part of this webinar for a discounted price.

So, with that being said, I want to welcome to this conversation Mr. John Allen, the President and CEO of the Brookings Institution, as well as a retired U.S. Marine who was known for his distinguished service to the United States. Thank you, John, for being here.

GENERAL ALLEN: Thank you.

MS. TURNER LEE: And I want to welcome Dr. Darrell West, who is the Vice President, as well as — and I guess I can call you boss, a senior fellow in the Center for Technology Innovation.

MR. WEST: Thank you, Nicol.

MS. TURNER LEE: Thank you, Darrell. I want to jump right into this book, because I think we want to have enough time to obviously get to Q&A.

John, let me start with you. Why did you write a book on artificial intelligence? Let's start there.

GENERAL ALLEN: Well, first, let me say to the audience, thank you for coming in this afternoon, thank you for sharing this moment with us. This is an important moment. If you've been tuning into Brookings Events of late, you have seen that we're doing a lot now on artificial intelligence and emerging technology. And let me just reinforce something that Dr. Turner Lee — which Nicol just said a moment ago, something really good happened to Brookings recently, and it was that she became the director of the Center for Technology Innovation. And we all have enormous expectations for where she will take this Center and the great work that she will do. No pressure, Nicol. But this is a great moment for Brookings because the work she's doing on AI bias as a social scientist, and the other work she's doing, is going to be very important, not just to the Institution, not just to the issue of social justice, et cetera, not just to the issue of race, but also how technology intersects with all of those things.

So, Nicol, thank you for assuming the leadership position. We have great confidence in you.

As I think out across what the 21st century is going to be like, I think it's going to be defined by a number of enormously powerful and sometimes overwhelming influences. We're experiencing one right now, which is the rise of a potential pandemic to be followed by others as time goes on. And we have found ourselves not ready in so many ways. And technology could have helped us to be better prepared, not just to anticipate something like a lethal global pandemic, but also to deal with it more quickly, to manage its effects and to mitigate its effects and to bring us to the other side of

this crisis. So these global issues will be things that will be better managed and better understood through technology and artificial intelligence.

I also am deeply concerned — and we spend a lot of time at Brookings on this issue — and that's the issue of climate change. And as climate change continues to evolve around the world and larger portions of the global community and our cultures are affected dramatically by climate change, technology in general, artificial intelligence in particular, emerging technologies are going to play an extraordinarily important role in helping us to adjust ourselves and to adjust the environment in which we live, to be able to be prepared.

So then, finally, with the advent of powerful computing, supercomputing, trending toward quantum computing, with the availability of data in quantities that we could never have imagined just a few years ago, and now with advances in mathematics and the algorithms that can result from that, those three things — data, computing power, and algorithms, give us a capacity for (inaudible) and for machine capabilities and decision making that take on sometimes human-like qualities that we just could not have imagined.

And so as I think about the great influences of the 21st century, I think artificial intelligence may well be one of the most profound shaping influences of the century.

And let me just take a second. Darrell and I thought for a bit about how we would dedicate this book, and it's important. And we dedicated it using the following term: This book is dedicated to our youth, into whose hands we have placed the full potential of AI and other emerging technologies. It is our most fervent prayer that they are guided by the light of good in wielding these technologies for the benefit of all humanity.

And let me make an important point here — and Darrell and I talked about this as we were writing the book, when we say "our youth", this is not just American youth, this is the global youth. And there are young men and women around the world today who don't have access to broadband capabilities to have access to the internet or whose learning will yet to become powerfully oriented for good on humanity. And AI can do this. And technology we've seen before has delivered the world often

into a very difficult moment. And while I don't think AI will deliver us to a moment of utopia, I do think in the wrong hands, used for the wrong purposes, these kinds of technologies can trend us toward dystopia. So into the hands of our youth, the young women and men around the world who want to do to for all of us, into those hands we place the enormous potential of artificial intelligence and emerging technologies. And that's how we began the book, that's how we dedicated our work.

MS. TURNER LEE: Yeah, and that's so powerful. And as you call can (inaudible) I'm going to dig more into it shortly. But I love what you're talking about because I think that's probably part of the title, right, this turning point that we're actually in.

Now, Darrell, I want to start with one less serious question and I want you to dive in. What was it like writing a book with your boss? (Laughter) I'd love to know that.

MR. WEST: Well, thanks, Nicole. Actually it was a terrific experience. I mean with John's military background he obviously knows a tremendous amount about AI in defense, so that really enhanced the book. But he also knows a lot about AI in healthcare, AI in education, AI in transportation, and lots of other aspects of it.

And one of the things that he constantly pushed both of us to do was to think big about AI, to think about the ethical ramifications of AI, the societal consequences, how AI is playing out differently across various racial groups, geographic areas, and income levels. So I think that is a strength of the book. But John also wanted actionable recommendations on how to improve AI. I think at Brookings we focus both on problems and solutions. And so in the book we spent a lot of time coming up with a detailed policy blueprint and also a governance blueprint in terms of who decides. And so I think those qualities make the book pretty unique.

