

THE BROOKINGS INSTITUTION

MOBILE ENTREPRENEURSHIP AROUND THE WORLD

Washington, D.C.
Tuesday, October 23, 2012

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P R O C E E D I N G S

MR. WEST: Good morning. I'm Darrell West, vice president of Governance Studies, and director of the Center for Technology Innovation at the Brookings Institution, and I'd like to welcome you to our forum on mobile entrepreneurship around the world. And we are webcasting this event live, so we'd like to welcome our viewers from around the country and outside of the United States.

We will be archiving the video from this event so anybody who wishes to view it after today will have an opportunity to do so through our Brookings.edu website.

We also welcome any comments and questions that you have. We have set up a Twitter feed with the hash tag #techCTI, so if you wish to post comments during the forum or ask questions, we would be happy to have you do so. And during our audience Q&A segment, we will take questions both from our live audience as well as the virtual audience.

So, today we are releasing a new paper entitled *How Mobile Technology is Driving Global Entrepreneurship*, and copies of the paper are out in the hallway or available online at Brookings.edu.

Entrepreneurship is crucial for economic development around the globe. In places such as Nigeria, Egypt, and Indonesia, it is estimated that micro-entrepreneurs generate 38 percent of gross domestic product. Mobile devices provide opportunities for entrepreneurs to overcome the challenges of doing business in developing nations. Mobile phones empower women and the disadvantaged, they allow businesses to access market information, and they help small entrepreneurs sell products across broader geographic areas, reach new customers, and also utilize mobile payment systems.

There was an interesting survey recently by *Time Magazine* and Qualcomm of over 4,000 people in eight different countries and what the survey found was that 93 percent of those polled believe that wireless mobile technology is important for entrepreneurship, 81 percent said that it helped them search for the lowest available prices, 78 percent felt that it gave them access to a larger group of customers, and 63 percent believe that it strengthened the economy in their home country.

And we think that mobile devices are especially helpful to women and the disadvantaged. They often don't have access to venture capital or startup funding, so it's difficult for them to get enterprises off the ground, and wireless communications can help broaden their reach and give them access to bigger geographic areas and help them overcome some of the barriers they face in terms of technology, capital access, and societal restrictions on women in some of those places.

The forum today is part of a three-year mobile economy project. Previously we have done events on m-health, m-campaigning, and other aspects of mobile and broadband development. We appreciate the generous financial support that Qualcomm has provided for this project.

To help us understand the benefits and barriers to mobile entrepreneurship around the world, we have brought together an outstanding set of speakers this morning.

Alex Counts is the president and CEO of Grameen -- is that how you pronounce it?

MR. COUNTS: Grameen Foundation.

MR. WEST: -- Grameen Foundation, a nonprofit organization that helps

the poor escape poverty using microfinance and technology. He founded Grameen in 1997 after a decade of work in microfinance and poverty reduction. After graduating from Cornell, he studied as a Fulbright Scholar in Bangladesh where he trained under Dr. Muhammad Yunus, the founder and managing director of Grameen Bank, and a co-recipient of the 2006 Nobel Peace Prize.

Alex is the author of *Small Loans, Big Dreams: How Nobel Prize Winner Muhammad Yunus and Microfinance are Changing the World*.

Mwangi Kimenyi is director of the Africa Growth Initiative at the Brookings Institution, that is part of the foreign policy program here. He is a senior fellow and director of the Africa Growth Initiative and a research associate with the Center for the Study of African Economies from the University of Oxford. He is the founding executive director of the Kenya Institute for Public Policy, Research and Analysis, and there he focused on Africa's development including institutions for economic growth, political economy, and private sector development.

He is the recipient of various honors and awards including being the co-winner of the Outstanding Research Award by the Global Development Network. He also has authored or co-edited seven different books, six policy monographs, and is published widely in various journals and books.

And to my immediate right is Brooke Partridge, who is the president and CEO of Vital Wave Consulting, a company that seeks to advance emerging markets. Before joining Vital Wave, Brooke was the business director of the Emerging Market Solutions Organization at HP where she built a team that designed and commercialized HP's first technology solutions for developing economies.

She has lived and worked around the world including Peru, Chile, Mexico, India, Africa, and Western Europe. And she has been featured and quoted in publications such as *The Huffington Post*, *The Economist*, and *The New York Times*.

So, Brooke, I will start with you. How is mobile influencing entrepreneurship at different levels of the global economy?

MS. PARTRIDGE: I think it's safe to say that mobile is, at the lowest ends of the global economy, not just helping entrepreneurship, it's actually allowing it to happen in many cases, it's actually enabling entrepreneurship, in many cases, for the first time because of the reach, obviously, that it provides, and the communication that it allows, in many cases through very simple use of voice and text, it enables taxi drivers to find, you know, more clients.

It enables service providers, which is a big part of the sort of business of lower income individuals in the developing world, providing labor and service; they are able to connect more easily and readily with business opportunities as day laborers.

But there's also the more multilayered impact of mobile in the developing world, especially for entrepreneurship as it's creating opportunities for entrepreneurs who actually create services through the mobile phone, app developers, for instance, who are creating services that can be used by other entrepreneurs in the developing world.

So, there's a multilayered impact that it can actually have.

It's also enabling -- I mean, I think it's important to note that it enables entrepreneurship across almost every industry. You mentioned the panel that you had recently on m-health, m-health, m-finance, m-learning are all areas that are growing quickly and are aiding entrepreneurs and also creating entrepreneurs.

There's a great initiative called MAMA, the Mobile Alliance for Maternal Action that's funded by Johnson & Johnson and USAID and the UN Foundation, the M-Health Alliance.

They're out helping entrepreneurs in the developing world who are creating m-health applications that provide information to expectant and new mothers. And so, they're actually stimulating -- because mobile is available, they're stimulating entrepreneurship that is then having secondary impact in terms of helping maternal and child health.

So, mobile is having impact for entrepreneurship on many levels.

MR. WEST: Okay, thank you. So, Alex, you help the poor escape poverty using microfinance and technology. How do wireless devices affect poverty alleviation?

MR. COUNTS: First of all, I just want to congratulate you, Darrell, on this paper that you've come out with, which I read earlier this morning and I highly recommend. It's something that's short and chock full of facts and ideas and data and not that much jargon. And also, in this day and age, to be able to wrestle any piece of thought leadership to the ground while -- and get it out while it's still relevant is actually a big accomplishment, so congratulations.

