AI for Good Global Summit
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>> Can we start in five minutes please?
Can I get all the speakers up to the stage please?

>> Can I get the speakers up here please?
We need Marcel, Jeanine and Anita. All right. Anita is the last speaker. If she comes in after the break, we can get started.
so my name is Dominic. And I'm moderating this session on disease out breaks and management. We have six speakers and it worked well having the speakers introduce themselves. So we'll start over with Ingmar.
>> I'm Marcel. I introduced myself this morning.
>> And I'm a doctor of innovation. I bring new perspectives.
>> INGMAR WEBER: My name is Ingmar Weber. Resource -- research director. The project I'll talk about today is something more active where we don't just analyze data but launch a campaign.
>> CLARA MONTAVA: My name is Clara Montava.
>> JEANINE VOS: My name is Jeanine Vos.
>> Okay. So can we predict these out breaks using public health data, public health records, population density, income levels. And location, anything that might influence the behavior of vectors of disease. Can we help manage the spread of disease and epidemic disease trends to create a model of disease spread that captures under lying dynamics and contact patterns between people and in the process make better use of available

resources. And can we use machine learning to help emergency planners and responders allocate resources using satellite imagery and other resources. These and other issues are the subject to this session with the wide range of presentations from leading experts. The first to go is Marcel. Ingmar. Okay.
>> INGMAR WEBER: Can you hear me okay?
Perfect. Great. Good morning, everybody.
the topic of my presentation is a bit of an outliar. It's not directly on out breaks of diseases. Some of our work is more related to this topic. I'll get back to it at the end of the slide. I want to use this forum to pitch a new project which is more impactful. This is about using target advertising for public health and messaging. So what does public health messaging look like today?
Here's one example of a public health campaign about smoking sensation. So it's run on Facebook. It's already digital. This is already a good start. It's in the UK Southwest of the uk. This type of messaging is usually not very targeted.
so the same message would be shown to all users on the internet or billboards throughout the city. It's a one-size fits all. The same text is used for all parts of the population. The social media is -- you are sort of preaching to the choir. You go there if you are already interested in smoking sensation basically. Typically, they have a short duration of funding constraints and the goal in terms of designing is to have one message goes viral. You want to have one really funny youtube video or something everybody wants to share. If you sort of compare this to what companies do, this is some examples of weight watcher messages. Range of different messages.
they try out which message works better. They have some idea but really try to use machine learning or very simple testing to learn how do we really get people to buy our product?
More generally engage with our message. The idea is you have different visuals, different texts and really try to be specific in terms of which visuals and texts you use in particular segment. And concept of dynamic creatives. Actually use machine learning to generate these things. These different combinations. You could even think of generating different message itself. Not to have one thing that fits all. Very much about personal decelerations. Different people would get different health-related message. What other kind of targeting capabilities that existing platforms already support?
The most basic things are age and gender. That's been around for a long time. You can think of marital status. That should effect the kind of health messaging you want to put in front of them. Whether they are to become parents. This is something

that Facebook tries to infer about you. Even the nationality is something social networks try on target about. Unrelated line of work to monitor migration. They know your education and let you target user space level based on the income. This is only available in the U.S. and UK they buy third party data. And target people based on their ethnicity or ethnic afility. Whether somebody is interested in weight loss or over-sized clothing. A user interested in over-sized clothing, might tell you something about their BMI potentially. Another dimension is geo fencing. Based on where they are. Target people that have recently been to a hospital, for example, for particular type of health message. Or somebody that's been to an area of town or people who have been in a park. So given the park is big enough. And you can imagine all these cases you want to show a different message based on where people are. Also want to mention something that's controversial. Personality based targeting. You heard this in the setting. So here, this is not explicitly -- you can't go to Facebook and say I want to target extroverts. However, there are scientific work in a respectable journal that you can use this as a proxy for personality. Correlates with the personality they have and so there is peer reviewed work this actually shows this does lead to higher click-through rates.
and more effective messaging. And all these online platforms to support audiences. If you have a set of phone numbers or names of people, you can be really specific. This is specific and comes with more privacy concerns. If you are a company and have a lawyer through the program, you can say here are all the people on my program. Show them one type of message. So with this in mind, what's the pitch base. So the pitch is simple. This is like advertising 101. But, again, this is not done at the moment. Broadcasting one message to everybody. What does it look like?
User segments that they might be different for marital status, et cetera. Then where appropriate, you would measure not just online behavior but off line behavior. Now allow you to track in-store visits. So you can imagine your health center is a store. You want to get people to come for diabetes checkup and see how many people came from online advertising. Defining hospital as a store or define the whole park as a store. Go to purchase in the park. So there's technology out there that you can use. And you want to use artificial intelligence to learn which combination works best. So maybe, young men
actually -- that you have not thought of before. Some examples. Maybe if you wanted to advertise activity in a near-by park, very different message for recent parents. Maybe you talk about why don't you go out with your children?