And as John alluded to, I think both of us agree AI is one of the transformative technologies of our time. You know, it's being deployed in sectors from healthcare and education to transportation, E-commerce, and national defense, as well as many other areas. And so we need to understand how it's being used and what its consequences are. And we came up with the title of "Turning Point" to kind of make the larger point that we're at a major inflection point where this technology

could go in a lot of different directions, positive directions as well as negative directions. We think, and we make this argument in the book, the crucial variable in determining that future is going to be public policy. And it's one of the reasons why we kind of discuss AI within a policy context. And we believe that if we take appropriate policy action in the near future, I think we're pretty confident about the future of our society. But if we don't take the right actions, you know, we could go off the rails pretty quickly.

MS. TURNER LEE: So I mean I think what you're talking about is true, right. It's always a balance of innovation. And the part of it that's for public good, what are the positive benefits. You've spoken about healthcare, climate change, which we're going to unpack. But then this possibility of weaponization, right. If it gets into the wrong hands of some actors, whether domestically or internationally, we could actually see it go awry. So I love the fact that you're focusing on youth and you're also focusing on the range of issues.

I want to, before we get into it and this becomes a full out AI.conversation, one of the things I love about the book so far, and some of the things that you've already put out there in terms of the glossary, is that you're also trying to make IA palatable, right. And it's something that is an appetite for the general public versus those of us who tend to be very wonky in our conversations.

John, was there any reason why you thought it was really helpful to sort of lay out this practicality around AI and be real clear so that it could be absorbed by everyday people?

GENERAL ALLEN: Yes, thank you.

Because it will become so widespread across so many different sectors of society, because it will define so much of our economic progress, even in the aftermath, and in support of actually the recovery from the pandemic, and because it will just simply touch (inaudible).

MS. TURNER LEE: Do you want to pick up, Darrell?

MR. WEST: I think we may have lost John there, so if Nicole could — John, are you back now?

GENERAL ALLEN: I think I am. Can you hear me all right?

MR. WEST: Yeah, we can hear you now. So why don't you continue.

MS. TURNER LEE: Can hear you now. Yeah.

GENERAL ALLEN: Great. Thank you. Sorry.

You know, because artificial intelligence will touch so many sectors across the human experience, we wanted to have a product that almost anyone could consult to get a sense of how AI will touch transportation, and how AI will touch healthcare, how AI can shape education. There's a point to touch us all and in almost every direction by the middle of this century, in almost every direction we turn. In many countries of the world — probably most of the countries of the world — there will be some dimension of artificial intelligence that will be shaping and influencing that person's life.

MS. TURNER LEE: That's right.

GENERAL ALLEN: (Inaudible) have a broad-based presentation of this science. And you mentioned the glossary. The glossary is very important because, boy, you can get your head completely wrapped around lots of different definitions and get lost in them. We wanted to put several pages worth of definitions — machine learning, natural language processing, artificial intelligence, virtual reality — we wanted to get all those out there so that as you work your way through the treatments of these various — very often these various sectors, you have something to refer to. So we wanted this to be a book for people who are going to experience the effects of AI, who have to start to think about it now, and to provide them the basis within this book for them to begin to make judgments about how they can play in the larger game of artificial intelligence over time.

MS. TURNER LEE: And I think that's so important. In the work that I do (inaudible) like they confuse or conflate the two concepts of, you know, machine learning versus AI. So that's very helpful for people who are listening. I think that glossary will sort of present the guide path for some common language.

I want to now go in and unpack, because we've got to talk about. I want to unpack the healthcare aspect of it, Darrell. I want you to sort of talk about — you know, in the book you make a specific case for healthcare and the use of AI. I would love to hear some more feedback on why that is the case. And then, John, I'm going to go to another use case for yourself, because I think that's here

people sort of get tripped up when they start talking about the future of artificial intelligence.

MR. WEST: Yeah. What we do in the book is we have detailed case studies of healthcare, education, and transportation, E-commerce, and national defense. And what we try and do is just explain how it's being used, what the opportunities are, what's the risk, and how we address the problem. So as you mentioned, healthcare is a big area for AI application. And now that we're in the middle of the Covid pandemic it's becoming an even more important — some of the COVID researchers actually are using AI to scan the scientific literature to try and come up with new chemical compounds that could form either a new drug or a new vaccine. It turns out AI is very fast and very efficient at reading the literature and looking for relationships like that. So it's very helpful there.

The data analytics part has been very important in tracking the Covid spread just in terms of kind of showing both the incidents of the disease, the number of fatalities, but also how it varies geographically, how it's affecting different racial groups. So we're seeing a lot of good uses of these technologies. But at the same time in our chapter on healthcare, we mentioned that there are some risk factors as well. We know that there are biases that are quite prevalent in the healthcare area. Certainly Covid has revealed how dramatic access to healthcare varies by race, by income levels, and sometimes by geography. So as we're developing AI, we need to be aware of those biases, we need to be aware that the data that go into AI can be incomplete or unrepresentative and therefore create a lot of problems.

So we think that there are great opportunities for AI deployment in healthcare, but we have to be quite cognizant of the possible biases and the possible problems that we already can see.

MR. TURNER LEE: All right. John, do you want to add on to that in terms of the biases that we're seeing today into these models?