Grameen Foundation has been working, actually, for 11 years in how the mobile phone can be a poverty alleviation accelerator, long before we knew that there would be five billion phones in the developing world, which is the case today, and so we've learned some lessons, as much from things that have not worked as things that have worked. And I just want to kind of summarize those lessons and then give you two

concrete examples just to kick it off.

I think one of our lessons is that technology is usually the easy part of making technology work for the poor, and one of the more hard parts are often about how you have frontline people that cover the last mile that actually can help the poor and the organizations that work with and benefit from technology. It requires a lot of agility. What works in Uganda doesn't necessarily work in Kenya. What works in 2009 doesn't necessarily work in 2010.

It requires deep relationships with mobile network operators who are, themselves, often going through big swings of profitability and then disruption. And it requires a real level of accountability that just to throw mobile phones over the wall and assume that they're going to benefit the poor without building in accountability mechanisms to see that how they're benefitting and that they are benefitting, is a recipe for uncertain outcomes.

And so let me just take you through our work in East Africa and then maybe a little bit in Indonesia. We, in 2002, we took a program that had been wildly successful in Bangladesh, the Village Phone Program, where women were set up, ultimately 300,000, to have mobile pay phones as a business.

We took that to Uganda, initially messed it up pretty well and really didn't realize that just throwing the phone over the wall, as I'd said, that worked pretty well in Bangladesh, didn't work so well in Uganda, needed some reengineering. But we got it right. Ultimately, 80,000 Ugandan women, microfinance clients, most of them, benefitted.

We sold our interest in that kind of social enterprise and started something similar in Rwanda. But then we realized it was a dying business. As

everyone got their own phones, pay phones were less valuable, so then we said, why don't we use the data possibilities of the phone and put up a bunch of information that you can get through a very basic phone in three domains -- health, agriculture, and commerce.

And what we found, skipping a lot of learnings, but the final learning through a third party study was that putting really relevant information in those domains on the phones in two languages increased knowledge but didn't change behaviors, which was kind of Holy Grail. So, rather than be excited about the knowledge change, we said, how do you actually -- we pick one domain, agriculture, how do we really drive to the behavior change piece?

And so we expanded the information available through agriculture, but we actually had one farmer in each community of now about 1,000 communities in Uganda who became an expert on how do you actually get the right information at the right time with the right images to the farmer in their community that can actually help them improve their yields, get a better price, adopt better practices?

And what we found is that by doing that, by having that person covering the last mile to help contextualize the information, we actually finally saw a behavior change. We saw farmers adopting better practices, over two years doubling adoption of good practices, and also getting significantly higher prices for their crops compared to a control group.

So, we had IFPRI actually do the study for us, so we felt finally a bit satisfied, but while I'm sure there will be some other disruption that will send us to have to innovate more, but we're really pleased with that outcome. And the other thing that was

interesting is we said, do we charge for this mobile agricultural extension? So, we said, initially no, but what we learned was -- and this is another piece of what we feel the opportunity is -- is that we, along the way, realized that having these enumerators out there that could serve as enumerators, these, what we call, community knowledge workers, which were pure farmers, 60 percent of which earn less than \$1.25 a day, but they have a little more education, can read English and understand English on their phones through the database, they were actually in a position to conduct surveys in their communities of farmers and actually gather information, upload it in real time on their phone, and there were a lot of organizations -- international organizations and businesses -- in Kampala that were willing to pay for that information.

So, that became an income source. We paid them for doing these surveys, which actually helps bridge the information gap between the central -- the capital and the businesses and the government there and what's actually going on in the rural areas. For lack of that information, a lot of business does not get done with the bottom of the pyramid population.

Also we gave them a solar charging solution, which they were very entrepreneurial and began to -- it could not only charge their phone, but phones of people in their community, and they were now earning a dollar or two dollars a day in additional income without even charging for the agriculture extension, which they did as a kind of pro bono service.

So, we had a lot of learnings and some satisfying accomplishments.

In Indonesia, I'll maybe get into that a little later, but we more did a mobile micro franchise play that was with our partner, Ruma, that is mentioned in the

paper, and where we saw that by empowering village entrepreneurs -- and that whole project was the -- it originated in an idea that was totally wrong in terms of its assumptions, but we innovated and changed our model and it was in partnership with Qualcomm, who's a great partner, especially when things don't turn out like you think they're going to turn out and you need to change on a dime. I guess they've learned that from their business.

But ultimately what we found is by empowering, now, about 12,000 village entrepreneurs to sell air time in tiny increments in their community, as much as 10 cents is what people want, and they want it in that small an increment, and they want it locally, that we found that the margins that the village entrepreneurs could earn on air time sales from their phone to another with a special application could take 40 percent of those entrepreneurs who were below the poverty line when they started that business, and 40 percent of them, within six months, earned enough margin on their airtime sales to cross the poverty line, which is a lot faster progress than we see in traditional microfinance or a lot of different social enterprises.

So, anyway, I could go more into those areas, maybe I'll leave it here.

MR. WEST: And we will, shortly. Mwangi, you direct the Brookings Africa Growth Initiative, so what opportunities do you see for m-entrepreneurship in developing nations?

MR. KIMENYI: Thank you very much. I also appreciated reading the paper, which has -- is quite detailed and easy to go through, but with relevant information.

I found this topic of mobile technology is -- I'm very passionate about it and I see it as one way that Africa, especially the poorest countries, can leapfrog

development. It has provided us many opportunities, and in fact, we could not have imagined the trajectories that we are able to achieve these days.

I come from Kenya and in Kenya, you know, I think anything -- if you talk to even those people who have not gone to school, have a very basic education, they will tell you a lot about what they do with their mobile technologies, mobile phone.

Just as an example, I can from here, from Washington, I can take money from one bank account in Kenya, transfer it to another bank account, transfer money to my own -- to convert money to electronic money, send it to someone in Kenya, pay some air time for someone else, within five minutes. I can do all that sitting from my office and it will cost me, you know, for every maybe transaction, about less than a dollar. If you compare that with transactions like Western Union or anything, it's incredibly cheap and very important for us.

Now, the way I would like to look at it from in terms of entrepreneurship, is thinking about why is it that we have, particular for developing countries, that we get a lot of problems in terms of entrepreneurship? What are the constraints to these entrepreneurships? And they are actually -- if you look at breakdown, everything you find that it is either due to government failures or actual market failures that actually constrain entrepreneurship. Then we think about it backwards and see: how do these mobile technologies help us to solve these government failures and also the market failures?