Why don't you kick a ball. Maybe go for a romantic walk. Trying to sell the same thing but message very differently. You can learn which combination works best. Similarly for diabetes screening. Maybe show a different message for somebody interested in plus-size clothing or somebody interested in fast-food, et cetera. The benefits of breast-feeding, similarly. You can target just recent parents, recent mothers or target them differently by the education level they have. You can target the age of the child that the parents have and be very specific. You can even target the particular orientation. Something that's supported by the online platforms or the education level. And as a side effect --
>> Please wrap up.
>> Side effect to learn about behavior change. Challenges, of course, a lot of privacy concerns that you have to think about. People are getting more and more fatigued. The concerns. If you are not on the platforms, won't see the campaign. It's cost effective. You can start small and see what kind of return on investment you get. Quickly mention we are starting two proof of concept studies where we look at, for example, what type of user are more interested in. We want to get them to click on healthy recipes and see whether they are interested at the moment in healthy or unhealthy food. Whether they live in high or low obesity area. One thing looking at smoking sensation, we're doing something on U.S. Hispanics where we look at whether the parents are not and see what works best. And last what I want to mention work we lated to social media and different topics. Happy to talk about that later. Thank you very much.
[Applause]
>> Thank you very much.
>> We have one important announcement we forgot to make which is relevant to all the programs. Would you make the announcement?
>> Thank you very much. And sorry for the interruption. The last sessions from 4 to 5:30 this afternoon will be basically around project ideas. So what we're going to do in the last session that we're going to split in groups based on each of the is people who made the pitch. Maybe to come up with some sort of announcement or decisions. So we just encourage people to take note during the presentation which project they would like to join at this last session to discuss further and to explore collaboration of opportunities. Thank you and sorry for the interruption.
>> Next up, Jeanine.
>> JEANINE VOS: Good morning, everyone. It's really fantastic to be here to share with you some thoughts on how mobile data can help address some of the world global complex challenges. With increasing availability from ever-growing number of sources

combined with capabilities, big data is really now ready to power AI and machine learning. In my presentation today, I will give you overview on big data for social good we launched last year. Provide concrete product examples we've kicked off and then I'll conclude with a couple of questions to frame the debate that was just mentioned. I would love to have your thoughts on key questions as to how we unlock the opportunity of big data for social good. Maybe first for those of you not familiar with our organization, represents the mobile industry around the world. We combine a collection of nearly 800 mobile network operators as well as over 300 other players from the mobile industry and together they connect over 8 billion mobile devices. And projects that really aim to accelerate the mobile opportunity for good. The GSMA have set itself apart to connect everyone and everything to a better future. And as such, GSMA and its members have committed to aggressing and accelerating the impact the industry can have on the sustainability development goals. And it's in the context we were looking at mobile big data. You can really see around the world some major pressing challenges that are very well captured in sustainable development goals. 50 million people still die of infectious disease. 1.8 billion people have been effected by disaster in the last decade. Air pollution is the fourth biggest health risk globally. These are big challenges. And the GSMA and its members have been looking to see how mobile big data can help to help governments and emergency agencies to better understand, predict, plan or respond to these emergencies. Overall, the mobile industry connects 5 billion customers. And these customers generate data of usage which indicates their location or movement across the network. When awe nonMIEZ this data, you can provide powerful insights. That can help emergency response crews understand who might be cut off from aid. Also, you can think about scenarios where mobile big data is layered with other data sets. Emergency that you layer it with information on health, incident rates and how that can help provide a better understanding on the spread of diseases or vice versa, how can information and mobility explain air pollution. Or how can it help understand the impact of on-going climate stresses such as floods on people and the displacement. So that's why the GSMA initiative was launched. We have seen quite a great number already of data initiatives around the world to date. At the same time, we haven't really seen the big data skill yet. We haven't seen it deployed that consistently around the world. So we were thinking what can GSMA do to help accelerate the deployment for social good?