GENERAL ALLEN: Well, I do. And you've actually done a great deal of work on this, Nicol, already. And this is the issue of AI and bias. And as we have learned, obviously tragically, from this pandemic, communities of color have been disproportionately savaged not just by the disease, but by in many respects a societal incapacity to support them and to take care of them. And as we think about where they reside, the broad state of their healthcare, the broad state of their own physiology in the

context of how well they are, access to food, nutrition, now all of this can feed into algorithms that can help us to level the playing field so that communities of color are not disproportionately disadvantaged, not just because the disease is falling on them in a way that is out of proportion to their population — I mean the enormity of the numbers of people of color who are sick and dying from this disease is a disgrace. And AI can help us to level the playing field in terms of our consideration for how we take care of those communities. And the algorithmic outcomes, the way we think about this — one of the great things about AI is you sometimes get answers to questions that you didn't know to ask. The result of big data analytics supported by artificial intelligence. And it is revealing spot gaps in our capacity to take care of our communities of color that we would have not have seen otherwise. And we should be exploiting this every possible way we can. This is a critical outcome right now where AI can make not just a difference in overall societal handling of this pandemic, but also in how we come out of it in being more quickly — recognizing the disadvantages that our communities of color are facing every single day in their own healthcare environment. This is something that we should be absolutely pinpointing as we come out of this pandemic.

MS. TURNER LEE: Well, and I think that's such a great point. And Darrell, I'll have you or John to jump in — I want to stay on this equity — this is like a concern of equity, right? It's sort of like it's equitable AI, it has a lot to do with whether or not it will be a solution or will essentially contribute to the amplification of both biases that you discussed.

I mean, Darrell, when you look at education, right, we're having the same type of situation in terms of the lack of equity among communities of color, but then also there were a lot of special needs kids that did not get the necessary access to the right learning materials. What are the opportunities — as John has sort of pointed out with healthcare — the same opportunities that we may see in education?

MR. WEST: Well, certainly during this pandemic we have seen most schools have to rely on virtual education and on line education. And that clearly is not as good as the in person experience, but it allowed people to kind of continue to learn while we address the healthcare crisis. AI offers the potential to personalize learning. We know that students come from lots of different backgrounds, they

have different learning styles. Some people pick things up more rapidly than others. And so a personalized education is where we need to get to in the future so that the technology can allow students to learn at their own pace and in their own way. I think special needs kids will be especially advantaged by this.

But during Covid we've also seen a lot of inequities in terms of access. There are 15-20 percent of Americans that don't have home internet access, there are many more that have access, but it's slow access, so they can't stream the latest educational resources online. I mean you have visited communities as part of your work on digital access and found that there are big disparities in different parts of towns, in terms of the access to broadband. That has huge ramifications for education.

So Covid has certainly accelerated many different technology trends. You know, now moving to on line education, telemedicine, E-commerce, and remote work, but there are a lot of inequities in that advance and we need to address those inequities because our goal has to be to build an inclusive economy in which all can gain the benefits of this technology revolution.

MS. TURNER LEE: Well, no, I love that. I mean part of what we've done under your leadership, John, has actually been talking about these things, right, and the book actually encapsulates I think where this turning point is. I'm actually thinking now why the title is the title. You've had this inflection point in society, now you have a turning point in technology, but its ability to serve the masses or its ability to disadvantage the masses. And I think we have to figure out what side of history, right, we want to actually be on.

But I would be remiss — because I do want to speak about this from the standpoint of authoritarian states — how do we look at this from the prospective autonomous vehicle? Typically, when we think about AI we think about autonomous vehicles or connected cars. I'd love for one of you to sort of chime in on where is the AI application and the turning point there. Because, if you remember, Darrell, we started talking about this years ago, this was probably the major use case. And nowadays it's actually been complemented by the range of use cases that the both of you have shared.

GENERAL ALLEN: Darrell, can I come in first before you hit education? Or hit

transportation?

MS. TURNER LEE: Yes.

GENERAL ALLEN: Autonomous vehicles. Let me just follow up on something Darrell said. The front line workers in so many ways — both our healthcare workers, healthcare professionals, and our front line workers, are in many ways holding this country together right now. And they're unsung heroes. And, by god, we should come out of this and never forget what they've done for us. So the greatest heroes right now are our teachers. And as you've seen, so many of these teachers have had mixed opinions about whether we have reopened too quickly. And for those of you who are viewing today, Brookings did an enormous study at the beginning of the pandemic on reopening strategies. And it's online, you can find it on our site. Education was one of them. We've all been driven online by virtue of what we're doing here today. We've all been driven online. And so education, not just in this environment, but education in an AI environment is a great emphasis on learning, perhaps more so than the traditional about teaching.

And so as we move forward in an AI driven educational environment, we just ensure that we don't leave the teachers behind. That their education programs in — their education programs in the schools that they're in begin the process. We begin to embrace within education artificial intelligence as a matter our routine and distance learning as a matter of routine because we're going to be doing this a long time. We've got to make sure we take care of the teachers, both in the preparation and also take care of them in the context of the classroom environment, which is very different now. When we begin to add virtual reality and augmented reality to the classroom environment, I think learning will take a turn that we could never have imagined.

So I just wanted to add that before Darrell started to talk about autonomous vehicles.

Thank you.

MR. WEST: Yeah, I agree with John on the importance of technology in education. And certainly we're seeing that play out right now.