And the way I see it, in terms of opportunities, the first one is really -- and where we have really exploited these mobile technologies, is on information. Just, you know that, entrepreneurship is difficult when you don't have information. There are major market failures because of lack of information or the way the information is transmitted, in

terms of speed or in terms of availability, but the first thing that we know about mobile technologies is that they help us communicate information very fast, to distant places, remote areas, where you don't even have any other form of infrastructure, like roads or landlines and so on.

So, I think that's one of the areas that has been crucial in terms of solving the market failures that hinders business operations and so on.

I think the other one that is also important has to do with government failures. We know that there are a lot of problems with governments in our countries that constrain how people operate businesses.

And there are so many operations right now that deal with how to improve the efficiency of government, and just to give a few examples, for example, in Kenya and Nigeria, there is a platform in the mobile phone in some of these countries where if you are going to start a business and you get problems setting up a license or you're asked to pay a bribe, you can just send information that you are required to pay some bribe and you will get a response to give the information about that.

So, when these people know that issuing a license is supposed to be free and then someone is asking for a bribe and there is communication, that can reach the authorities, usually you are able to deal with this.

We are using the mobile technologies also to deal with violence. As you know, in Kenya we had the elections violence in 2007, 2008, and what's going on now, there is already a platform, mobile based platform, where people can record incidences of preparation of violence and this is transmitted to the headquarters, they sum up of potential violence and so on.

So, since we are here in the Governance Studies, I think one of the areas innovations about mobile technology is creating a good environment for people to do business, for entrepreneurship, because now there is more information and they saw that.

Now, so far, as we know, and what we have seen in many of these countries, and looking about like the issue of financial inclusion, and we talked about the poor and finances and so on, there is still -- we know now there is a lot of opportunity to exploit the mobile technologies still. We've started with money transfer. That has been perfected now, so to say, but we have now gone to another stage or sort of second generation where now we need better innovations that we can take advantage is going to the savings, setting the insurance, going to the insurance, which has already been practiced, but they need to be scaled up a little bit so there are many opportunities.

I think one of the areas that I have seen -- again, using the example from Nairobi about opportunities, is that people have realized that this small mobile phone can be -- you have the technology, but there is so much that can be done with it. So, one of the outcomes has been new innovation laboratories.

There are incubation laboratories now and I counted last time I was in Nairobi, I visited like five of them, where they are being set up by businesses, they are giving them funds just to look at what you can do with these mobile phones, and these are great opportunity for young people where they are testing, coming up with ideas, some of them coming up looking at what problems are entrepreneurs facing.

One is security, for example, and I know someone has sent an application that can track the movement of security guards and for them to actually report

anything that they are going and connect it with the police and so on.

So, I think there are many opportunities, and we talk about even the health area and the farm area, you know, like now we know there are platforms where they are using weather insurance through the mobile phone, again, so there are so many opportunities that we can use.

We just need to understand how we communicate these, and I guess the big problem has been something works in a small community, but scaling it up is not automatic that it will be -- that it will work in every other place. But there are many, many opportunities for using the mobile technologies for development.

MR. WEST: Okay, so with Brooke and Alex I want to follow up on a point that Mwangi just made in terms of -- he was mentioning that the constraints on m-entrepreneurship generally arise from government and/or market failures and just the need for information that comes out of that.

So, I'm curious, for each of you, what are the barriers that you see to m-entrepreneurship and how can we overcome them? And Brooke, we'll start with you.

MS. PARTRIDGE: So, three or four main categories come to mind, and just to start with a comment on Mwangi's examples, which are so fantastic. Kenya is an amazing hotbed of m-services and use of mobile and entrepreneurship, and it's largely because of M-Pesa, because of the peer-to-peer money transfer system that has become ubiquitous in the country, it's become a platform for developing other types of services. And the challenge is that other countries have not been able to duplicate that same scale of M-Pesa because of government issues, because of market pressures.

A lot of what made M-Pesa -- or allowed M-Pesa to scale is that it was

underestimated, right, the government didn't think it was going to be something big, the banking industry in Kenya didn't pay attention to it, and it took off. It was an amazing business model; it was a service that was definitely needed. Safaricom, Vodafone invested in it and they made it happen.

But it's not been replicated in any other countries, yet there's been a lot of intention even Safaricom and -- there's been attempts to duplicate M-Pesa in other countries. So, what's happening is the government gets involved and starts putting regulations around it, and that's, you know, for good reasons, but it's also inhibiting the scale.

The banking industry is concerned because they feel that they're missing out on some of their own market, but what you're seeing in Kenya is a tremendous growth of other -- of other services, you mentioned several of them, Chimganka is one, a really great service that uses M-Pesa that allows families to save for the birth of their child so that they actually -- it's essentially insurance, it's essentially medical insurance for childbirth. It's just one of many, many examples -- the weather insurance for crops, all enabled through M-Pesa.

I will say, though, that there are other challenges aside from just having this kind of foundational platform available, like peer-to-peer money transfer. Finding scalable business models or planning for scale from the very beginning is a huge best practice that is difficult. A lot of these applications are started by people who see a local, immediate problem, an issue that can be solved through a pretty straightforward application, and so they create that application and that's fantastic, they're solving the local problem.

Then the question comes up, well, if this problem exists in many other places, why can't we scale up this solution? The issue is the solution technically and from a business perspective, operationally, was not necessarily designed initially for scale, and so people spend a lot of time trying to expand pilots that were never intended to grow in the first place.

They really need to either start with a plan for scale or actually kind of go back to the drawing board and redesign the solution, not throwing away what they've learned -- they've learned a lot through the pilot -- and those learnings can be applied to a new implementation, but the pilot itself rarely successfully scales without that in mind in the first place.

MR. WEST: Okay. Alex, what are the barriers that you see and how can we overcome them?

MR. COUNTS: Certainly, government policies are a key issue, some of these -- I mean, related to know your customer requirements, privacy, anti-money laundering, anti-terrorism, to name a few, that are in the process of being worked out but that many countries are working them out very differently, which is going to create its own problems.

So, there's a big public policy agenda.

Second, I think the mobile financial services possibilities are, even in Kenya, are -- we've only really hit the tip of the iceberg, and I'm not entirely confident that we're actually going to get far beyond that without a concerted effort.

Really, what -- the innovation has been around payments, which is important, but the possibility is their mobile phone to facilitate borrowing, saving,

insurance, is really underexplored. Where we've -- in a neighbor to Kenya and Uganda, we've started with the Gates Foundation and CGAP and Barclays, a mobile money incubator and then an accelerator to take the best ideas that shows -- you know, that are built for scale from the outset.