And we're working around three pillars. We have set up an authority panel of UN agencies, UN programs and partners as well

as task force of 20 operators to build across the demand and supply side. And together we work to develop best practices to ensure a consistent approach, radical approach for big date with the aim to establish a framework that will help accelerate adoption around the world. And also ensures privacy of individuals that's protected and respected. And those best practice frameworks are tried and tested and validated. In the areas of health, epidemic, environment, disaster preparedness or climate impact. We also hope to drive adoption. Currently, after first iteration of this, we've completed first wave of work and we're capturing those learnings and kicking off the next phase. Just to bring us more to life through a couple examples. So air pollution is now the fourth greatest risk factor for health. In Brazil, 20,000 people that died related to air pollution every year. And worked to develop a date solution to predict air pollution levels 24 to 48 hours in advance.
>> One minute.
>> For the city of Sopalo which covers 12 million people. They leverage mobile big date. Layer it with traffic information to establish a model that can help policy makers to take action before an air pollution strikes. By knowing the air pollution level in advance can take steps to advise the population at risk of redirect traffic or take other interventions. Second example is one we've worked on in close collaboration with the health mobile initiative. Which is a joint initiative by the WHO and ITU focusing on TB in India. The challenge is still very severe. Nearly half a million people die from it each year. Many more expected to go undiagnosed. The Indian government set up a strategy to end TB by 2025 and looking for technologies to help in this challenge. Worked with governments around the world to leverage technologies and has done extensive work in India already around, for example, smoking sensation and looking for new ways in which big data could also help address some of the healthcare challenges. So we work together with the mobile team to leverage mobile big data indicators with a layer that with TB case data to better understand --
>> Please wrap up.
>> The relationship and the location of where our people with TB most likely reside. And the final example is the project on multi drug resistant malaria. Has emerged and moving west. And working with Harvard to understand impact of mobility on the spread. The results to be available later this year. We're focused on disaster preparedness and climate impacts. You can really see the potential. We still have not seen adoption throw the healthcare system. I thought to pose a couple questions. And really to think about the broad systematic enablers that we

need to realize to unlock this opportunity. How do we establish trust by the healthcare sector?
How do we build a common understanding across the demand and supply side and address the real needs and focus our efforts. And how do we ensure investment in a required resource in capabilities not just in the industry but really on the healthcare side. It's so crucial to have close collaboration, partnership and share insights and work jointly on developing these solutions, these methodologies and analyze the outcomes. So I'll wrap up here. For anyone looking to learn more about initiative, please check out online and I look forward to the discussion this afternoon. Thank you.
[Applause]
>> Great. Thank you very much. And next up.
>> Thank you. Hi. My name is Clara Montava. I work for the office of innovation. For those that know our team we are pretty big team for being innovation in the united nation and multi disciplinary team. We have engineers and support developers, designers. People coming from education backgrounds from policy. And we work across both sectors. So we are not dedicated to health but we support our country offices that would like to test new technologies for many reasons. The problems that we try to focus on are problems that are complex and big. Mainly they have two things. One is cross border. And the other is they are changing rapidly. So we are looking at how new technologies can support this type of big problems that concern us all. So I work with epidemics and started in 2015. So we were trying to get information in real time. So in order to be able to respond rapidly. So we have a platform that's basically a messaging platform. Right now, it has 5 million users. And it runs on Facebook chat. At the time it was running [Inaudible]. You don't need a smart phone. Any crappy phone can receive the SMS. We have people signing in. And we can have bidirectional communication with them. At the time, we were asking people do you know where to go?
Do you think in schools we should have this kind of interventions or not?
And this was providing very important information to respond in real time. At the same time, we're working with mobile operators in order to get data from aggregations of mobility data. So understanding how people are moving in real time can be a lot of information for us. Mainly spreads through the movement of the people. Then we started look into Zika. That was the biggest emergency at the time. Of course, that is not only due to people's movements but you need to combine different sources of information. So it has the weather temperature. Very important factor just because you maybe have more water in

