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AI FOR GOOD GLOBAL SUMMIT
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AI FOR PROSPERITY
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>> MODERATOR: Hello. We're going to get started. So, I'm going to be leading this breakthrough session on AI and Prosperity. I guess you can take my seat.

So, the format that we've been discussing is instead of having short talks like you've seen in other breakthrough sessions, I'd like each of the panel members to make a very, very brief pitch. Really, two minutes, and after each of them, I'm going to open up the floor for interventions, questions, and we can go through all of the panel members.

And in the second part of our time here, we'll be trying to converge to a set of guidelines that are incomplete that we would like to propose. Something that Sean here will be in charge of explaining just after this session, so there won't be much time to think more.

One thing that I think is really important in light of all of discussions that have already taken place at this summit is to try to stay very concrete because we can say a lot of, you know, nice things and what could happen in the very far feature, and maybe this is important to guide our decisions now. But let's think about what we could do now to push things in the right direction.

And so on this, I'm going to start -- where is my sheet? Maybe you're sitting on it?

>> You picked it up.

>> MODERATOR: Yeah. You're right. I did. Here. So Lynn, Lynn Parker, is going to be our first speaker. Can you go

ahead with some of the things you had introduced in our suggestions?

>> LYNNE PARKER: Is it on? Yes. Awesome. Thank you. So, this session on AI for Prosperity, I think, gives a little bit of pause as to exactly what that means, particularly, when you look at the main charter of this summit which is about solving global grand challenges about poverty and hunger and education and those sorts of things.

But one of the experiences that I want to draw from in suggesting something is from my work at the National Science Foundation for the last couple of years. I did a lot of interagency work, and the various missions -- the mission of the agencies of the Federal Government in the U.S. are very different and they can see AI technology out there, but they don't know how to apply it to their mission, and so they don't have the in-house expertise.

And so from that, I'm taking the analogy to the developing world and saying, there may be many nations that see AI out there. They see ways that AI they think could be possibly useful for solving their practical problems at home, but they don't know how to apply it.

And so, I think a top down, sort of one size fits all, we're going to solve hunger, and here is the AI to do it and now we're just going to apply it in a blanket approach to all of these developing nations doesn't work. But from a technology perspective, and I'm a technologist, I find that if you find a solution to a specific problem, and then you find a solution to another related specific problem, and then a third, you can start to see some generality, and now you can leverage that to solve a problem in another -- in a similar area but somewhat different.

So my proposal then is that we need to enable these developing countries to solve their local problems based on their local challenges and expertise, but since they don't have the in-house expertise, we can do this by providing some sort of, you know, agency of shared AI expertise, which is a group of experts that can serve as experts to these developing countries on kind of a consulting basis, but it would be a non-profit kind of arrangement and that way individual countries who know -- or regions who know their challenges most specifically themselves, can get the help for those particular solutions that would be useful to them, and so that's what I'm suggesting is that we need to somehow empower local governments or regions to address their local challenges through a group of experts that are familiar with the technology and can help them as they address that goal.

>> MODERATOR: Sounds like some important element of the solution. Does somebody in the audience want to say something about this idea? Yes?

>> (Speaking off mic).

>> MODERATOR: Can you try to use your microphone? I think

you press on the right button. Yeah.

>> AUDIENCE MEMBER: I'm from the Netherlands at a university, and there is a group of people -- you don't hear me? Better?

>> (Speaking off mic).

>> AUDIENCE MEMBER: Okay. Good. I try again. So, I'm from Leiden University and I'm doing education or research but really try to apply big-data technologies for the humanitarian sector, so that's already trying to provide those things, and there are other groups out there as well. So, I think it's really, yeah, a nice approach to help out and see what we can combine maybe.

>> (Speaking off mic).

>> MODERATOR: One person at a time.

>> LYNNE PARKER: Right. It's not like no one thought of this, but a central resource where people could go to and we could gather this expertise. It could be a network of collaboration, but sort of a one-stop-shopping that everyone knows where to go to in order to find the expertise.

>> MODERATOR: It seems there is a tension between the advantages of decentralized efforts and the fact that in AI, mostly driven right now by machine learning, it's a set of common expertise needed for many problems.

But I would like to see many organizations and university labs and so on, be able to collaborate to contribute to what you're talking about rather than one big centralized organize.

>> LYNNE PARKER: Totally agree. I'm not suggesting that the agency itself collects all the people in one spot, but it could be a center.

>> MODERATOR: It could be centralized.

>> LYNNE PARKER: Yeah.

>> MODERATOR: All right. We're going to move to Sam Molyneux, and Sam is with the Chan Zuckerberg Initiative, and he had some interesting ideas to talk about.

>> SAM MOLYNEUX: Thanks so much. There we go. So, I think talking about the stuff at a general level, it's probably useful to have a discussion about it at a very sort of practical level within the range of what's currently possible.

At Meta, we've been applying AI in the science information space for a number of years, and the actual application of this, it turns out, it's much more difficult than you'd expect, both sort of like at the problem end, discovering the right problems to fit the algorithms too. Even if you're close to a market problem, there is typically a gap to close.

And so, from that perspective, I'll just go through a couple of notes that I think are relevant. So, excluding the position that AI will soon supplant all human cognitive activities, there is a couple of areas of activity that I think you have to consider when

trying to deliver a solution to a particular social good market.

So, the first is problem discovery. This is actually typically done best as an integrated activity between a domain expert and a data scientist or a machine learning researcher. It turns out that market experts, while they know in general what the problems are, they're not sure which subset might be approached using AI without having some sense of what's possible. And that intersection of what's possible is sort of the hard thing to find without both of those people being in the room, so I think that's one of the first really critical things to consider.

The second one is at the level of talent. So, obviously, in the air right now of artisanal AI, talent is very important. It turns out, usually a lone AI researcher or group of machine learning researchers is not enough. Typically, it's an integrated team of machine learning researcher, application engineer, data engineer, designer, and also, like, ideally a product or program manager who has some market knowledge, and this team needs to be sort of galvanized around the mission, which is really critical.

Appropriate training data, I think that's something we're about to hear a lot about. But in general, I think we need large open and human-created or human-labeled training datasets and these will likely be of value for the foreseeable future. And the training datasets need to be mapped to the problem domain.

And finally, for the delivery of solutions, an integration of AI solutions within sort of existing workflows and within market needs, this actually has to be done in partnership with stakeholders from the market. There will be existing systems for them to integrate, existing sort of practices and norms, and getting all of this stuff right is hard. And I'd just like to emphasize it's an integrated activity not just including machine learning researchers. So, stepping from the four-solution components, I think I'll make the following recommendations.