We're excited about it. We're applying some of the same approaches, the iterative learning approaches that we've applied to the kind of village phone and CQW but it's -- you know, we're not there yet.

The other two barriers I see are, number one; it's a very simple one, charging solutions, power, electricity. We've been promised solar charging solutions that work. We've really found very few that actually work more than about six months or a year before they start breaking down. So, if someone can nail that or if someone has and we haven't found them yet, please send them my way.

But I think, you know -- and again, the grid electricity has its own limitations.

And lastly, there's a huge issue, which goes to the scale question, of interoperability, so a huge amount of one-off solutions that are not built for scale or to interface with other solutions. We see this particularly in the mobile health field where we've been working in Ghana and India, and certainly health is a key issue -- secondary issue to entrepreneurship. If you're not healthy, if you're afflicted by health crises, your business is not going to work if it's a small family business, but the era of "let a thousand flowers bloom" in terms of mobile health and other mobile solutions, if it was ever appropriate, I think it's not appropriate anymore.

These systems need to be able to talk to each other and that's part of a

larger issue, as Brooke mentioned, of building these solutions for scale from the outset and that's something that I think has not been the norm so far.

MR. WEST: So, Mwangi, several times people have mentioned Kenya, now. Since you're an expert on development in Africa, I was wondering if you could compare and contrast the Kenya approach to that of other countries with an eye towards helping us understand what are the barriers and, you know, what are some of the countries doing wrong, and what should they be doing that might enable more progress?

MR. KIMENYI: Thank you. Actually, it's been a very difficult question to answer because every time someone is asking, you know, why is it working in Kenya and it's not working in other countries, and I remember the former CEO of Safaricom saying that Kenyans have peculiar ways. For example, on Friday afternoons it's very difficult to get a call through. Everybody -- for some reason, everybody seems to be waiting the whole week and then they all are calling on Friday and, you know, the networks are crowded.

So, he was talking about -- instead of saying he has mechanical or technical problems, he was saying the Kenyan's peculiar ways of calling.

There are several issues, I think. Kenya was lacking in this case. One, as Brooke says, it seems that M-Pesa was underestimated. There was real opposition, particularly by the bankers when they realized that it was growing because, first of all, you cannot handle money without a banking license. You cannot take money unless you go and get a banking license. How are they receiving money and transacting with money?

And actually, this -- so, this was an issue, but they said, they are not

doing any banking. They are just like converting money from paper money or real money to electronic money and then transferring it, so it was not banking.

Then you had a real change in -- I think leadership matters. We had a real difference in terms of the central bank governor who was, by the way, one of the people I had hired when I was at my former institute, and he understood this issue and he's on it.

Then we had a regulator, the Minister of Telecommunication -- we had a new permanent secretary who had started in the U.S., had done a degree on technology, ICT, and he understood what this could do and he was able to convince the president even when there was a real opposition by the bankers.

By the time the bankers started to organize, they had moved on. But apart from that, I think Kenya has also some other advantages. I tried to look at Nigeria and I was asking, why is it we had a similar forum with Citibank? And we (inaudible) at that time, but we're asking, you know, why is this not happening as much in Nigeria?

And there are many countries that have issues. One is that you really need to do a lot of this mobile-based transactions, you also need a good system of national identification. There are many countries where they don't have a national ID. Some, even religious, I think there are some places where they don't register, so they don't have IDs. You need a real system of identification.

The other one is really the capacity. I think you really need the capacity to regulate. Some of these mobile technologies that we think can actually destabilize the entire monetary system. If you don't know what you are doing, you -- it's not just letting it go, a lot of the countries, particularly in Africa, do not have real capacity to regulate

without controlling. You know, in other words, major regulation that allow them to work, and at the same time, not constrain the innovations and so on.

But there has to be something else that we haven't really figured out, and there are people now trying to do randomized experiments. I know my colleague is doing some randomized experiments to see why some communities adopt or others are not adopting, what is in it.

So, we really don't have an answer. Maybe that's where some of the areas that we really need to explore further to see where we go build this and we've been trying to answer some of those questions. But the issue, in terms of the big constraints, I think, interoperability is big. In Kenya we have right now six mobile companies, telecom companies, each its own system, by they don't talk to each other and you cannot even transact, you know, between them. So, that becomes a big constrain in terms of the big -
- at the national level.

MR. COUNTS: Darrell, could I -- just quickly?

MR. WEST: Sure, go ahead.

MR. COUNTS: I was in Kenya just -- I'm no expert on Kenya, but I was there three weeks ago and I asked this question why was the uptake so large here, and one of the things that people -- a couple people said, so, it's not scientific, but people said Kenyans and East Africans in general have a tendency to be open to new ways of doing things. And so, apart from anything else, were just willing to say, let's transact, you know, money on our phone. Why not? Let's give it a whirl.

And the other thing that was kind of interesting about also the regulators, we were with -- Grameen Foundation, we've made a modest investment in the world's

first cashless microfinance institution called Musoni, based on Kenya, so it does not in any -- it does not touch cash in any of its ways that it operates. And they were applying for a banking license and interested, like many countries, I suppose, to open up a bank branch in Kenya you have to have a strong room in order to actually keep the cash safe.

Well, when you don't have any cash, that's not such a good investment probably. So, we were meeting with some of the women and the COO and he was off to visit the central bank officials to make the case that could they grant a waiver. And I don't think it's been resolved yet, but he was thinking of it with a sense of optimism, like the Kenyan Central Bankers, they'll probably see the logic of what we're doing and it may take a few weeks, but we think we'll get the waiver.

But in a lot of countries I've been in, sometimes the very one that I'm sitting in today, the government's ability to grant waivers and see logic and let kind of these things evolve, I haven't seen much evidence. But in Kenya, that's -- there seemed to be a sense of optimism that the regulators will -- you can kind of dialogue with them.

MR. WEST: I'm glad somebody's looking ahead.

The last question I want to pose to our panel, and then we'll open the floor to questions from the audience is to ask each of you to kind of look two to three years ahead, just in terms of new developments or new innovations that are starting to come online or that offer promise of being transformative. Like, what are you seeing? Brooke?

MS. PARTRIDGE: Yeah, Mwangi referenced it a minute ago. It's m-identity. It's the ability to authenticate people on the phone so that you can have more secure transactions and more sophisticated transactions. And it's a new area that

organizations like the GSM association are just starting to work on and they're forming working groups.

My firm, Vital Wave, we have a very concerted effort to be understanding in helping to drive the thought process around m-identity, but we've been saying and thinking for years that it would be a lynchpin for a new level of m-services, especially in the developing world. And so, yeah, that would be a place where I would keep an eye out.