And, Nicol, you asked about the transportation area. You know, the funny thing is a few

years ago everybody thought autonomous vehicles were going to be the place where the technology innovation really accelerated. In fact, there were predictions that by 2020 we would actually be seeing a lot of autonomous vehicles start to be on the road in major cities. But I have to say, that part of the revolution has slowed down. We've not seen the acceleration that we expected there. Autonomous vehicles are all about the AI because it's the software in those autonomous vehicles that integrates the LiDAR information coming from the RADAR on top of the vehicle — there are cameras scattered all around the vehicle — you need software that integrates all that information instantly and keeps the car in your lane as opposed to the lane next to you.

So certainly there are going to be big applications there.

I don't think autonomous vehicles are going to be hitting the consumer market in the immediate future, meaning the next few years. But we do expect to see autonomous vehicles start to roll out in the ride sharing area. Both Uber and Lyft are both quite interested in these autonomous vehicles. Autonomous vehicles are going to come into the taxi area, the truck driving business. Certainly the long distance truck driving business is an area where the business model of autonomous vehicles really fits. So we expect that part of the revolution to continue, albeit at a slower pace, but it's probably going to be in some of these specialty markets where we see autonomous vehicles first start to become more prevalent.

MS. TURNER LEE: Thank you.

GENERAL ALLEN: As you can imagine, there will be spin off effects as well that will touch other sectors. The infrastructure of building the transportation infrastructure itself. I mean the infrastructural consideration with respect to sensors, as Darrell said, but also the insurance industry. When you think about vehicle insurance, automobile insurance, as vehicles become more autonomous, we're going to find that they'll be quite safe. What are the implications for the insurance industry of the autonomous vehicle becoming widely found on American highways and then eventually preeminent on American highways? It's a very interesting consideration with respect to how it affects other aspects of the economy.

MS. TURNER LEE: Mm-hmm. And when you both think about this — before I go into the international contacts — are there certain things that regulators or policy makers should be thinking about with regards to these verticals that we just mentioned — education, healthcare, autonomous vehicles? Are there are some harmonized principles, I guess, that we should be paying attention to that we talk about in the book? Before I go deep, deep, deep into your policy recommendations.

MR. WEST: I mean there are a number of issues that cut across these verticals. So certainly the bias question, the lack of equity in terms of digital access, to telemedicine, to on line learning, to other new applications. Those are important considerations.

The issue of privacy certainly cuts across each of these areas. Congress has been debating the possibility of a national privacy law, but we don't have one right now. That's an area where Congress needs to move. So I think there are several policy areas where if we clarify the situation and create some more guard rails, it's going to improve our ability to innovate. So it's one of the reasons why in the book we focus both on the policy side as well as on the governance side, because there's things government needs to do in order to make sure we get the benefits of the technology. And if they're not acting, it's actually going to slow down the rate of technology innovation.

MS. TURNER LEE: John, did you want to add on there before we go into —

GENERAL ALLEN: I think that one of the important points to make — and Darrell I think masterfully wove it throughout the chapters of the book — and it goes back to our dedication — we want AI to serve the good. And so for us in a western democracy, we're just a democracy writ large for which human rights, social justice is important, the rule of law is important. AI needs to serve those interests, not the other way around.

And so AI has to be understandable, AI has to be transparent, AI has to be safe, AI ha to be subject to regulation. And it can't be the other way around. And what we're seeing is that in some places it is the other way around. AI, to the credit of this administration, which just published the 10 principles for artificial intelligence, and they're not dissimilar from the same principles that we would want to see in the EU, for example, or our allies and friends overseas, I think that there is, among the

communities of democracies, a real commitment to artificial intelligence. But AI for good. And relating it as is necessary to ensure that it is, as I said, safe, understandable, transparent.

MS. TURNER LEE: You know, I think that that is such an important concept. I just did a workshop for NIST, and Darrell and I will be doing something with NIST in the next couple of weeks around this question of governance.

I want to move now across the seas. And I want to talk a little bit about — and, John, I want to throw this into your corner because there is often times this correlation between AI and war and AI and weaponization. And we know in terms of — I did something recently with Wired Magazine where we talked about the AI arms race, that there's a possibility for one country to get ahead of the other and use that not for the common good, not for the public good.

Can you speak a little bit how you frame this in the book? And, you know, when you think about the revolutionary technologies that we're actually dealing with, what should we be — I don't want to use the words "afraid of" because there's a lot we're afraid of right now, but what should we be thinking about when we start to think about this correlation between AI and its use in war?

GENERAL ALLEN: That's a very complex subject, Nicol, and I want to thank you for asking.

There's a couple of points that I'll make. One is that we're already integrating in many ways artificial intelligence into many of the legacy systems that exist in our military and that we're working — the United States as a member of NATO is working closely with our NATO partners in that regard as well. So in the context of systems that we have, we're going to make efforts to integrate artificial intelligence.

But as we consider new weapons systems as time goes on, as we consider new systems, we will want to think about integrating these advanced technologies in those systems as well. I'll make that first point.

The second point is often when we talk about artificial intelligence in the context of national security or how artificial intelligence participates in conflict or war, you immediately sort of veer off

into the conversation about the terminator, you know, killer robot. It can come to that, but what I want to make sure our viewing audience understands is that artificial intelligence has an enormous capacity within our militaries, not just the U.S. military, those of our NATO partners and those of our allies around the world, to increase the efficiency of those services and to increase the safety and effectiveness of the forces as well. This is before you consider whether AI can be involved at all in lethal outcomes.