So, the first one is that the creation of philanthropy or government funded for deployed AI teams, being sort of teams with the composition they just described, we're seeing the emergence for deployed engineering teams. Chan Zuckerberg and technology, that's something we do in science. We're finding top engineers from tech companies and bringing them into labs to engineer large-scale solutions that biologists are not able to do. And this same, this can be for deployed AI teams within sort of the grand challenges.

And an organization should be funding this talent, curating it based on their individual focus and belief in the mission or conviction in the mission, which is really critical when working on these hard technology projects.

And finally, I think it's really important that we're able to pay them at sort of market rates and be able to compete with top tech companies for the talent. Typically, the individuals that you

want to work in these teams, they want to work within sort of the challenge of the problem but also, they care about the mission, and that's when I think the magic happens.

So the second one is, we need platforms for the production, funding, and hosting of open-curated data for machine learning. Again, these should be mapped to the challenges and mapped to the problems, and they should be available for all machine learning teams as well as those for deploy teams.

Finally, I think it's worth noting that we can influence towards this and can happen actually upstream of the people who are actually curating the data or making it available.

In the science phase, we've seen leading agencies like the Gate's Foundation having open-data mandating from researchers which gets researchers and that sort of makes science go faster, and I think we can apply the same notion of open curated data with AI.

The last point I'm make quickly, is while in developed nations we have the core competencies and we can put the teams together and create the platforms, I think it's important over time that we educate developing nations to have these capabilities and to run these models themselves as well. Thanks.

>> MODERATOR: Thank you. This is a pretty expensive program. I think it's mainly in light of the discussions we've been having before. If anybody wants to comment or suggest something related to what Sam has been proposing? Yes, please?

>> AUDIENCE MEMBER: Kathryn from CLA University. If you follow the United States, four years ago the previous administration founded the Presidential Innovation Fellows, which was a highly competitive place from people from the world of technology and innovation to compete for to teach classes, about 20 to 30 spots, where they would come together as a group of technology experts and then the departments in the United States Government would bid to get them to come in, and so you simultaneously had people who were very happy to be paid below market rates because they were doing this very prestigious project.

They were coming in for 18-month projects where they could make a very significant difference to specific problems in different agencies, veteran's agencies, NSF, places like that, and they could share their knowledge with each other and also sort of learn the common language of technologists dealing with policy world, the government world, because a lot of times when technologists speak to people outside of their own field, it's like speaking in Portuguese to Spanish speakers. You think you're speaking the same language and you're not, but they could translate among each other.

>> MODERATOR: So, do you know how these worked out?

>> AUDIENCE MEMBER: The standard result, I don't know if each one of them worked out, but in each class, there was cases where what the technologists were able to make a difference.

>> MODERATOR: You think it was a successful initiative?

>> AUDIENCE MEMBER: It was successful. And of course, it was a venue to inspire the people to do it well, but it created a place where a fairly small team of people could make a difference because it also, each one of proof of concept within agencies to show them, that yes, the tools of implementation from experimentation from Silicon Valley are useful and valid.

>> MODERATOR: Sounds like a great suggestion to take down. Yeah?

>> LYNNE PARKER: To add really quickly. One of the discussions we had before this meeting is perhaps the idea of a humanitarian data scientist. If you had a prestigious fellowship program, something like the Presidential Fellow, but the goal like a Peace Corps from the U.S., you're going as a data scientist to do humanitarian work. It could be a way to leverage interest in the area.

>> AUDIENCE MEMBER: I think AAA also did some interesting work. Patrick Wall did amazing work on humanitarian and human rights issue, brings the tools of statistics and data science to this area. And taking the best examples of this happening from the past and applying them to this particular case could be quite useful because the multipliers are very strong.

>> LYNNE PARKER: Agreed. At least those could be deployed to the developing country to have a direct connection with the actual applications of those nations.

>> SAM MOLYNEUX: I think it's very critical that the humanitarian data scientist ends up with an infrastructure to deliver a product to the web and scale it. Scaling these applications up is key.

>> MODERATOR: Yes?

>> AUDIENCE MEMBER: The technology is used for -- to advance, for example, human rights or good in the world. Do you think there are some critical efforts to be learned from past initiatives like ICT for development or attempt to use Big Data, especially in the global south?

>> LYNNE PARKER: I think it would be useful to gather together the lessons learned in one spot to learn from other areas. I don't know if it exists or if people are working on this, but I think that would really help toward this direction.

>> MODERATOR: Yes?

>> AUDIENCE MEMBER: Hi. I just wanted to sort of remind people that -- I'm actually from a developing country, often you find the data is happening in the West and the data from the East, so just to be mindful of where the data is generated. And we've seen with Big Data and other technologies is it tends to be a pretty extractive relationship where the outputs are not distributed evenly. So just a reminder that, you need to engage the rest of

the world as equal participants in the outcome and not as someone who wants to perfect programs that you deployed to the rest of the world that they're actively engaged in every step of the process. Especially, because often when you have people moving jurisdictions to find a jurisdiction where they can actually trial new things with pharma and other things and with identity projects and cash systems. And I would just urge, with something like AI which is so game changing, that we make an extra effort that we don't try to perfect the techniques and jurisdictions where there are no safeguards and where there are no legal barriers to innovation that would actually preserve human rights. So just a little nudge in that direction.

>> Actually, this is a really interesting point, and I agree with it a lot. But at the same time, there is a unique opportunity to, like, in a lot of domains I feel that -- like rich countries are burdened with a lot of extra safeguards that sometimes are very useful, but some other times are basically stemming from historical reasons, right.

So like, do you believe that there is an opportunity there actually, for example, in healthcare, you know, to go with AI-based vision-based solutions for problems that would be easier to deploy in developing countries and would have a very positive impact and not just be using the countries as testing grounds.

>> (Speaking off mic).

>> AUDIENCE MEMBER: There are a lot of instances that I think having a sight is an advantage. Where if a country leapfrogs in development and starts with 4G and doesn't go through 2G, there are huge gains to be made. I think the thing that causes me concern is a lot of countries are lobbying governments in the jurisdictions to be only adoptive of certain guidelines and best practices that set an available low bar or framework, so I'm just concerned that western companies are lobbying governments in the East to actually come back with frameworks that get exported back saying this is good enough for them. Why isn't it good enough --

>> AUDIENCE MEMBER: Done by a non-profit organization, if it were done, do you feel that would be more reassuring?

>> AUDIENCE MEMBER: I think so, and all I'm trying to say is the process needs to be inclusive from the get go. It's not a bolt on or add on at the end of the process.

>> MODERATOR: I think the people benefiting from those technologies should be involved in the design in the first place to define what it is that matters here, what are the most important priorities and how the data, you know, should be used in a way that is with our values. Yeah. Go ahead.