MR. WEST: Okay. Alex?

MR. COUNTS: I think to, you know, piggyback on a point I made earlier, that further exploring the mobile financial services possibilities beyond payments is certainly, we hope to go there.

Second of all, I think there are a lot of, kind of, e-governance possibilities and I remember, without going into the story too much, in Rwanda where there was so much -- I remember a woman pulled me aside when we were launching Village Phone there and she pulled me aside and said, you know, we wish we'd had these phones in our communities during the genocide because we were getting all of these wrong, kind of, violence inducing messages through the radio. I wish we could have had phones to call into the radio stations and get on the air and tell them that those are wrong, but it was only one-way communication.

So, we're not sure exactly how that would have worked, but it was interesting that that was her insight.

But lastly, and this is an insight from the survey work that we've been doing, as I said earlier, these community knowledge workers doing a baseline survey of

every farmer in their community, uploading it instantaneously into a database through a phone with GPS so it shows exactly where it is, and then doing regular monthly surveys on a contract basis, it's kind of created a vision for us, in two or three years of, you know, in the international development industry working on poverty, our M&E systems are atrocious, and even those that have tried to do it, they don't speak to each other, so it's this interoperability question, I think.

You know, we could actually set it up so that the monitoring and evaluation arm of the international movement to end poverty is actually poor people in those communities, who are trained to use a phone and use simple tools like our Progress out of Poverty Index, to actually tell us whether what we're doing is working and moving the dial and letting them get paid for it and do it at much less cost.

And, again, if we can agree on some basic protocols in terms of data standards, you know, what we could have is, A, for the first time, most of the resources being trained on poverty can follow, actually, results rather than reputation and relationships, which is how most of them get allocated now, and also, in that M&E effort, get the poor paid for it.

And so, that's kind of an exciting vision that we're, again, starting to take some steps in that direction. I won't say we're there yet, but we see the possibilities of it based on our work, especially in Uganda and Kenya -- Uganda and Indonesia.

MR. WEST: So, Mwangi, what are you watching for over the next two or three years?

MR. KIMENYI: So, first of all, I think the way -- this is really a sort of geometric growth in the changes and the way it is and I can tell you, if we see two or

three years from now the things we are talking about will probably -- couldn't we think of this stuff? I would say that I don't want to answer that question explicitly.

I would say I think what we will see will be major innovations using mobile technologies and applications that we cannot think of now, but they will be driven by a constraint that people are facing day-to-day, whether it is in the operations, whether it's where the government is failing, where the markets are failing. I think there will be solutions, at least with young people, if these innovations are doing -- are looking at particular constraints in operations and trying to see what solutions they can do.

So, I would say that there will be geometric explosion of solutions using mobile technologies in the private sector.

But I think in governance also, there will be major changes in how our governments relate to us as citizens in Africa especially. And just to give you a simple example, one of the big problems we have in service delivery is that people don't show up. Doctors don't show up, teachers don't show up, so we do service, we fight that, we have about 20 to 25 percent in a single day of teachers who are not in a classroom. The monitoring is weak.

Now, we are doing a system where we are getting reports on our databases in some sample schools of teacher absenteeism without necessarily going to do the random checks, but someone -- we select schools and we get information about teacher absenteeism.

The moment they know that this can happen, it will be very difficult for them to do that. This is the same in terms of they tell us now if you want to get a passport; this is what you expect to get, and so on.

So, I think there will be major reforms because of the mobile technologies, but predicting ahead we can just say it will just be a major explosion. And a good sign is what I saw now in terms of the new investment of innovation laboratories in the private sector. Equity bank -- I served as a director of an equity bank at one point for six years and now they have about 100 innovation centers for mobile-based applications where they are giving people (inaudible) so they can see how to move on these.

So, I think we expect great things from this.

MR. WEST: Okay. Let's open the floor to questions from the audience. So, if you can raise your hand, we have individuals with microphones. There's a question right there on the aisle.

So, if you could give us your name and your organization. We would ask you to keep your questions brief so we can get to as many people as possible.

MR. CASTLE-MILLER: Michael Castle-Miller with Public International Law and Policy Group. I was wondering, you mentioned as money transfers took off in Kenya that you faced all the opposition from the banking industry. I'm wondering, as entrepreneurs begin to spread into these other industries that you were talking about, do you also anticipate now, you know, opposition from government, entrenched interests, to those new industries?

MR. KIMENYI: Actually, you know, in the end what happened is that after they lost this fight they decided they had to find a way of getting into the market. So, like now, every bank has combined so that now they have linked up to the mobile transfer system. So, now they are collaborating with the transfer system, with the M-Pesa.

So, if you go to Barclays or (inaudible) bank or Equity, you will be able to

do transactions directly between the accounts M-Pesa. So, they are cooperating.

Now, there is an issue in Kenya that's also important, and this is something that we need to explore. Now, Safaricom has a market share, which keeps on coming. All the others are always complaining. Market share is about maybe 60 percent of the market in terms -- 70 percent in terms of subscribers, in terms of the fund communication, but about 85 percent of the mobile transfers.

So, that is really dominant, and what's happened is that every business person, because they don't want to handle cash, you know, there are risks carrying money, so even all these other people are now joining in in terms of now it's actually a currency. It's an accepted currency.

So, entrepreneurs are all finding ways to join into this transfer at this point. I think it's so dominant that it's difficult to fight it, and fighting it is finding how do I get into this business.

MR. WEST: Okay. Christine has a question from -- oh, you don't have a question. Stephanie, she's right back there. Yeah, okay.

SPEAKER: Yes, we have a question and they want to know, to the entire panel they're asking, how can you strengthen the rule of law through innovative mobile technologies?

MR. WEST: Don't everyone speak at once.

MR. COUNTS: Let me just say that I think that, you know, the rule of law, you can approach it from a lot of directions, it's not something I've thought too deeply about, but I think it's fundamentally rule of law, there's a very important piece of accountability, of people, whether they're private sector actors, government actors, social

sector, education, and it's building in that accountability.

I mean, imagine, just to take this -- the example from Kenya, and I was reading Dean Karlan's new book, which I reviewed and I really liked, from Innovation for Poverty Action, and one of the things is, they just -- they lined up students in schools to just take a short video everyday at the same time of where the teacher should be standing. And either the teacher was there or not there, and then they would upload that and then officials who had oversight responsibility could see it five minutes later whether the teacher was actually showing up or not.

And so --

MR. WEST: I'm glad we don't do that at Brookings.