your area. So we have built a platform with our corporate partners to combine and harness big data for social good. Epidemics is one of our uses. We're also using it to estimate poverty or for natural disasters. What this allows us as well to integrate epidemic modeling. If there is a model a University has developed and working to see if the new sources of data can build upon what's already done to make better models. Now, when we talk about big date, the elephant in the room is many people are not covered by big data. And the most vulnerable do not have a phone. So having a platform that you have data, for example, the image in the slide is Columbia. The data from movements extracted from social media. And you can see how different they are. And so we cannot just trust one source of information or at least we need some science behind to understand what is the bias. And this is important when we're feeding the data into machine learning algorithms. If you train an algorithm with data it's not representative enough, then the outcome of that would for sure not be representative either. So we have a team of five scientists that work with brother network of collaborators trying to tackle these kind of issues through data science. It's not only about forecasting but also what are different risk factors?
It's an infrastructure map. The triangles in white, they are the cell towers. The dots are the schools. If you see there are a few schools that are very well connected. The ones in green are connected and the ones in red are not connected. When you show these to someone working for communications, they see this is key for my strategy. They see a risk map here. So we are using machine learning to map infrastructure. We are testing it with schools.
it's where UNICEF has most of their programs based on. Not only infrastructure but also estimation of population based on the study.
>> Two minutes, please.
>> So there's a whole tract around satellite imagery. This is the technology we're using behind this kind of risk factor. And the next thing that machine learning can do is to quantify what is the importance of each of these factors. In a rural area, maybe the most important piece is mobility. Maybe the most important factor can be poverty. So we are using machine learning to try to understand which are more important. And I just wanted to close up saying this is not a problem that only one organization can address. So we believe in open source and open collaboration. So we welcome every collaboration with all of the organizations and every partner in the room. So thank you.
[Applause]

>> Great. Thank you very much. Next up. We thought we had the order all figured out.
>> That is Anita who isn't here. Oh, she is. Maybe you can introduce yourself before you start your presentation.
>> ANITA SHAH: Thank you. Good morning, everyone. Thank you so much to the event organizers for privilege to present amongst such fascinating and creative and prominent presenters. So I'm going to be talking about malnutrition. According to UNICEF, a child dies -- five children die of malnutrition every minute and 26 million children die of malnutrition every year. So the thought of a hungry child is obviously very sad and quite compelling. So methods for extreme rapid observation of nutritional statuses. So an introduction. How it works. Some of the results and how we might scale up. So Kimetrica is a social enterprise. Focuses on improving the effectiveness of social spending. And how do we do that?
We focus on traditional monitor and going evaluation using qualitative and quantitative methods. We develop software. We have a simulation and modeling team and a large-scale survey team. Here I'm going to talk about the work of that simulation and modeling team. As I mentioned, methods for extremely rapids operational status. We developed a model prior to funding from UNICEF through our own funding. And this used a neural network in order to -- and these images are images of adults in the U.S. We use the database. The University of North Carolina. And we train the model in order to come up with BMI score and await category. And we received funding from the UNICEF innovation grant to further develop and refine the model. So we achieved a 78% accuracy in the correlation from the first model. Proved the concept and then the UNICEF innovation fund was interested in see whether this could work in detecting malnutrition in children under 5. So we're looking at a different target group.
What was the main research question?
The main research question was to determine whether it could be as accurate or perhaps more accurate in traditional measures of malnutrition. Whether it was actually feasible. So how would the government actually react to this kind of thing?
Would we get ethical clearance?
How would care givers feel about taking a photograph?
So these are the kinds of questions we are looking at in terms of feasibility and cost effectiveness. For assessing malnutrition in emergency contexts. So these are some of the challenges that we face using traditional methods. These are the main measures or diagnostic tools. These are some of the challenges. One they require highly skilled trained enumerators. They also require bulky VIMENT and transferred. It can be stressful for children and parents. And it does