>> So, I'm just going to add a little bit more. So, I'm from the Gate's Foundation, so from a lot of people on AI for good, let's start from the AI side from people like me and I think there are some other people on the panel. You start from the four good sides

and then ask the question how could AI be a vehicle to help with the for good part. There is one about making it inclusive and there are other that is what kind of problems and what kind of issues do you want to address?

There are a few -- I'll just give an example of a few kind of issues that get asked at the Gate's Foundation. And it's a statistic a lot of people in the UN institution understand and appreciate. (?) children died before the age of 5, and they died from things that nobody in the developing country dies of.

And it's not that we don't have the drugs or the vaccines or the know how to prevent these deaths, but the problem is that we don't have enough healthcare workers and the healthcare system is not sufficient. Margaret Chang threw out a number of 1,800 healthcare workers in the shortfall. Two use cases that I can think of, one is because we do healthcare for all. We don't have an ability to actually prioritize or identify who is the most at-risk mother.

If I could predict out from predictive analytics who is most at risk, which child is likely to get sepsis and die of that, if I could figure that out through Big Data and Machine Learning, I'm significantly ahead of the game because it's going to be very, very difficult to try and change the resources.

What I can do is I can think about how do I spend the resources smartly. One is that you can use AI for predictive analytics and prioritizing of a certain patient. The other one is healthcare workers right now. They're just -- their job is really, really hard. There is a shortage of them. They're really, really hard, and if we could enhance them with AI to do better diagnostics, you could imagine a world in which good things happen and you could make a dent in the (?) mortality using it. That is one, and the other is you can think of the same thing in education also.

>> MODERATOR: Let's take a last question, and then we'll move on to another panel member.

>> AUDIENCE MEMBER: Hi, there, Kathy. One thing that really resonated with me, Sam, is when you said we need platforms for open-curated data to segue into what was said about education. I come from the Ed-tech space and one thing we see is during the Ed-tech development, there were never platforms for open-curated frameworks for adopters to make good decisions about what they were buying and how they were using it.

As a result, the Ed-tech space has actually faced, I would say, about a five to seven-year lag in the innovation cycle because people were making bad decisions. We can look at Los Angeles School District. They bought an iPad for every kid, the curriculum, and what happened it was a complete disaster and we can go into details another day.

But I would like to see for the AI solutions for education,

for healthcare. These very fragmented markets where to your point on core, teachers of the work, users of the work, are underpaid and before they start to buy that shiny box for them, it needs to be a non-profit, third-party researchers creating a framework for adoption. What should you be looking for and avoiding to make sure you serve your students, teachers, and patients properly.

>> MODERATOR: Okay. So, thank you. We're going to move to Phillippe, a development researcher at AI.

>> PHLLIPPE BEAUDOIN: Okay. Thanks. So, we're here to talk about AI for good, right. And more specifically, AI for prosperity. But you know, first of all, we have to ask ourselves, what does it take to make AI each day, right? And there is a saying in our field that says, no data, no AI.

I like to put the slightly more positive spin on this one, and would say that the -- you know, what we've seen is large amounts of high-quality public data as a normal magical way to stimulate research on targeted problems.

I'd like to give you an example where this actually happened and affected all of us and is one of the reasons we're here today. And, deep learning for vision purposes, one of the reasons we start a field and moves in leaps and bounds is because there was a thing called ImageNet that was publicly on the web. ImageNet, if you don't know, is a huge database of very high quality --

>> MODERATOR: By the way, by from this convention

>> PHLLIPPE BEAUDOIN: Yes, very high quality labeled images that was put there on the web, and people started banging on it and using it for their research, and we saw a big progress, thank to that.

So, if you think about it, this represents an immense opportunity for the UN or NGOs to actually invest in a global agency whose goal would be to identify, collect, and curate data that could add such positive impact on real important problems addressing, you know, the biggest problems in the world.

In a sense, I feel that if you look at it, I believe data, maybe even more than money, in a sense, will be what will fuel this AI for prosperity revolution that we're hoping for.

>> MODERATOR: I mean, putting this agency up is going to take money too, but not as much as trying to directly solve those problems.

>> PHLLIPPE BEAUDOIN: Absolutely.

>> MODERATOR: We can tap into the good will of a lot of people around the world, grad students from universities from around the world to do a lot of that work, essentially, for free.

>> Yeah, and sure. So, there is one point about data though that makes it slightly different than maybe the kind of datasets you're thinking about.

So, if you're thinking about data, you maybe, you know, have

an idea for a database or Excel spreadsheet in your mind, but data for AI, I believe, is something slightly significantly different from that mental image.

I believe that data for AI is what I would call living data. It's actually a continuous process where we collect data, we discuss data, we collect it again, add a few columns to the database, we basically have this process going on continuously.

So in a sense, it's much more about building a strong, open community around data than it is about collecting data and forgetting about it.

So, this thing that I'm talking about, that I'm hoping for is, you know, Alts the other thing that it needs are tech technological tools to allow easy access tools. So two things, community and good technological tools.

So if you think about this, the image you should form is a lot less about a Big Data and a lot more about something like GitHub or Kaggle or modern communities that start popping up on the web. Can we build a modern community around data for social good is the question I would be asking here.

And before closing on this, there is one last idea that this might enable that I'd like to leave you with, right. If we think that data is what's going to fuel AI for Prosperity, maybe we could think about something I like to call data charity, right.

We have government and companies who have, as their most for social good, district attorney sets, even more than money. If they could have a place to open the dataset with the knowledge that it would benefit the greater good, right, this might be a very impactful change for the world.

If you open that place and companies and governments start having useful datasets, maybe we would be able to create some real and lasting change.

>> MODERATOR: So, there is another breakthrough session going on about data, and I think there is a lot that could be said about a lot of subtleties. For example, in many cases, there are parts of the data which can't be put in public, but I think there are ways to manage that, to have trusted parties act like maybe a trust for data and only allow organizations that are trustable to use the data in the right way, so I think some of these problems can be solved. It takes some work, but I think there were a lot of hands raised. Yes, please?

>> AUDIENCE MEMBER: (Speaking off mic).

>> MODERATOR: Please press the button.

>> AUDIENCE MEMBER: There we go. A little delay. The computer was figuring it out. Richard Hill of the Association for Proper Internet Governance. I want to build on the last two comments from a colleague from a developing country, on the distributional aspects that are also tied to the data because it

is, basically, who gets the value of the data.

And it's not just a North and South problem. It's also a problem in the North. Basically, I think advanced mechanism through AI is a distributional issue. If the machines could produce all the food we need and build all the houses we need and so on, everybody, I think, would be happy as long as we get the benefit from it.