MR. COUNTS: Yeah. So, I think that accountability on all levels and, you know, all the stakeholders in making the market work, become much more affordable as people get comfortable. And I think the comfort level is of people with their phones and their various capabilities, the phone prices are dropping, the comfort level of using more the video and image capture and data capture parts of it is growing. I mean, it's -- you know, it is geometrically increasing.

What's going to be here in three years? I mean, I'm wanting to almost -- the pace of change is so fast I'm almost wanting to make some line about bayonets and horses. But I can't quite figure out what it is.

But anyway, the rule of law and how it relates to keeping people accountable for doing what they should be doing and not doing what they're not doing, boy, the phone is, I think, just a powerful tool that we're just starting to see the faint beginnings of.

MR. WEST: Brooke, any --

MS. PARTRIDGE: I think fundamentally it's great to think about the mobile phone as enabling two things -- information and interaction, right? Those are the two things that it really enables. So, from an information perspective, the amount of data that's being collected through mobile phones around the world has vast implications.

The whole concept of big data and how that's being used can be applied very much to the process of setting policy and really creating an environment that is more beneficial for one's citizens.

It also allows for interaction and that brings up, for me, the topic of what many refer to as digital citizenship and the opportunity through the cell phone to bring people who are otherwise, for instance, in the informal economy or just completely sort of excluded from society in many ways, into society or into the formal economy.

And that has fundamental implications for rule of law, for economic growth, for many aspects of societal growth.

MR. WEST: Anything --

MR. KIMENYI: Yeah, I think, as mentioned, I agree with all these issues of accountability are key information.

The way I've seen -- and Darrell, you mentioned this in your paper, about empowerment, although you talk about women and poor. But actually what mobile phones have done is really give a lot of people power. They know that they can communicate with people they could not otherwise communicate. They can send messages to the state house, they can send messages to the radio station, and they can actually say what's going on in their community, whether they are -- whatever services

they may be getting and so on.

So, I think the issue of rule of law through this accountability chain is going to be strengthened in terms of looking at, you know, the relationship between the citizens and their politicians and their administrators and so on.

So, it will be -- it's a major issue. It's another way of looking at how social media had the impact in terms of the Arab Spring. I don't think we'll get that movement type in Africa, we don't have all that like internet access and being able to communicate, although it's happening in the cities, but mobile phones can do the same -- can come up with the same changes.

MR. WEST: Okay, in the very back is a gentleman with a question.

MR. JOERN: Hi, Bill Joern with a company called ROI3. And thank you, Darrell, for organizing these. You know I've been to many of your sessions.

The purpose of our company is to build apps for the emerging and developing marketplace, and I say that only as a preface to the question. The references that you all have made are to countries, by and large. Are there practical opportunities for developing apps not only on a country basis, but on a regional, like an ECOWAS in West Africa, or even on a continental/global basis?

MR. KIMENYI: Can I -- let me respond to that because I know the practical cases of now, for example, Airtel. Airtel is -- whatever you can do in one country you can do in, you know, it's all -- I think it's the entire Africa now, and you can do a lot of things using the same platforms.

In the case of Safaricom and Vodafone in East Africa, and for example in the case of money transfers, it doesn't matter where you are. You can do all those in any

of those countries, but I think the problems that have been -- where they have specific problems have been done by local entrepreneurs and they have been focusing more on the problems that they face.

So, I think that's a good opportunity in terms of thinking about broader issues. Although I know, for example, in the case of one interesting one is where you have this transport, like from Mombasa to Kigali in Rwanda where they have been having a lot of problems with theft and drivers, you know, using the trucks for other purposes. Well, now, there is a trucking system using mobile devices that they know -- the owners will know exactly where they are. It's combining with a GPS on the phone and they're supposed to report every time and they know where they are. So, there could be.

MR. COUNTS: Just in terms of we're now starting to confront this as we take our community knowledge worker model in a little more different form to places like Ghana, Tanzania and Colombia, and I think certain things such as, you know, it was kind of a revelation for me that one of the things that farmers in Uganda most wanted were basically accurate weather reports, you know, three days in advance, which were available, but you just needed an interface, like we all have on our iPhones, but on a more -- make it more on a more basic phone to get that available.

I think some of that is probably scalable across regions pretty easily. Other things, less so. You know, how we develop this database of agricultural information for Uganda, in addition to the price things, which obviously fluctuate, is we just went through a painstaking process of finding the thousand questions that Ugandan farmers most asked, most wanted answers to, and then went to all the agricultural authorities there, said, what are the best answers that are really relevant to -- you know,

not telling them to buy some fertilizer that's only available in Belgium, but what's actually what they can do on their own.

And when we look to see transferring that database of questions and answers, of frequently asked questions, from Uganda to Kenya, there's a lot that's transferrable and a lot that needs to be reengineered, not the underlying technology, but in fact the content that populates that does really change and even in some cases what the most -- you know, some of the questions there are much more relevant to certain parts of Uganda than the others.

So, it's -- I think it varies. I think looking for things that are -- apps that are scalable across regions and even globally, there probably will be some, and some of them will really need to be localized even within a country.

MR. WEST: Right there on the aisle there's a question.

SPEAKER: Hi, Teresa Triste, I'm a fellow at USAID working in the mobile solutions group, and my question relates to the issues of scale, lack of interoperability, and the plethora of solutions that are out there.

What concrete steps can the various actors in this space take to address these challenging issues?

MS. PARTRIDGE: I think, and this also refers back to the previous question, there are a couple ways to scale applications. You can scale by taking one implementation and making it cross-country, cross-border, or you can replicate an application in various different places, achieving scale, but through smaller implementations.

We actually have found that the first approach doesn't work and it

doesn't work because every time you cross borders you're dealing with different regulations, you're dealing with different network operators, everything -- so many aspects change including the content, as Alex was referring to as well.

And so, in terms of scale for applications across borders or growing regionally applications, obviously there's need for M-Pesa like services, you know, in most developing countries, but replicating through many different implementations is really the way that we see that happening in the near term because you're dealing with so many regulatory issues.

If you also look at, for instance, you know, financial services or health, you're going into a country and you're dealing actually with two net sets of regulatory bodies because you're dealing with technology regulation and the telecommunications industry in that country, and you're also dealing with the industry regulations, whether it's health or financial services, and that's going to change from country-to-country.

So, it's difficult to scale beyond borders without creating a whole new implementation.