So, for example, the enormity of the intelligence problem that we face on any given day can be not simplified, nothing is ever simplified, but the friction associated with the human involvement in intelligence analysis can be simplified, can be accelerated through artificial intelligence. Artificial intelligence can play a role in decision support, in helping commanders to get to a point where they have courses of action where a commander can make a decision much more quickly than possibly before. And let me just say that there is a theory of war that is beginning to find a lot of traction or a lot of purchase, and it's called hyperwar. And when you study conflict in any detail, what you learn pretty quickly from time in memorial is that the side that moves more quickly, the side that can decide more quickly, can communicate that decision in a comprehensive and rapid way to the subordinate units, and then can execute more quickly, communicate, execute, that side will typically prevail. It just does. Speed is very important in warfare and artificial intelligence can move us through the decision-making loop, the decision making cycle far more quickly. It's sometimes called the OODA loop, the observe, orient, decide, and act loop. And the side that can compress that process more quickly is often going to be a side that has a decided advantage.

Inherent in the idea of hyperwar is not just that technology can provide an enhancement, an acceleration of your capacity to move through that loop, but it's also going to require that we think about the human role as well. You know, Clausewitz talked about character of war, which is inherently involving the technology of war and the nature of war, which inherently relates to the human component of warfare. And the challenge that we face today, and the challenge that we have always faced throughout history, has been when the technology of war gets out of sync with the human capacity to understand the extent of the technology and how it can be wielded out of equilibrium. When you're out of

equilibrium, that's often an enormous strategic vulnerability. And we've seen this before in our own history. And I won't go through it today. I'd love to through it at some point. But we have seen when countries and states get their technology, their character out of sync with their nature, strategic surprise will sometimes occur.

The challenge is that technology isn't just changing, the rate of change of technology is so fast it's almost mind boggling. But we have to have processes for the selection of our leaders, capacity to educate them, to train them, to give them a command experience so that the speed of technology and the technology that we adapt can be understandable and can be employed in a constructive way in the battle space.

MS. TURNER LEE: Okay.

GENERAL ALLEN: That's an awful lot that I could unpack for a couple of hours.

MS. TURNER LEE: Well, no, I —

GENERAL ALLEN: Let me just say that the one big challenge that we face right now — and it's an ethical challenge that I think people who are tuned into this webinar will be pleased to hear, that the United States and our allies in NATO and within the community of democracy, one of the great challenges we have is the ethical problem of lethal autonomous weapons systems. Are we prepared ultimately to give the final decision to take a human life or to destroy critical infrastructure to a system that is governed by a mathematic algorithm? We've not decided that because we believe we are a nation of laws and the law of armed conflict requires that commanders must understand the necessity for force, commanders must understand how they can sort out enemy combatants from innocents on the battlefield, and third, how to use force just enough in proportionality to accomplish the mission. We are nowhere near an algorithm that can do that.

MS. TURNER LEE: Oh, no.

GENERAL ALLEN: Until we do, we face having a human in the process of decision making for the application of lethality that many of our opponents frankly aren't going to take the time to worry about.

MS. TURNER LEE: That's right.

GENERAL ALLEN: As I said, speed in warfare is the key. We have to deal with the issue of ensuring that we're true to our best principles, principles of humanity, principles of proportionality, principles of caring for the innocent while we wage war against the enemy. And that's a real challenge today that we are facing in the context of AI in the business of warfare.

MS. TURNER LEE: Thank you. You know, I want to just do a couple of things. One, I want to remind people if you have questions please, please, please send them to Events@Brookings.edu or tweet them on TurningPoint, which is the hashtag for Twitter.

I want to read this, John, and then I want to turn over to Darrell. You write in the book, both of you, that it will continue to be the human element that decides the character of war, yet as human control is diminished, the nature of war may for the first time also change. And I want to read that because I want people to know — and you've got to buy the book too, right. You're getting the conversation, but it's important to buy the book, which is also here on my shelf, but it's also going to be on the link.

I would love for you, as we sort of wrap up this part of the conversation, to talk a little bit about this deployment of human control from democracies versus authoritarian governments. Because I think what we have actually seen — you know, when we think about China, for example, and we think about the use of surveillance technology and this professed race to AI, someone called it — the other day I was on a panel — the new Cold War. I would love to hear from you, and then we'll go into some of these action items that you have for policy, you know, just where you think the line should be drawn so that we don't have this blurring between our democracy versus authoritarian governments.

GENERAL ALLEN: Well, I'll touch on it for a bit and then I'll turn it over to Darrell.

We value, again, our human rights, we value our privacy in a way that is natural for a constitutional democracy. It's very important to us and we're committed to it. And while we may on any given day not be particularly happy with what's going on around us, we're still committed to this. The Constitution still reigns supreme. That's not the case in many places in the world. And some of those —

and I'll just talk about China. The Chinese environment today involves a level of intrusiveness and surveillance that is far, far in excess of anything we would ever tolerate in our society. We've seen it play out in Xinjiang Province and with the Uyghurs. And the organized Chinese surveillance of the Uyghur election and ultimately the mass incarceration of the Uyghur population. And it's a challenge not just in China, but it's a challenge beyond that because as China and other states who are not as similarly committed to privacy and humanity as we are in their authoritarian environments, as states engage in working with nations in the developing world, they're exporting the tons of technology into the developing world and empowering regimes in the developing world where, once again, humanitarian considerations and the rule of law doesn't appear in any of their day to day decision making.