So, in the current system where some people own not just the robots but the intellectual property and the data which they get from us in exchange for so called free services, you wind up with a model where there is a great deal of concentration and that's been mentioned a number of times in this conference. And actually historically, we have a model of a society that was like that if you replace robots with slaves and think of the leg room in the republic in the early Roman Empire, you have that very few people basically controlled all the resources and kept the other people happy through circuses or sending them out to be soldiers so they could have more slaves for the rich.

The alternative to that is to recognize that, as you were hinting, a lot of these things are actually common goods, right. The people who invent AI couldn't have invented AI without some contribution from all the rest of humanity from all time. Plus, even though I don't work in it directly, something that I've done and so on, and that's certainly true of the data. The data is only valuable because we're all contributing. So, to recognize this is a common good and common asset, and for our rapporteur, a concrete first step, I would suggest, would be to realize that there is a distribution issue going on with AI and we need to tackle that.

I don't think we can come up with a solution here and now, but we need to think about it. And, I certainly think that the idea of taxing, not global per se, but taxing the immense value added that arises from the advanced technologies is worth considering. It's good people saying this too and not just a few other sources.

>> MODERATOR: I think that's a valid point worth putting in the recommendation; although, it's not something easy to act upon in the short term. I think, you know, keeping that message alive and growing its breadth is really important. Yes -- oh, wait this gentleman was asking first.

>> AUDIENCE MEMBER: Okay. I would like to build further on the same question. The (?). We talk about a community and need to mean to have a sense, a shared sense of building a community around data. We do have an opportunity at this moment. I was participating yesterday on the other side of this street in the meeting on the Internet of Things, IoT, which is sustainable development goals for the 2030 development agenda.

We work very closely within the (?) commission, which as you might know, is collecting all the national commissions together in

one framework. And one of the main challenges which you have at this moment is, indeed, the (?) on collecting the data.

Now, the lack of data not only within our own countries but in the more economically advanced, are often astonishingly big, but not to say the lack in other countries, the (?), they don't even have the capacity to set up a national commission.

And could we not build a community around the 2030 development agenda and making sure we already have the public data available at the global letter in a credible manner, which we then could form it toward the future thinking of the AI. Thank you.

>> MODERATOR: Thank you. Last one comment?

>> AUDIENCE MEMBER: Thank you. So AI for Prosperity, so I would like to get a better clarity. Like prosperity, what do we mean by prosperity? Do we mean money? Do we mean (?)? So I think the 17 sustainable development goals better define prosperity, and maybe I was thinking to achieve these goals, they are instead of getting funded by the industries and the companies, it would be better if the human directive funds, such initiators along with the non-profit organizations, and so I would suggest that the immediate possible solution would be all non-profit organizations and even coming together with the economic funding and as well as the sustainable development goals.

>> MODERATOR: Are you concerned that companies are going to find applications of AI that are going to create a lot of wealth? They don't need the UN's help for that. So, I think the role of the non-governmental organizations and the UN and philanthropy is to fill the void left by private companies. I'll get back to you later.

First, let me give the microphone to Peter Lee, who is Corporate Vice-President of Microsoft AI and Research.

>> PETER LEE: Thank you. And, as I've been listening to the discussion, I've been changing a little bit of what I wanted to say. And let me just reinforce, I think, Phillippe's point about the possibility of switchboard, when you look at it for speech, or ImageNet, and many of the others, many of the other fields less well known. Each one in their own way has dramatically accelerated the advancement of technologies that get deployed.

And so now the question is, whether the field has advanced where we can go up a level of abstraction and contemplate with the UN's region expertise, particularly in the developing world, whether we can go up a level of abstraction and not just hit fundamental problems like speech and vision, but the next level up, education, health, agriculture, and finance, and the like, and have relevant grand challenge datasets that might motivate and advance the field. And I think it's an interesting question. I'm not too sure, but it's an interesting question.

Then I wanted to get back to this question about the inclusion,

which I think is incredibly important, and it hits a practical and technical point about AI.

At least with our current state of technology, AI, which is largely based on machine learning, and machine learning which is largely based on data. The machine learning models are, for lack of a better phrase, are living entities, of you know, we create them and they're static objects, but if they're valuable, when they get injected into some organization or some system, they change the system for the better. So, imagine a machine-learning model that you inject into a sales organization and it increases the sales.

Well, now that machine-learning model is less relevant than it used to be. Often times, it becomes ineffective if it's been successful, and you have to then bring in a whole bunch of engineers and data scientists and PhDs and redo the whole process again.

In other words, successful AI today changes the world, and therefore renders itself obsolete. If you look at the Google Search Engine or the Bing Search Engine the reason both Google and Microsoft have thousands of machine learning and data science engineers revising the models every single day is that the web and what people ask for is changing every single day.

>> MODERATOR: So, when you say they're obsolete, you mean that the data distribution has changed and we need to somehow retrain or redesign the models?

>> PETER LEE: Our current state of AI knowledge or technology isn't adaptive enough. This brings back getting to the point of inclusion, and it even addresses the original point that Lynne made about whether there is a central organization or not. Any model for prosperity where you envision machine learning people going in like mercenaries, producing amazing things and then going on with AI and going on with life, I think, is bound to fail, so there needs to be some way to sustain.

>> MODERATOR: This may be true for some things, but think about vision applications where you're trying to detect a particular disease or something like this? I think there are cases where it's pretty straightforward and we can already do a lot, but I agree with your point.

>> PETER LEE: Even there though, it's harder than you think in the real world. We do, just like a thousand other universities and organizations around the world, medical imaging. A tiny little thing changes in the lensing and the machine learning models are worthless.

We do face recognition in Rio and those models don't work in Beijing, and those models don't work in the U.S. It's incredibly brittle right now, and so there needs to be some thought to the sustainability of these things.

And then finally, the main point that I was more prepared to talk about was about data and data economy, and I think the question

really hit that. I do think that this is a longer-term issue, but the idea of economies and even global economies where data is a fundamental part of the transaction, that is something that -- that of course is being studied, but I think could stand to be influenced much more strongly by bodies like the United Nations that would actually give more of an awareness of kind of global and developing world issues.

>> MODERATOR: Thank you very much. I think this gentleman here wanted to speak.

>> AUDIENCE MEMBER: Hello. (?). I just wanted to ask about this. So this session is about AI for prosperity, and I thought we should probably be talking about not just wellbeing and super wellbeing, so obvious pressing issues aside, how do we really define prosperity? I think one of the things that is descriptive of prosperity or could be descriptive is creating deep connections on wealth in society. Quoting Malcolm Carter the Director of The Connected Universe, the problem exists in the society, so many people if you're alone in a city surrounded by so many people, and why is this happening? Marshall (?) the creator of House of Works long ago, points out the website deciding to be better that according to research on happiness, the people who classify themselves as very happy differed markedly from average people in just one principle way, a rich and fulfilling social life.