MR. COUNTS: Just if I could add, I think what we need to do, frankly, to use a technical term, is get our act together, meaning this -- and we all are to blame by these one-off solutions. But I think there's some progress and I have seen it most, for our involvement, with our MoTECH, Mobile Technology for Community Health in Ghana, which USAID has been an important supporter of, where, to make a long story short, and with a real important role from the Gates Foundation that has funded a lot of these one-off solutions, have basically said that when we executed this mobile midwife program in Ghana, we executed the basic program well, but we were fortunate enough to get the

right software engineers to build the underlying platform for this database that sends messages to pregnant women throughout -- that are useful information for them, and creates a database where the health workers can track their progress.

In fact, it's basically mobile medical records, you know, advancing more quickly there than here is part of this project. And they said, the underlying technology that we did, they thought was the best of any m-health, and they thought that there were two others that had done certain aspects of it better than we did, and so we're now combining these three platforms into a single kind of platform for mobile health, and then the Gates Foundation is doing its part to encourage existing and new mobile health programs not to reinvent the wheel, but to operate off of this kind of tripartite platform that we're working to develop, again, based on just -- we're kind of reengineering what was just built for a specific project in Ghana as a kind of generic, open source tool.

And so I think that across other domains in mobile space, this kind of coop-etition, developing, you know, common standards, figuring out really who's got the underling technology right and others building on it, and applying the open source kind of principles, I think that, you know, it's time for us to -- especially those of us that are trying to do this for -- with philanthropic capital for social goals, you know, we can't afford the costs of unnecessary duplication.

MR. WEST: Stephanie has another question from our web audience.

STEPHANIE: Yes, I have a question from Jonathan Alger, who's watching from London, and he's asking, on the financial side of this, the financial scaling up, what's the condition of venture capitalism in Africa? Are investors in the global north paying attention?

MR. KIMENYI: So, I think Africa has changed a lot in the last ten years in terms of openness and, particularly my unit, has been saying that I think the United States maybe has ignored Africa in terms of the opportunities while many other countries have realized a lot of opportunities, so we'll be going there in terms of trying to get into the banking, and of course when you think about some of these -- when you think about most of the -- like, Safaricom. Safaricom is about maybe, you know, 60 percent is Vodafone, which is a UK-based company. And Airtel is India, so there are a few local ones, but most of these companies have ownership from outside. So, there is quite a bit of interest in that. New ones are coming.

But not just that, I mean, there is quite a bit of now new, you know, banking -- investment banks that are going into these issues of venture capital, risk taking particular activities, and I know that some of the innovation hubs are also funded through venture capital where they have seen some promising ideas and they have put some money.

So, I think this is going to be more. Government -- African governments have also to change to make sure that one is that the environment for business is good, the repatriation of profits, there are no constraints, the tax simplification issues. So, there are a lot of issues on the African side, but they are changing.

If you look at like the measures of doing business in Africa, Africa has been leading in terms of improvements, not level, but improvements over the last few years.

MS. PARTRIDGE: We're in Silicon Valley. Our offices are right by Sand Hill where all the VCs are in that part of the world, and we've had lots of conversations

with them about, you know, their investments in emerging markets, and the challenge for them is their investments are already high risk, and they're okay with that, right, investing in technology and large tech growth opportunities is risky.

When you add to that the risk of going to a very unfamiliar market with very unfamiliar and often volatile conditions, it's just -- it gets to a risk profile that they're not comfortable with.

So, for the most part, the VC community, at least in Silicon Valley, at this point has started establishing offices in the BRIC countries where they're feeling more comfortable and they have more familiarity now, but in looking at, you know, sort of the next level emerging markets, they're still, from what we can tell, a level of discomfort in terms of the risk profile overall.

MR. COUNTS: Yeah, and I think it may also be an element of kind of fads and phases. I think the venture capitalists have certainly taken on the issue of the -- of kind of climate change and the driving technology to address climate change and energy efficiency with their investing.

I think on the kind of mobile solutions to address poverty and entrepreneurship, that's probably more been done either indirectly or as a philanthropic play, but that may change or it may be based on the fact that, you know, climate change is going to affect us much more directly, or is at least perceived to be, than poverty and even the rising kind of entrepreneurs of the developing world. It may be based on that the technology itself is changing so rapidly that people wonder where to place their bets.

But again -- but I would hope, I think, it would be very constructive if that same approach that the venture capital community has taken to the kind of clean energy

and renewable energy would come into this space, I think it would be very healthy.

MS. PARTRIDGE: And, sorry, if I may, that said, while the traditional VC community is slower in that direction, large multinational technology companies, for instance, are making huge investments in their growth in emerging markets.

Qualcomm, that's one of the sponsors of this event, Intel, Microsoft, Cisco, all of them making enormous investments in not just growing their own business in emerging markets, but in helping to develop the entrepreneurial ecosystem in developing countries, because they know that's good for their business, right, and so it's an important part of the development of entrepreneurship in developing countries. And of course, mobile plays a huge role on many levels in those activities.

MR. WEST: Okay, so we have a question up here in the front row.

SPEAKER: Fami Akibi. I'm from Nigeria. My question is, is there any application or how far are we -- how close are we to an application that could translate all the dialects into a simple language? In other words, you send something in English, immediately it could be translated to 540 different dialects?

Secondly, an area of election and voting, how do we get to do this to identify people so that if they say infrastructure or logistic constraint, they are accessible and they can vote? In a place like Nigeria, for example, where the police department lack a lot of communication equipment, the walkie-talkie from the cell phone could become a very good communication device and also to track the police location.

In Nigeria, for example, there are establishment, they use the federal police department for private hotel security, I'm talking 50, 60 of them, and they've been there for years.

With this kind of application we could take a picture of it, send it to the necessary authority to see how they can address it.

And lastly, in area of education, is there any way we are able to use this to enhance the African base education from an African or continental angle? Thank you.

MR. WEST: Okay. Good questions. Panel?

MR. KIMENYI: I don't know about the translations. I haven't seen -- these are technical questions. I know that in many parts now you get -- you can choose a service like in Swahili if you are in the East African region, you can do your transactions in Swahili, but I think these are technical and it's more the technical side. But I haven't seen that translation.

I just comment on the issue of the elections because I think it's very important and what is on the ground now for many countries that are holding, you know, maybe scheduled to hold directions over the next few months is their use of mobile phones and mobile-based technology in terms of transmission of data, in terms of reporting will be very important. I know it's in place particularly in the Kenyan case where a lot of people are observing this, I know there already plans on the ground of how this will be coordinated. As I mentioned, issues of violence, issues of, you know, where there are maybe people stealing the votes and so on.