And so in some respects cold war gives you a sense that there's a competition. It's not really an accurate term, but there is certainly a technological competition that is emerging. And while we may not end up in a cold war with the Chinese, because the Cold War with the Soviets was all about a geopolitical standoff backed up by massive thermonuclear existential challenges.

I do believe that technology will be the platform upon which geopolitics will in many respects be (inaudible) in the competition between the United States and the community of democracies in the 21st century.

MS. TURNER LEE: Darrell, did you want to jump in there?

MR. WEST: Yeah, Nicol, I just have one quick footnote to what John said. I think, you know, one of the strong points of the book is John put a lot of effort into thinking about the geopolitical context of AI, how this issue is playing out internationally, kind of the big power rivalries that were seeing.

The things that I'm paying attention to is, one, how Europe responds and how the developing world responds because I think in a lot of respects in this battle between Russia, the United States, and China, Europe is a huge player. Right now Europe is divided. Like some European countries, especially in Eastern Europe, seem to be leaning a little more towards China. The western European countries still are leaning in our direction, but they have trade relations both with China and Russia. And the developing world also is going to be very crucial. And here the current Administration

has really dropped the ball and given China a major opportunity to basically build bridges and build infrastructure in the developing world.

So I think those are key things to think about in terms of how AI is going to play out, in terms of the geopolitical situation.

MS. TURNER LEE: I mean I think you're so right on that, Darrell, in terms of just — and, John, I think this conversation gets its fair share of time when we talk about AI, but it has implications I think worldwide. And I think the way that we look at these value and principles, and if we're normalizing them across countries, it actually helps us to build a better framework that allows us to, you know, sort of not necessarily reduce or eliminate the type of pressures that we have geopolitically, but at least have an understanding of where we should deploy AI in these worst case scenarios and where we shouldn't. I think that's the governance side that we still need to have a conversation on. I'm really glad that the book looks at that, because that's not often within the same document. It's usually a series of different papers that address these things.

GENERAL ALLEN: Let me come in if I may, Nicol.

And if I cut you off on this question, I don't mean to.

MS. TURNER LEE: Oh, no, you're fine. Look, you're my boss. You can say whatever you want. (Laughing)

GENERAL ALLEN: You'll be sorry.

We have a couple of scholars at Brookings, and a lot of folks are writing on this at Brookings, but Cam Kerry and Josh Meltzer have done really good work for us and the United States in conjunction with finding a way forward with the European Union on artificial intelligence. And they make some very interesting points. You can go to our site, again. They've published some very good work on this issue. And I think one of the key points that we have — we've come back to it several times and we've talked about this — how we use AI is not about the technology, how we use AI is about our values. It says more about who we are in our employment of AI than the technology. And when you read Josh and Cam's work, but when you talk about the U.S.-EU movement forward, the transatlantic relationship

as it relates to AI, one of the most important aspects of it is that with our EU partners, we share a level of commitment to human rights and values that we all recognize and understand like we don't with many other countries in the world. The community of democracies, which is bigger than the west — we do share common democratic and humanitarian values with south Korea and Japan and Taiwan and Australia and Singapore and India — we certainly do share those, but having a U.S.-EU understanding about artificial intelligence, based first and foremost upon value, then about fostering innovation, talking about a regulatory environment that both countries can use to bridge any differences they have, and then about AI standards with respect to data. Those are really important. That's really important work. And Josh and Cam have done great work in moving that forward. Because AI isn't just about the United States.

MS. TURNER LEE: That's right.

GENERAL ALLEN: It isn't just about China. It's about the broad global approach. And our shared values with the EU is the perfect platform for us to move forward in the innovation, the regulation, and the standardization of AI in case that can in many ways create a competitiveness that makes us the preferred outcome, not the Chinese model.

MS. TURNER LEE: That's right. So listen, we're getting a lot of questions on Twitter, so thank you. Keep your questions coming from the audience? I wish we had even more time, but so that I don't keep us late and I am not that person that takes this off course from our audience questions, I wanted to just flip it over to Darrell for a second.

So, in the book you give a series of proposals and recommendations. As you mentioned earlier in the conversation, actionable recommendations. I'd love for you to point out a few of those recommendations that combine I think what's been throughout this conversation the ethical nature of AI, the transparency around that AI, and potentially the global governance around AI.

So why don't you have at it and tell us how do you take us to the end of this book, so we know what to expect.

MR. WEST: So I'll just pull out a few ideas and refer people to the book for more details.

But we have a whole chapter on ways to build ethical AI and incorporate ethical considerations. So that involves hiring ethicists, having organizations develop AI ethics codes, and then figuring out how to operationalize the broad concepts of anti bias, transparency, protecting human safety, and so on. We suggest organizations develop AI review boards so that they can look at their product development and their product deployment before the products actually hit the markets so they can anticipate particular problems and then mitigate them before they are widely adopted.

We have a number of policy ideas. One is developing what we call AI impact statements. So 50 years ago America adopted environmental impact statements, kind of recognizing that developments would have environmental consequences. And so we basically take that same idea and say for publicly financed AI that affects large numbers of people, like millions of people, that organizations should think about the ramifications for society and the ethical consequences of the AI deployment and talk about how they might be able to mitigate some of those issues.