It's, indeed, a great problem which we will not see unless we solve other problems, but it is at the core of what deep sharing of minds could be about, so the idea of how to apply artificial intelligence to achieve that state would be desired, and if anyone could share their perspective on that, I would appreciate it.

>> MODERATOR: Well --

>> LYNNE PARKER: I don't have a direct answer, but I do believe that until you solve that lower level of Maslow's hierarchy you can't get to prosperity. It's an important point. But I like -- I struggle to say that AI can solve every challenge in the world, but necessarily that AI can help for prosperity with the developing world. I would be curious to know for those of you who do come from developing countries, can you imagine what problem could be solved by having more data? Certainly, there are the healthcare issues, but just to help us as a community understand better the kind of data that could be useful for solving these low-level really tough challenges --

>> MODERATOR: I think in the agricultural area there is a lot to be done as well, education. Yes, in the back?

>> AUDIENCE MEMBER: Hi. -- (Speaking off mic).

>> MODERATOR: There is a delay and then it should come up. If it's red, it should work.

>> AUDIENCE MEMBER: There we go. Okay. Cool. Catherine Cunningham and a few companies but Natural Intelligence is the one

I'm representing here. But so, very interested in this topic, obviously. And I know if we look at Maslow's Hierarchy of Needs, the top tier looks at life purpose and to just maybe isolate a particular issue that has been discussed here but not in the context on share of job, but I think one, I'd love to have a discussion more on this or further conversation on the actual replacement of AI jobs that are somehow non-desirable jobs for anyone. I can't imagine being a trash picker or someone working in a nuclear facility when there was some, you know, red-light environment, or a sensitive site with landmines and you have to find ways to clear these sites.

There are lots of, I can imagine, jobs that no human being should have to do, and maybe we could shift the conversation of how AI-type technologies could be substitutes for those kinds of jobs, and then to the point of life purpose and thinking in how do we help people identify or help people in their life purpose or work in the world to reach a higher aspirational goal instead of being a bank teller, maybe someone that delivers financial consulting work to their clients.

And so, I can imagine that if we shift the narrative on AI and it's, you know, a job security focus on more how AI could be replacing jobs that no human should have to do, and how when there are replaced jobs in sort of manual-labor-type job, how we could actually restructure the economic ecosystem such that the resources could be applied to future training or somehow enhancing each of those individuals whose jobs were replaced so they do something, you know, higher level and more interesting and creative.

>> MODERATOR: If we had guaranteed -- then people would not do those jobs, especially if the machine could do it, and then the market forces would naturally fill the gap and focus on doing those jobs which humans don't really want to do. That may be part of it. If somebody wants to add something?

Okay. One last question before we move to the next panel member.

>> AUDIENCE MEMBER: Thank you. (?) University of Technology. The current status of AI and our data is so very important there, I think that AI for Good will require AI algorithms to be comfortable (?) in which they are now. They are not now. In a sense --

>> MODERATOR: Are you saying we don't use AI because of competition for (?)?

>> AUDIENCE MEMBER: Not completely. I'm proposing to, or I'm considering if we keep regulations and constraints on the use of data, which is (?) to do with privacy and inclusion of data that we are using, then both, I believe that those constraints, those would be a kind of driver for the development of AI algorithms with adjustment and accountable.

>> MODERATOR: Maybe there is no simple solution.

>> AUDIENCE MEMBER: I agree that there is no simple solution, but I think that they are too much relying on the current state of AI algorithms and if we kind of constrain the way we can move data because we want to safeguard privacy and security and so on, (?) work as AI developers to come up with our next stage of AI, which indeed, would be one more step toward transparency and accountability.

>> MODERATOR: Thanks. Let's move on to Ankur, who is at the Bill and Melinda Gate's Foundation.

>> ANKUR VORA: Given prosperity is a very broad word and you can take in many directions, I'm going to take the liberty to take it in a slightly different region. This is still within the AI-for-Good umbrella, but before I go to that, I do want to second a couple of ideas that the colleagues mentioned. One is about the humanitarian data scientists and the second one was around more data for the issues we care about. So, whether it comes in the form of an open source data architecture or whatever, or data challenges, those are great ideas.

Where I wanted to go was, you get a group of AI scientists or AI folks together and within the first five minutes the conversation will always end up in, when will AI be able to do X?

And the second conversation people get into is, who are the winners and losers? What will happen to society? And, I kind of want to pick on the second topic, which is the conversation often focuses on which jobs will go away, what will happen to inequality in the world, and those are interesting questions and we should continue thinking about those. And forecasting is fun and figuring out models of what jobs will stay and what jobs will go and where the new sectors are going to be, and where will I train my kids so they're successful. Those are great things to think about.

The thing that sort of gets lost a little bit, and I would like to recommend prioritizing of that a little bit more is, irrespective of what world we end up in, what will we do in terms of policy interventions to make sure that good things happen. I'll give you an example of what I mean.

So, we know -- or we know -- strong statement, but income inequality is likely to get worse. We do think, and based on prior experiences, that people in certain job sectors are going to lose their jobs and transition is going to be hard for them.

Don't want to go into prediction battle, as I said, but we do know from past experiences that when the Industrial Revolution happened, for example, we know that income inequality between countries jumped up significantly. And, I found the statistics wildly interesting that the richest 10 countries, if you look at the average income of a person in the top 10 countries versus the bottom 10 countries before the Industrial Revolution, it was sort of that the gap was really, really narrow. Today the gap is 50X.

You know with AI coming, the gap is going to get larger. With inequality, income is going to vary a lot.

What would be interesting is to start thinking about if we end up in that world, what will we do? What are the policy recommendations that one can think about? That's a role that the you and the government and some of the people over here can, in the passage of taxation, regulatory programs. Trying to figure out what set of options we have at our disposal and which we would use in what situations would be a great exercise to start.

We know the future is going to change and it's going to have a huge impact and trying to get ready for that would be a great idea.

>> MODERATOR: And maybe shift the discussion from the usual political arena, which is riddled with sort of group thinking to a more scientific exploration of the question trying to stick to evidence and scientists trying to understand those questions.

I know that these are hard questions, but at the same time, it is possible to study them and come up with recommendations.

>> I love the idea. And we don't have great past examples of it, but I love the Industrial Revolution, and you can just look at that and say, the way the U.S. reacted to it versus what UK did and the outcomes dramatically varied. You have decided that I'm going to use my welfare income in applying it back into education, and what it did was, the generation -- the next generation, actually, the mobility was ridiculously high, so you didn't have to sustain welfare programs for a long period of time.