involve a lot of physical contact and child. So what we did as a first step was approach the ministry of health with support of the UNICEF office to get it validated. Validates the methology and then went to the ethical board who after rather long and rigorous ethical clearance process, after that we began the data collection process and piggy backed on the routine assessments of UNICEF and the ministry of health. So that was the data collection process. We trained the ministry of health supervisors and enumerators to take a photograph. So what did we need to train the model?
We needed the answer for metrics. And measurements. We needed the age ethnicity and gender of the child.
>> Two minutes, please.
>> Okay. So here we're integrating date collection process and Kimetrica trained enumerators. The supervisors carried out 10% backtrack and did interviews on how beneficiaries felt about this method. I'm just going to talk about the model architecture. As I mentioned, the initial model was built on a database from the U.S. we managed to collect 4,750 images. 1,000 of those images had children who were crying. But taken at an angle where we couldn't see the whole face or the contrast was not right. So we had to basically do three key things here. You can see the first model was a pretrained network where we extracted 4,096 facial features. Also had to use an encoder to reduce the number of features. And then we developed a third model which is fully connected neural network that detected the malnutrition status. And the weight for height score. I'm not going to go into that. That's the black box. So what do communities think?
The vast majority said that the method was culturally acceptable. And the majority thought that photographs --
>> Please wrap up.
>> Faster, less intrusive and less stressful for kids. The next step is to document the findings and our final results, we're still fine tuning the model to overcome the issues with the photos and should have the results in a few weeks. Scaling up, awe would like to test it in different countries to see how the model works with different types of faces of kids. We would also like to try in conflict zones and community health workers could take a photo and send it to us. We started collecting photographs in active conflict zone at the moment and proving feasible. I think less potential here. It could have a big impact. Could be accurate cost effective, feasible in different country contexts. Thank you.
[Applause]
>> Thank you very much. Marcel.
>> MARCEL SALATHE: Thank you. Again, apologies for the many

introductions. My name is still Marcel Salathe. I'm still a professor. This was federal institute of technology. There are two in the German part of Switzerland. My lab's office are just around the corner at this campus biotech. So there I run a lab called Digital Epidemiology lab and we use digital means to do epidemiology. We've been doing this for quite sometime. And mining social media is something we've done also for very long time. And what we did because we're academics, we found an interesting question, we tackled it. We published and we moved on. And we did this a couple times of a proof of concept prototypes but after a while, we realize we can prototype for the rest of our lives. We actually were interested in turning this into a platform that would allow an academic public goods organization partnership. I know many public goods organizations whether governmental or nongovernmental are look for this kind of thing. And they'd like to do it in academic partnership as we have done it. Go through any epidemiology or infectious disease conferences, 80% of the talks are, of course, by academics. There is a really intense partnership and WHO and some know this very well. I'm delighted to launch this new platform to an open platform called crowd breaks. Obviously, between the crowd and out breaks. But we consider it as a platform for health trends tracking. So the idea's quite simple. This is a health trends tracking system that openly and transparently analyzes social media at the moment and works with Twitter. By the way, it's online of the you can go check it out. It could work with any data source down the line. It combines machine learning with crowd sourcing. So what it does is we asked people to label tweets depending on the question at hand which is what you would do in any case if you would do a research project or any project. You need labeled data sets which a machine algorithm can learn. Very clearly a social media contains valuable signals myself and many of my colleagues have worked for ten years and others as well to show that. I think we're past that stage. Open source framework for this kind of collaboration. So today I can announce three informal launch partners who are interested in using that. 60% project where we're there and want to take this to the next level. And there I'm showing one of the papers published 7 years ago. we have on board and the Saben institute. They use it for different reasons. And, of course, I cannot speak for these organizations. Things they are interested in specifically around vaccination which is a topic close to my heart is things like risk factors. Tracking or understanding of demand. and so shared a slide of an issue close to their heart. There's a huge yellow fever epidemic. It's one of the largest in decades. Prevention, of course, comes through vaccination and,

of course, vaccination campaigns are on going. Also increasingly understood that the adherence is relatively low. And nobody knows why that is. All the models you can come up in infectious disease modeling. Eventually, there's going to be a huge behavioral element in those models that can completely determine the outcome of those models. As modelers don't know what to put in. Twitter is a good data source. So very simply how it works, it's really a very simple system. So don't be put off by these slides. Basically, hook into the Twitter data stream. You get the tweets that you want. And you define a set of questions that you want to ask about these tweets. Could be as simple as what is this tweet about vaccination, yes or no? And then machine learning algorithms work on that used that trained data. The algorithm wasn't consistently updated. You need to update all the time. The under lying data is changing all the time. So they keep on retraining. This is an automated fashion for any organization interested to do this very quickly. So these are the Stakeholders just to wrap up. We've developed this based on our experience. Any Stakeholder that's interested, I'd love to talk to you today or tomorrow could use this system. Of course, it would be good if there are resources you could provide to this project. I'm really excited to make this an open-source project. It's clear. We're good engineers but not the only engineers in the world. Many academics and very excited from different fields to work on these problems. But don't understand the end problem very well. So we'd like to fault them in as well. This could work. We thought deeply about incentives.
because the incentives are not well aligned. And I hope we have found a solution here. So this is the project. Please come and talk to us today and tomorrow if you are interested. Thanks very much.
[Applause]
>> Great. Now the final.
>> Good morning. Thank you for the opportunity. I'll talk on a similar topic than actually you did. That is my nutrition and also focus on children and what we have today is 160 million malnourished children. 50 million of those don't have every food everyday. Another 110 that may eat enough but the variety of food they consume is not good for the body consistent. That has an impact. When a child in the first five years of life is not getting the right nutrients in its body, the mind doesn't double up as it should. And there are even studies that has a long impact on the life to come even -- 3 million children dying every year. So I'm an innovation guy. What we do is take our problems we face everyday and I'm coming from an organization which normally brings food packages to houses and communities.