On the bias question, which is a huge issue, we talk about using the current anti bias and anti-discrimination rules that have been developed for brick and mortar organizations, bringing those rules into the digital economy so that Airbnb has issues or there are internet platforms that have problems, there are ways to remedy those issues.

We say in terms of the U.S. government, it's time to bring back the office of technology assessment, which Newt Gingrich killed in 1995 at the very time the internet was developing. Like if there was ever a time where we needed advice on how to deal with technology, it's been the last 25 years and we didn't have this office. It's time to bring that back.

So those are just a few ideas. You know, we talk about addressing digital inequities and a number of other aspects, but that would give you a little bit of a flavor of some of the ideas we propose in the book.

MS. TURNER LEE: And John?

GENERAL ALLEN: You've done such good work on this, Nicol, in the context of the digital divide, and I want to thank you for that because there is a great digital divide in this country. Those

who are empowered and thus enfranchised because they have access to the digital environment versus those who are not powered through broadband access and technology, et cetera. That's got to be a major priority for the next administration.

But, Darrell, could I ask you to touch on something? Of late, of course, in the aftermath of the tragic death of George Floyd, there has been so much conversation about mass incarceration and social injustice. Can you talk a bit about how AI can get at that too in the context of the judicial process and judiciary?

MR. WEST: Yeah. This is an area that is a problem. Some of the AI applications in the criminal justice and law enforcement areas in particular. There are some cities that have used what they call predictive analytics to try and anticipate who might reoffend, previous offenders who are at risk of reoffending, or they're also using it to target law enforcement resources on particular neighborhoods. But the problem is, you know, there are so many racial biases in our criminal justice system, these predictive analytic models are based on bias data and therefore are yielding a biased prediction.

So that's the type of thing we need to mitigate, we need to pay attention to, we need to make sure that the AI doesn't either reinforce or even make worse some of the existing biases that we see in society as a whole.

MS. TURNER LEE: So you guys have been pushed me there thanks to the great investment of Brookings in terms of our scholars here, like myself, these are issues that we actually care about. And if you go to the Brookings web page there are a series of papers that have been published on this. If you push the button of AI, we've actually talked about that, right, because as I always tell people, computers do not start out discriminatory. People bring their values, assumptions, and whatever else they're carrying in to the programming process and we have to figure out a way — and I think it sort of summates what both of you have said in this book — to figure out how technology does not become the next lever for discrimination, particularly (inaudible).

We have a huge problem with that. And I think in the George Floyd protests we saw AI in ways used to surveil communities, particularly protesters. We have to be really, really careful about that,

even with the risk assessments in which we employ. So I love the fact that this book takes that into

consideration because, unlike years prior — I'm not going to say I've been in this as long as you both

have, because I'm a little younger, you know, (laughter) but what I would say is for the last 25 years that

I've been working in this space we have not had a serious conversation around these externalities. And

as we talked about in the last podcast, Tom Wheeler referred to it as he sat with my colleague and

myself, the sociological implications of technology.

GENERAL ALLEN: (Inaudible).

MS. TURNER LEE: And that's what you're really hitting on in the book.

Okay, I want to get to some questions because I obviously want to make sure that people

get their questions to these great authors of this great work.

So I want to start with this question from Rod. And either one of you can actually handle

them. We've got a whole lot of questions and I'm going to try to get through as many as possible. Rod

asks how can AI be prevented from becoming an instrument for evil if all forces do not agree to "public

policy". So how do we actually get it where we don't have a consensus? And I think, John, you sort of

touched on this, you know how can we ensure that it's not going to become an instrument for evil?

GENERAL ALLEN: Well, I've given a number of talks in the United States, as well as

around the world, this is a thing that people are worried about. They're worried about the loss of human

control over the technology. And, of course, you know, that's the message Hollywood has been giving us

for years, you know, the Terminator image, the rogue robots that enslave humanity. Like people really

worry about it.

Our book is actually optimistic in that sense because we argue that humans are still in

charge of the technology, that when you look historically at new technologies, there always are problems

and the way that we deal with those problems is through policies, laws, and regulations. Now, for the last

30 years we've had a pretty Libertarian stance on the technology sector, but there now is a growing tech

lash, a back lash against technology, both at the public level in terms of public worries about various

types of problems that are emanating from technology, but also at the state and local government level.

We see California passing a major privacy law, there are cities that are regulating Airbnb rentals, there are some communities that already have banned the use of facial recognition technology.

So the key thing to watch is the 2020 election is going to be crucial because we're used to at the national level the narrative being congressional gridlock and Congress not doing anything. There's a chance 2021 may actually break that gridlock. If we end up with a Democratic president, a Democratic House, and a Democratic Senate, there are going to be things that move. I think there will be a national privacy law, there could be a reform in terms of competition policy, there could be anti bias legislation that's enacted in the technology space. So the way that we gain human control and avoid these evil consequences is the way that we've always dealt with technology, through laws, policies, and regulations.

GENERAL ALLEN: Let me come in behind this as well. You know, we will not only talk to ourselves, we will not just confine the conversation about refining the effects of AI to good by talking within the community of democracies. We're going to have to have conversations with systems of other government, you know, the authoritarian states. We need to have a conversation with the Chinese. Sadly, the relationship now is really out of kilter, but I can envisage a day when we and the Chinese, and potentially we and the Russians and we and others, could sit down and have a conversation about AI and how we will voluntarily limit AI in the context in the use of chemical weapons or in agreements that look like the arms control agreements that we've had in the past where we can — even though we don't share the same values and even though we don't share the same systems of government, we have as a nation and the community of democracies have a history of being able to come to terms with states with very different value systems and very different systems of government, to come to terms with agreements that can in fact limit the negative effects of AI. We're behind on the power curve on that conversation right now.