Europe did something very different. I don't know whether that's the right thing to do in this system or not, but history does give us enough insights in terms of what works or what didn't work.

>> MODERATOR: Anja, you wanted to intervene?

>> ANJA KASPERSEN: This is working? Yeah. I'm tempted to try to jump here and I should go into -- so can I do that.

>> MODERATOR: Go ahead.

>> ANJA KASPERSEN: One comment. I do think it's very important to -- I understand and I'm humble in these settings because I'm not a technologist by training but I try to be, but data is highly political for any country. It's the saying that we're going to move this entirely out of the political arena.

>> MODERATOR: Well, try at least.

>> ANJA KASPERSEN: You know, helping building, and this goes back to one of the points that was made about the exchange arrangements, you know, finding new ways of merging communities, merging knowledge building, literacy, knowing what you're looking at, actually being able to tell big datasets from smaller, what is AI data, and what data is more statistical data. Those are important things, but it's important to remember that it remains a highly political theme, as more the previous government person talking.

>> MODERATOR: Can you give us examples of what you mean?

>> ANJA KASPERSEN: Well, I mean, every state has their own data regulation, they have their own policies on what data is okay to export. Increasingly, more countries are requiring organizations that separate in their countries industries that operate in the countries to contain the data within the parameters of the national boundaries. You can't move it, you can't analyze it. You know, how you interpret it, how you use it. Statistical data was mentioned here, and which is a very difficult thing to relate to because different countries have different metrics. There was an effort that was done to try to align.

I was working with statistical material at the time, and we learned that because it changed metrics we had 10 years of a black hole of statistical data because people were basically looking at different metrics. Switzerland is on top of the statistics. It's the most innovative country on the planet. Anybody is wondering why? It's because of the amount of patents submitted every year, and not because of the innovations. So, the metrics of innovation is, in this case, patents. But if you look at innovation in a different country, it might be how digital matures as a company, how digital is in the government. I'm saying these are highly political matters.

So, taking away, kind of more my policy hat, and actually because one thing that bothers me a little bit, and I appreciate the comment that came here, you know, that the learns come from the West and the data comes from the East, but we're talking about is sustainable development goals, but the sustainable development goals are also very clear that the peace and stability issue here, for mere posterity means safety, security, how we live, living lives without violence, living lives without armed conflict, and AI in this context and how we look upon data, is a very different ballgame. It's not just coming out with a bunch of, you know, well-meaning humanitarian data scientists going and learning and teaching all the people to do stuff. It's about thinking about this in this context, too, and how AI looks in this context.

>> MODERATOR: You're talking about the military use of AI?

>> ANJA KASPERSEN: That's the kind of -- that's more the scenarios which I spend a lot of my time worrying about, but I'm talking about, short of that as well, that prosperity is not just this kind of all dogma of developed world and the not so developed world, because even the not so developed world is actually, you know, if you look at the metrics, they're actually quite digitally mature. A lot of them have been leapfrogging technologies but not necessarily with the maturity of governance which was being pointed to here.

So, does that make them kind of needing our help, in which case, needing help with us? And so, this comes back to, you know,

to a point that I was -- I think Peter was touching on, which is the interoperability of data, and interoperability of systems and mature systems, and what we see from a humanitarian angle is that we worried a lot about the data-protection angle, you know, collecting data from people at their most vulnerable and vulnerable settings in highly connected society, and also in not so connected societies because we mean well.

A lot of times what gets delivered, which is not operable or interoperable systems is based on a quality urge to help as opposed to the urge to call or protect. A lot of different actors come in, different companies, different actors, different organization, and everyone has a technological solution. And the government, because of low level of maturity would then say, absolutely, bring it in. If this can help, we'll do it. Some would say not because then it would challenge other forms of authorities because data is also highly democratizing. AI in particular, could skew the power of balance in some of these areas. You know, launching kind of a mesh network to bring connectivity to be exactly what they don't want because connectivity has now become a tool of war.

So, you know, it's very highly complex, but one of the things we worry about is that all of these deliveries, we're all eager to help, but without thinking about how this system needs to somehow be interoperable to actually bring prosperity.

>> MODERATOR: What would be a quick recommendation that you would suggest?

>> ANJA KASPERSEN: Well, I really liked -- you know, I'm not a fan of this global agency idea. That's me personally, not speaking in my institutional capacity. But, I really like this idea of somehow, you know, I like this word, silo busting. How do you create a hub of knowledge, you know, that you can tap into this shared practice?

>> MODERATOR: More of the idea that Phillippe brought up?

>> ANJA KASPERSEN: Exactly. So, I like that having worked on the government side, humanitarian side, military side, you know, you definitely see the challenge of trying to bring people together because once you bring -- and every single organization takes on its own nature of hierarchies and pecking orders, and how do you make this truly a democratizing tool? I like what Gary Marcus was suggesting yesterday about his AI.

>> MODERATOR: That's another bureaucracy.

>> ANJA KASPERSEN: It's another bureaucracy, but we see humanitarian organization. We're not trying to tap into this stuff. We get to it from the perspective of protection. We think protection first, protection of people, protection of people at most vulnerable because we operate in armed conflict. It's very critical.

But at the same time, we also are trying to deploy these

technologies, you know, everything from, you know, more kind of drone and physical assets to also using machine learning be to help us respond better.

What we lack is sometimes the knowledge, the inside knowledge to know how to read these things, to access it. You know, if you look at --

>> MODERATOR: So, you're looking for an organization that would help you figure out these questions?

>> ANJA KASPERSEN: What I like is this kind of in and out. You know, having -- you know how to create a system where it is actually looked upon, socially, you know. They talked about the making it prestigious, you know, where Stewart would say, I'm going to volunteer two years of my time to in (?) and I'll teach you to become a basic data scientist and be able to interpret the basics of what you need to understand when you collect data.

Not to say we're going to end up being data scientists, but I really believe in re-purposing and building new skill sets.

>> MODERATOR: You're willing to host some humanitarian data scientists in your organization?

>> ANJA KASPERSEN: Once you say humanitarian data scientists, I hear you creating a new category that would be more isolated. So, I'm thinking you know, somebody who really understands data, a scientist that is just emerged into what the organization does, and so can work across different disciplines. But using -- I find in my past, I used to work on big organizational reform processes, particularly with the UN, and I always found the best people that can work on highly politicized matters is actually electrical engineers that have then later in life gone into the policy field because they weighed and looked at and connected dots of an organizational change was so wildly different and helpful than somebody who came from a more kind of classical political science perspective, so I really believe in merging disciplines and skill sets and building new ones while doing it.