And we say our main problem is not bringing the food. We have the food. But we don't know where to bring it. We are not good in the targeting. When you look on all the statistics we have worldwide, 30% of wasting. When you go to a community, that's not even half. You don't know who to target and who to target is what specific topic. So when we push that problem to the I-T community, okay we can help you by using artificial intelligence. That is what I'm going to present to you. We want to bring a tool to workers who identify malnutrition and work with those children. That is today as we heard this is agencies. We want to go one step ahead. They can give that tool to the mother so the mother can determine the status of their children and then adopt a reaction. So this is what we have. It's similar than the idea. Having a solution which is quicker than what is there today. Today we spend for one measurement about $30. You need equipment which is inaccurate. High failure possibility. The data collection itself is not issue. Imagine in India a child is measured. The data is put on a piece of paper. That piece of paper go to a regional state office and sits another year before it's handed over to national statistics and finally used by WHO. So there's a huge issue of rapid response. And as we said, you need to react in the first five years of a child. So we don't have that time. So how that works is easy user interface which we have already established. And basically, it's a video sequence of a child. The child is crying or the mother is walking on the back. Determines what is the child and what is the background?
That's early example. Looks something like that. There is -- try to adopt in the near future. So that's a picture coming out. And based on that picture, we basically start the calculations. We calculate the body, the hat. The upper part of the body. He will estimate the wait. And the hope and the software is working and be transported to diseases. So that is what the software is doing. And the accuracy is not 76%. It has to be 98-99%. And we strongly believe AI can do that. Of course, we need data. Currently in the status of getting 10,000 children in the system. We have a station in Bombay. That means with the wait. And that will be done for 10,000 children. And in addition, we will take the video sequence. And by then, developing the artificial intelligence. So the minimum product is already out. We are using it and 31st of May we start using it in India to start the data collection. The hope is to have by August the product with a very simplified user face. We learn, for example, that you cannot make [Inaudible]. The app needs to react automatically when the child isn't in the right position.
>> Two minutes please.

>> So we have passed all those steps. It's to stand with 10,000 children that are in. In the process of forming alliances. The telecom and others because we need a community coming together and helping us. And like that, we're going to go to end of the year. What's happening next year is open question. In India first, but then we would like to bring it to Africa. We work in 39 countries. But the measurements are different. The children have different body size than what we have in India. And the plan next year is to do that in Northeastern part in India and moving to Africa. For that, we need resources. It's open source project but also a non-profit project. Not maximizing of any kind of profit. In 2011 maybe 1.5-2 million children are scanned. Maybe 40 or 50%. And then starts a reaction. If you get that doing, imagine in 12 years we will help 12 million children a year. And that's a relevant contribution. Without innovation -- so that's basically my pitch. We'll be happy for contributions. People who like to take a stake in the software. We don't mind sharing it with others, partnering with WHO. Want to get that running. Been living in Africa for 15 years. We need it. Don't recognition malnutrition without the tool. We continue doing like today and still have 150 million children in 2030 and 3 million dying a year. We don't want that. Thank you.
[Applause]
>> Thank you very much. And thank you to all the presenters for keeping within time which means that we have about 20 minutes for questions. I have a couple of questions. I'll just pose one to all of you. What do you see as the greatest challenge in the widespread adoption at the innovation to describe?
And please keep it to a minute or so. Maybe starting over with Marcel.
>> MARCEL SALATHE: What is the major barrier in that sense? There's a whole pipeline going from let's invent some technology to the action on the ground. And so I can specifically talk for the first part. That's where we're based. And at the end of the day, it's a resource and a talent problem. We're talking about AI for good. Everybody reads the newspapers. Everybody knows that even in non-profit organizations, some of the top developers make 7 figure salaries and yes, that's a 7, not a six. I read a report the other day the average salary seems to be 350,000. So who is eventually just going to do that?
And I think this resonates with a lot of people. I think yesterday at the professor's talk, that was one of the most uprooted questions. That's one of the biggest barriers. It's not the only one. But for us, I think, in the long-term it is a major barrier.