You know, I just read something about the S-70 Russian high performance drone called the Hunter, which is a potential wingman for a high performance fifth and six generation aircraft, can carry 13,000 pounds of ordnance. That's a lot of capability in an artificially intelligent drone. We're not doing

that.

So I think we've got a lot of work to do to try to come to grips with how we can work with states that don't share our values, don't share our system of government, but we have got to begin to have some kind of a conversation about how we will voluntarily restrain and constrain the capabilities of artificial intelligence.

So whoever asked that question, it's a really good question.

MS. TURNER LEE: It's a good question.

GENERAL ALLEN: Of much of what we're thinking about these days.

MS. TURNER LEE: That's right. And you just talked (inaudible) with that example.

This is another really good question. Do you see the tension between the regulation of AI for pro social or ethical versus competitive purposes? So is there a tension between regulation of AI for pro social, ethical versus competitive — like economic and military purposes — and, if so, how do we navigate that tension both on the national and international levels?

Thank you, Daniel, for that question. I think it came from Twitter.

GENERAL ALLEN: Darrell, I'll let you start with it.

MR. WEST: I'm not sure I fully understand exactly what he's getting at, but if the question is getting at the tension between regulations that might stifle American innovation and therefore create problems for us internationally because other countries are racing head unconstrained by certain policies and certain regulations, and is that going to put the United States at a disadvantage. And that is something that we have to worry about.

But I think the way out of that dilemma is exactly what John just talked about, negotiated settlements. Like, you know, in the past when the world has basically said like we don't want to use chemical weapons, we've had treaties and international agreements where people voluntarily agreed not to do certain things. So I think that there certainly is some tension between domestic regulations and kind of the international situation, but we have to figure out ways to do well on both of those fronts. Like we need domestic AI that serves our human values and we need to remain competitive internationally, both

economically as well as militarily.

GENERAL ALLEN: And that's at the heart of much of what Cam Kerry and Josh Meltzer and their colleagues in the EU are talking about. We share similar values, we're different systems, but we can find a way both to regulate and permit innovation and competitiveness to occur. But you've got to work it all the time. You just can't take one crack at it and let it go because — pretty quickly. Technology changing as fast as it is, you can find yourself self-limited in your capacity to innovate by a regulatory process that strangles the capacity, both for innovation and investment.

MS. TURNER LEE: That's right. Well, I'm going to give you guys both the last 30 seconds. And thank you, everybody, for submitting questions.

I mean I want to end with, John, what you said, and again I'm going to grab the book — you can't see it — "Turning Point", right. There will be a link at the end of this webinar for you to actually purchase the book at a discounted rate. I think it's really significant that you get out and get this book.

As we wrap up this webinar, will policy ever catch up to AI?

MR. WEST: Yes is my short answer. Because it always has. You know, it is certainly the case that the technology innovation now is way ahead of the policy as well as the governance, but I believe we are about to enter a new era where that gap is going to get reduced. You know, we just had these major hearings with the tech company CEOs, there was a lot of criticism from both Republicans and Democrats about the technology sector. Now, they weren't always criticizing the same thing, but I think we're reaching a point where even the tech CEOs are now starting to call for regulation.

And so I think the challenge that we face going forward is how to come up with regulation that preserves innovation while still protecting the human values that we all care about.

MS. TURNER LEE: John Allen?

GENERAL ALLEN: And there has been a latency — as Darrell said — historically there has been a latency of policy following technology. And it was sort of a natural event. Today we actually know we can't afford to have that latency and we've got to shorten the timeframe between the technology and the regulatory body that both governs it, but also provides for its continuous innovation.

MS. TURNER LEE: Well, I want to thank both of you. I mean, one, I am always excited about the level of scholarship that comes out of Brookings. And the fact that, John, you had the time to even write a book, you know, with all the stuff that you do. I think the contribution that both you and Darrell make use of this debate is very timely. These issues are not going off the table.

And I want to remind people again to purchase the book because I think in this conversation we talked about the variety of use cases, the way this shows up in international and national contexts, and the challenges that are going to continue to pervade this space as we look at the ethical responsible deployment of AI.

Be sure to get the book and know that Brookings is working on this stuff in our capacity. We've got information available up on our website if you click AI. We're constantly having conversations about this because we feel that this is very, very important.

With that being said, I'm not going to put out a shameless plug because I'm so embarrassed that my book is not out yet. But hopefully one of you will interview me when that book comes out because we at Brookings continue to do this type of work to ensure that we get to evidence based policy making.

Thank you again to both of you that actually participated.

GENERAL ALLEN: Thank you, Nicol.

MS. TURNER LEE: And, again —

MR. WEST: Thank you.

MS. TURNER LEE: — the book, it's called "Turning Point" and it's available at the end of this webinar for a 25 percent discount as well as on Amazon web bookstores.

Thank you very much.

GENERAL ALLEN: Thank you very much, Nicol. Well done.

MR. WEST: Thank you.

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