>> MODERATOR: Okay. Do you want to react?

>> PETER LEE: Super interesting. I wanted to interject again. There is a rule here. There is 20% of effort in insight that goes into creating the AI-enabled solution, but then operating this and sustaining it over the long haul, at least today's data technologies, still requires a very high degree of specialized expertise, so how to create that sustainable, operational capability is -- I don't quite see exactly how that could be accomplished, but that seems to be something that's different in this case as opposed to, you know, other types of infrastructure, other kinds of efforts that the UN might be engaged in.

>> MODERATOR: Phillippe also had a comment?

>> PHLLIPPE BEAUDOIN: Sure, so I totally agree maintaining and operating a system is really hard and expensive, but I think

that we shouldn't let that stop us too early. Right now, we're not even seeing the proof of concepts of these systems, right. So, I believe, you know, just going forward with like data-centered community-based approach will allow us to at least start seeing what's possible.

>> And yeah, once you have a system that you've tested on data that seems to be promising it will be easier to sell to governments and GOs and so on that they have to put money in to deploy, so it feels like this could be done pretty quickly without a lot of government investment.

>> PETER LEE: I don't mean to come across too pessimistic about this. I don't mean to do that. I've had some difficult experiences in my career in this realm of, most recently, just chronicled in Foreign Policy Magazine. If you look up the Graveyard of Big Ideas, one of my more spectacular failures in this regard is chronicled there, but I agree, there is a lot of good and a lot of inspiration and a lot of will that can come from actually showing and demonstrating something, something great.

>> PHLLIPPE BEAUDOIN: Just a quick comment. There was something else mentioned, the idea that data is inherently political. I understand where you're coming from, but at the same time, I want to point out that I don't believe all data is. A lot of it might be, but if you look, for example, again at the example of ImageNet, this wasn't political and still had impact.

If you collect a bunch of pictures of, I don't know, medical images or skin images from a cell phone, would this data necessarily be political? I'm not entirely sure, right. Pictures of (?) in some countries in Africa might have a lot of value to them, might open up a bunch of potential solutions in ag tech but might not be inherently political. So again, I would say that this will definitely be a problem down the road that we have to address, but if we open the door and we show progress and we show that from good curated data can come good solutions, I think we can even, you know, try to remove some of these political barriers or even have democracy ask for their removal because they will see how collecting this data and putting it together actually has an impact on the life of the people themselves.

>> MODERATOR: So, we're getting close to the end. We're going to try to speed up a little bit here. There is one question here from the audience.

>> AUDIENCE MEMBER: Hi. Thanks. My name is Steve Kramer with the International Civilization Organization. I got really excited when you started talking about political data. We've been trying to identify what a conflict zone is for the purposes of aviation warnings over the last three years since the loss of Malaysian 17, and the designation of an airspace as a conflict zone generated enormous angst for our member states who did not want that

designation to be publicly made available.

So, the challenge that I think I'm faced with is, I'm constantly looking for risks, a safety risk or security risk, and to be able to analyze and predict when I'm going to have an event and try to prevent it. That analysis is revealing data that is very sensitive to the governments that are involved, and I'm challenged to find a way to do it that does not embarrass and that essentially gives them a metric for how they can improve in a way that's meaningful and effective.

When I was listening to Sam talk earlier about all of the methodologies in, in the air traffic management world, we've struggled to try to get the human-centered air-traffic-control art into the computer and to do it in a way where the computer aids that person more and more effectively, and it really requires those steps of getting technologists with the person who does the work, and then iterating at a pace to where people can begin to trust the process and that they're getting the results that they're supposed to get.

And so, I think a lot of the method that you described, I was scribbling as fast as I can because I need to reinvent the way aviation standards are created, and I think that if I understand what a technologist in AI needs, it's going to be easier for me to train the global innovators in aviation on how to bring that to you. I can't do it from our headquarters, but I think there is a training process for communities and for your constituents on what you need to be more successful, and that's really my biggest takeaway here is to understand that challenge. Thank you.

>> MODERATOR: Thank you.

>> SAM MOLYNEUX: And one thing I would say quickly is there are models for that, and happy to talk about them after. Organizations like SRI International have really nice models for multi-stakeholder inclusion in sort of developing these projects.

The other thing I would just say, with respect to data, if there is really valuable data out there and there is a good mission to apply AI to it and you have the will to go and get it, you can get it. And, I'm happy to tell you about some rare, hard to get, and seemingly impossible datasets that we've been able to achieve at Meta just along those lines.

>> MODERATOR: All right. Let's go to George Russel from Berkeley.

>> GEORGE RUSSELL: Okay, so this has been a very interesting discussion and I had about 12 things I wanted to say and they've been rotating in my mind as to which one I was going to say.

And I think what I'm going to say is, that data is not to me the central issue here. When I think about education or health, what I really think about, actually, is models.

For example, models of human physiology, and but these don't get really exist. There were partial efforts in the 70s to create

something like that.

The cost, it's a lot of work. It always seems easier to say, oh, we'll just collect data and we'll let the machine learning stuff and we'll get the big block box and use it to predict death or whatever it may be. But for most applications, I counted in the world, for example, intensive care medicine, education using automated tutoring systems, global seismic monitoring, the model is what is really giving you the knowledge and the data is helpful for quantifying certain parts of the model.

Now, when you think about models of human physiology, that advertise across seven-billion people, we are all essentially the same. We're all built from the same basic template. We all have the same bits more or less. And so, this is something which is clearly a global good, that for a private corporation to do it doesn't necessarily make sense because they have to invest a lot, and then they're only reaching a small market. But for the whole planet to do it, it seems eminently worthwhile.

I think the possibility of AI to contribute to human prosperity through education is probably the biggest -- that's the biggest opening that we have.

And again, it's not clear that to do that successfully requires, you know, massive datasets. I'm not even sure what the datasets would be of to do that, but what it requires is actually machines that know, so you can't, for example, teach physics unless you know physics. If the machine is going to teach physics, it needs to know physics. That's not a dataset, that's knowledge, that's models, that's knowledge, that's understanding.

And, you know, why has AI not succeeded in contributing that much to education? Why, as the lady mentioned earlier, has ed tech been such a potential but not actual contributor to real educational success?

Two reasons. One is because the computers, the AI systems that were supposed to be tutoring didn't actually know anything about the subject they were supposed to be teaching, so they didn't know any physics. It's hard to teach physics if you don't know it, and they couldn't communicate with the people. They didn't have the ability to converse either in text or in speech with the people because they didn't understand language.