>> I'm going in a similar thing. Research and development in our field of non-profits is not there. In my organization it's like something percent. It puts 5-10% of budget to find a solution. And this is wherein ovation comes from. Limits us in using the capacities. Then it's about talent, yes. It's about maybe salaries. But on the other hand, we have empathy game. I also believe we can attract intelligent and smart guys to come in our sector. It's not always about money. So talents I think we can bridge. Working as an innovation guy and an organization from 25% on your ideas. You get a no on your ideas. On 75% about 60% maybe say hmm, yes, maybe, maybe not. And it's maybe only about 5 or 10% who start saying yes, let's try something. We have done that for years and not really solved the problem. So we have that mentality. And we have to overcome. It's the structures and the resources. The talents we can manage. We are not sinking in competitors. We are sinking in partnerships and this culture has to be adopted.
>> For the project that I was describing about using target advertising for public health campaigns. When we talked to the public health ministry in Qatar, one of the biggest hurdles is more innovation mind set. The idea of let's try something small. Let's adapt the product cycle as you might see in a tech company rather than thinking okay there's this one big thing we launch and it will last a year and do another sort of thing. Let's start small and it rate and learn from this. So the lack of that is the biggest hurdle.
>> From my side, I think the biggest challenge to scale the platforms that I was describing is the access to data in the sense of, like, data that is readable. So many times in order to validate the algorithms, we need data from the field. And many times, it's not a format we can read or not gathered consistently. I think I would go more for these kind of collaborations not only with the private sector but also with the actors in the field between agencies. Even if it's sensitive data, not saying we need to open up all of the data. But we can have APIs like systems that connect interfaces that connect different systems and we can then build upon each other's work.
>> Thank you. And just want to resonate the comments made. Skills and resources not just on the tech side but in government bodies and other agencies so the whole Eco system can capture opportunity. And could also play a role. And also from my side, clarity on the different roles in the Eco system. There's a lot of players, a lot of Stakeholders in the AI and big data for good space. So to really understand what is each individual's roles and what can each party contribute to what is their piece of the puzzle would be really helpful.

>> Thank you. I'd say there are two main barriers or challenges to adoption. One is the black box that is discussed a lot today. The code is open source. Algorithms are transparent. But trying to explain them to a layperson or technical experts is quite difficult. And I think if there's a lack of understanding, there's a lack of willingness to want to engage. So that's the first thing demistifying AI is a challenge and need to find ways of explaining the concept better. The second is the ethical issue which was also discussed yesterday. While the minister of health were really helpful at the training, each and every enumerator raised the same concern. If this works, what will happen to our jobs?
So these are two really very Big Bear -- barriers.
>> I think it's still the country needs to have a mandate and the mandate drives the actions or activities on the ground. And most countries don't have a mandate for utilizing AI as part of the processes to make them go forward. So I think in a way, we are at an impasse. The ministry wants to make sure they are not at risk. And such as science and technology or other add ministry -- administers. But this room can inform that. So I think it will be really important if some of you put together what are the critical policy enabling environment that needs to be embedded and has a financial consequence to understand. If the line ministries will have a budget line item for innovation in AI, that is a mandate. As a result, many things will move forward. To get to a point is a process. I also want to put one question for you from the bank. From the loan instruments that's going to be negotiated or are being negotiated, what aspect is attributed to use of AI for countries to think about? These innovations cannot flourish if there's no government mandate.
>> The bank is very much client driven. On health projects also ministries of health. So it gets back to understanding of the potential use of these tools and the integration of these tools into the broader digital health system more generally. So really needs to increase the level of understanding. Propose the various innovations that have been described. The proof of concept. But there's also the issue of integration of this into the broader digital health space and also getting to scale. Those are obvious issues.
>> Make a comment. I think there's a strong appetite on the governments. They have a strong appetite. They need to be directed. What they want to see happen is the collaboration. The collaboration is the key. And not only in terms of the service providers but highlighted investors and I think all has to happen which I think is the key discussion we want to have so keep an eye on that. This is to see where the collaboration

lies for you to show concrete ideas or implementation. We want to see those happen so we can make a case for the government.
>> Okay. Right there and then here.
>> I'm going to play a little bit devil advocate. Focusing on research. And I'm in charge of trying to sell or develop the AI strategy and one of the roadblock is for the solution to eliminate diseases. They don't need more date. They don't have the link. No link yet between we will have this nice model creating bigger and doing this season. Thank you very much. I know that for 20 years. So they need to have this link and need to keep in mind what it was done before because it's very important for different diseases. You will have different need of date. It's not only the case. And there's already a lot of --
>> You turned off your mic.
>> I didn't turn it off.
>> Knead to engage first. Pushing a solution.
>> Okay. Over here.
>> Thank you to the panel. I'm calling from Harvard's client center. Also here to help support our report back tomorrow. And in that vain and picking up on a threat in terms of collaboration. I wanted to bring up the data commons over our trajectory so far in the data conversations here. That we've an aspiring to here. One question for the panel is what would it take for you to be able to enter into such an agreement and perhaps join some of these repositories and connecting that to privacy which I feel like today has been brought up a concern and not perhaps flushed out in the way of how we're actually go about expliciting addressing that. I just wanted to make sure those two areas would require an additional emphasis on privacy for us to consider that.
>> Anyone on the panel want to respond?
>> I can. The other tract on that. But in terms of data cooperatives, we're seeing a lot of interesting models around that now emerging. In particular also here and many of you can comment on what's happening in your countries. People are building these cooperatives where data is owned by the didn'ts and share it the way they want to. These are early stage projects.
they seem promising. They are technological. Whoever builds new apps, mobile apps in the health context can easily integrate them and the data's automatically being stored on those citizen owned cooperatives. So I think very innovative models there to be found. I don't think anyone has the solution. We're looking to that. Can I make a short comment to the welcome issue?
I obviously fully agree. I find this comment that we should look at the real problem and not the tech. I don't think anyone

in this room is naïve enough to think that. We're at the AI for Good conference and AI hasn't been developed for health. It's come out of the tech community. Tech guys really don't understand the real problems we have on the ground. And we all want to use this technology which was developed for completely different reasons but we should really engage in a partnership and not say you don't get my problem and I don't get yours. But I'm sure you agree. And not just putting it to you but as a general comment for the record.
>> Okay. Any other quick responses?
>> Just like to add on the sharing of data, as much as possible, we'd like to be able to share what we have. Just going back to the ethical constraints. So, for example, we were going to ethical clearance to do this work with the prerequisite we can't share them with anyone even if we wanted to.
>> I think it depends on the type of data, of course. And there are plenty of models to collaborate with GSMA, all of the work they are doing trying to normalize as well and make a framework that others can come into it. And, yeah, there is sensitive data and I think every UN agency gathers some of it. So it's not something that we can definitely open. But there are like if you want to train something you need historical date. If you just want to try to use these technology, then you need access to data, that's for sure. It's definitely a must. And you need to keep the user as your final, you know?
So it's not that we are I don't think -- yeah, I agree with what you said on trying to put the user first and find the technology that it's the best fit.
>> Okay. One final question. The only thing standing between us and lunch. Please keep it short and try to keep the responses short as well.
>> If I could just be a diplomate for a second. I think it's picking up the point between our colleagues from the welcome trust. If I could say potentially there's a need to establish answer. And then the real world. In a way that has relevancy of developing country. It's an implementation issue. The way we've approached our technology is we didn't build it all first and say how can this be rolled out. That's the point. The connected world in high-income countries is connected to the very world.
>> Any comments from the panel?
>> Yes, one comment.
>> Also our colleagues and conservative ones came to the arguments. There's a technical solution getting people in our case and we have a model obligation to try to use that solution for our cost. And we have to use something which is out there. It's an opportunity to solve some of those problems our

community has described. That's for me bigger than all the debates of what is right, who is first and who is a champion. We have to put that principle in the front line and we work for good.
>> Anita.
>> ANITA SHAH: One final comment which is I think technology is a means to an end. And as long as we are human centered and ethical in its use we should be fine.
>> Okay. Great. Well, thank you very much, everyone for your attention. Apologies for the slightly shortened session. We managed to stay within time thanks to our panel. And thanks for the great discussion.
[Applause]
[Captioner change. Please stand by]