So, it would be as if I tried to teach some subject I know nothing about, let's say heart surgery, to an audience in a language that I didn't speak, let's say Laotian or something like that. I'm not going to be successful at teaching heart surgery to Laotians if I can't speak that and they don't speak English. That's what we've found ourselves in with AI for education. But that is changing.

We can now converse, not perfectly, but we're starting to have speech interfaces and text interfaces that are reasonably

competent, and we have the capability to incorporate knowledge of physics or medicine or whatever in our AI systems so they actually understand what it is they're talking about. They're not just blurting out meaningless text and hoping that a student learns something.

So, that to me, is the biggest potential and that's something that, again, advertises across the entire human population because both the content that needs to be taught or conveyed and the human-learning processes are pretty common to the whole human race.

The language customization, which I think, again, an organization like the UN with contributions from Google and Microsoft can solve pretty easily, so that will be my suggestion for how we might boost prosperity using AI.

I want to say just one more thing. Coming back to some of the earlier points about what does prosperity really mean, and the idea that prosperity means having an income; and therefore, if we have a universal basic income, we will have prosperity.

To me, the notion of a universal basic income is an admission of defeat. It's saying, okay, we really don't know what humans are for. We know they have to be fed and clothed and housed and entertained, so we'll give them a basic income to do that, but otherwise they can just fend for themselves. That's not a notion of prosperity that I would endorse.

>> MODERATOR: All right. And can I just --

>> A nuance, or a little bit of, or try to, of what Stewart said, I think so. As we think about the world on the spectrum of poor to fair or fair to good or good to great, I think the requirements are different. So, if I think about education in the poor to fair state, which 80% of kids in Africa and India are in school right now, but 60% of them in 4th grade can't read the 1st grade level, so learning levels are a problem. You know, if you're a first-generation learner in your household, if you're a first-generation learner and you crawl up the learning ladder, at some point you don't get 1 + 1 and they're teaching 5 + 5 and I can't get it. If I could use AI to figure out and predict who is at risk of falling off the learning ladder, that's one.

If I have a classroom where the teacher/people ratio is 50 to 1, you have a 50 to 1 ratio trying to do the most, the hardest behavior change humankind is known. We're trying to teach a group of students who are at a very different learning level. That's an impossible task. If you could change the ratio, enhance by adding AI, enhancing the teacher in the classroom, you could do wonders. I'm saying your solution for poor to fair might look very different from AI than it would look from good to great.

>> MODERATOR: All right. We're very close to closing, and I think it's time to start summarizing maybe some of the consensus, and I'm expecting Wendell from Yale to help us in that direction.

>> WENDELL WALLACH: Well, I may be less hopeful than you had hoped, but let me say a first thing in summary, I think we've been talking about two vastly different topics in the way we're discussing.

On the one level, we know that the challenges that we have of inequalities of education around food, around health, and we are looking at how we can harness these tools from AI to cut into or to mitigate those effects.

But there is a totally other side to this, which is first of all, the difficulty or attractability of some of these challenges and whether AI is going to be a help or whether very different things are needed.

The part that concerns me, perhaps the most, is whether AI in total will be for prosperity, or will it exacerbate inequality? Will it exacerbate public health challenges and all kinds of other things we are proceeding?

We are in a world where constantly we sell various strategies that increase productivity to the world as a whole, but a lot of the effect has been that those who benefit from the productivity gains are totally different than those who lose from those strategies, and we have not found any way to ameliorate that yet.

So, we can talk about, you know, whether there might be strategies or not, but most of them include massive political economy issues, or at least they include issues where there is some degree of redistribution of what helps and helps in the wealth category.

And clearly, what is taking place right now is that there is more and more movement of capital going to the pot, and that includes any of us who own stock, but obviously, some people own a lot more stocks than others.

So, my concern is how we are going to address this, and whether AI is really going to be for the benefit and is really going to reduce prosperity, or we here are creating an illusion. When I say we here, I mean those of us in this room.

When I see advertising companies Re-branding themselves as for humanitarian good, something comes up like is that really true? Are they creating an illusion or will it really be for humanity's good?

So, if what is happening here is that we get some small initiatives going but the overall impact is one that we exacerbate harm in the world, I think we need to be acutely aware of that.

So, when I look at the deployment of a new technology, I first of all look at what are the potential risks and harms and dangers? Do we have methods for mitigating those, and do they actual eye justify the benefits that we think we're going to accrue from those technologies?

And if they don't, there is a question about whether we should

be deploying these technologies. There is a lot of pursuit of AI which is totally selfish, very self-centered, perhaps they'll turn to be very wrong.

>> MODERATOR: Can you give an example?

>> WENDELL WALLACH: Let me just finish the comment, and we'll justify the technologies in the end because we really don't know, you know, what the accumulation of knowledge means in terms of how it proliferates through an economy. So, I think we really need to be acutely aware that we are not participating in a process that's giving license for the pursuit of technologies that in the end could have actually created more pain than benefit and for the same percentage for the same groups within cultures that have been harmed over and over again.

So last, just a simple proposal in all of that is, companies have a benefit where they give stock options that are (?). Why are they just giving stock options to their execs?

When they had vaccinations, when they came along, we knew there was a certain percentage of the population that was going to come down with a disease when it was vaccinated, and therefore a tag was put on all vaccinations to cover those people, in effect, to create an insurance policy for that. I would like to see something like that come out of the AI industry, that successful companies create tax options that went into whatever funds we decide is appropriate and will serve, you know, the public good and encourage other members of the staff to do likewise.

And that we're asking them, at least to tie. Otherwise, we are going to move into this world where we're going to have some project bees which will be beneficial, but whether the overall impact of AI will be beneficial when we're talking about those who are in greatest need and do not have prosperity in this world, all bets are off at the moment.

>> MODERATOR: But are you going to, you know, draw a line between something that is AI and need to be taxed and something that is not? It seems very difficult to implement something like that.

>> WENDELL WALLACH: I'm just -- I did not say a tax in this case. I know that there are discussions about whether there shut be a robotax which would be a form of an AI tax depending how you defined a robot or so forth, I don't know. I'm just throwing out another option in that. But I think we need to find ways in which we are in a capital-focused way ameliorating not just the existing problems but those that will be created in the future. Now, whether that's through taxation, through guaranteed income, through --

>> MODERATOR: -- guaranteed income is going to require taxation as well.

>> WENDELL WALLACH: -- benefits through company stock options, there is a lot of ways that can be done, but that's really flagging the problem in opposed that I have an absolute solution

to it.

>> MODERATOR: Okay. I guess this is the end. Sorry for those who had questions or comments and didn't have time to put them forward. Let's thank all the panel members.

(Applause).

And all of those who raised their voice and put up really important ideas, thank you.

(Applause).

(session completed at 10:01 a.m. CST)

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