So, all that seems to be in place. But overall governance improvements do not come from incumbent governments, in my observation. Nigerian government may not actually want, on its own, to make improvements on governance to make things more transparent because that doesn't necessarily mean that it improves its chances.

I think when -- so, transparency issues are really going to come from the

people pushing for this. It's not the government to sit down and say, oh, now we want to be more honest with the people. So, I think it has to come from the people. So, the question is, how could mobile technologies be more effective? How can we use them to empower the people? I think that's one of the issues, how can we empower the citizen so that they can actually push their governments to be more culpable?

MR. WEST: Alex?

MR. COUNTS: Just on the translation, I really don't know the state of it although it seems to be improving. My assumption is that the -- is that -- what the market is going to deliver are translations through voice recognition and so forth, for the languages spoken by the wealthiest billion or two billion people in the world, that's what the market will deliver.

But I think piggybacking on those approaches -- and this may be an appropriate role for philanthropy -- is to piggyback on that and do that for some of the languages that are dominantly spoken by people more in the base of the pyramid. And I think that won't happen automatically, I think it will take a concerted effort.

On the education side, you know, one experience we've had operating off of this MoTECH platform designed for health, we've started a partnership with the BBC in India that I think could be -- will be applied to Africa, which is allowing frontline healthcare workers to take a kind of distance learning course on their mobile phone around best practices in their field in a kind of continuing education. And the uptake, I mean, we had 32,000 frontline healthcare workers in Bihar sign up in the first six weeks.

And, again, very critical part, cultural, you've got to deliver the certificates, which actually need to be real certificates that people can have. They're very

important in a lot of the countries that we have worked in. But if you can get those kind of cultural things right and then deliver good content, with a good brand of kind of Grameen partnering with BBC, I think there's huge opportunities for continuing education across the mobile phone for people that are actually in -- that are working in -- whether they're doing it on the corporate side or the governmental side or the nongovernmental side.

I think there's a whole other play in terms of distance learning for people that are in school, and I don't know how far off it is that a girl sitting in Zambia can get a Harvard degree and all that, whether that's really 10 or 15 years off or that's closer, I don't know, but the continuing education piece, we've certainly seen enormous interest in this pilot that we've done in India.

MR. WEST: In the very back there's a question.

SPEAKER: Hello, thank you very much. My name is Eifa Noosie, I'm with United States of Africa 2017 project. I listened to you guys and I see that you are beating around the bush on a certain aspect when you were talking about scales and barriers, et cetera. What you're facing now in expanding investment and entrepreneurship is what the people in Africa, for the last 50 years, some of us, have been saying, that these existing states are not viable to provide the needs of the people. And now you're facing it in terms of entrepreneurship and economic development and things like that.

And we know where once capital once get its way, it will make sure what we are advocating for so many years, that there should be a federation in Africa. It will happen. Venture capitalists in Silicon Valley will be flooding in five years when we have the federation.

MR. WEST: That's a bold prediction. Mitzi?

MS. WERTHEIM: I'm Mitzi Wertheim with the Naval Post Graduate School. The most recent issue of *Time Magazine* is raising questions about colleges and I will -- it was very critical of online learning. They did a study -- it's a question of content and how it's presented, and one of the schools did it not just having a straight lecture, but based on kind of how the brain works. And so it -- I think this is going to eventually be good, but not basically in the volume that it's going to be offered on the outset.

I want to raise another question about satellite information and the dependence on U.S. satellites and whether or not you think the entrepreneurial world is going to get more satellites up. I heard a discussion last week from someone from NOAA who was talking about the lack of interest of the American voter in replacing the satellites that are up there, and their answer is, why do we need to worry about that? We have the weather channel.

And so, there's this question of people understanding all the piece parts that are needed. And I have no idea what your thoughts are on satellites and how this fits into your discussions.

MS. PARTRIDGE: I'd be happy to make a comment on the satellites in the context of agriculture and entrepreneurship related within the realm of agriculture.

There's a lot of work going on right now about how digital technology, especially digital technology that's being used more pervasively in the developed world, can be applied in developing countries for better productivity of agriculture, which of course all centers back in on the individual farmer or the small holder farmer, who I would qualify as an entrepreneur in many ways. And so, there is new and innovative work

going on to use satellite data to better inform farmers on how to increase their productivity, by using their land better, by using the right fertilizers and doing so at a very sort of micro level.

It's in early stages right now. Certain countries, like Brazil, have done some really interesting work at the national level, but I think it's something for you to keep your eye on and you'll see it connecting in.

MS. WERTHEIM: My question is getting satellites up there so you can actually do all the things. There's a concern at certain levels of government here that we don't have the public support to get the satellites up when you're going around cutting budgets, so all I'm suggesting is some people have to start paying attention to that or all of the sudden you're going to discover the things you're capable of doing if you get the information, we may not be able to provide the bandwidth or whatever.

MR. WEST: Okay, other questions? Oh, go ahead.

MR. COUNTS: Just two -- I mean, first of all, my basic assumption, without tracking satellite launch patterns, and so forth, is that, you know, if people can make money off of it putting those satellites up to serve the wealthiest billion people in the world, it will happen, and if governments don't stop it, and then the question is, how can we piggyback on that -- on what is going to happen or not happen serving them to benefit the base of the pyramid. And I think that's the play and that's the trends we need to watch.

On the education piece that you mentioned first, it -- I have actually read a very small amount of that *Time Magazine* article. It's on my dresser. But one thing that was interesting is they talk about, if I'm not mistaken, they talk about different learning

styles of different cultures, and it was really a fascinating kind of summary in a very short number of words, of four different cultures, and so I think that that's right. I think in terms of this distance learning, e-learning has got to come over that.

At the same time, I think that in certain sectors, like the healthcare sector, where there's a certain common culture that cuts across in learning styles within the healthcare industry, and that doing -- and that the content and how people learn, there may be more similarities than I just kind of a generic undergraduate education.

But, you know, this is hard work. So, just one little piece in our mobile midwife program where we were delivering these messages to pregnant women about what they should do at week this and week that, and we feel very proud of it because, you know, I was worried that this would be just seen as like junk mail, the voicemail, or SMSes, and yet two thirds of the women not only listened to the message, but do a prompt for a supplemental message, and half of them get a third message.

It's just like an optional add-on message. But, you know, we thought most of them would want those messages through SMS. Turns out 99 percent wanted voicemail, a voice message. And then testing whose voice would they listen to, so we tried male voices, female voices, educated voices, a little more kind of undereducated -- you know, kind of the common man voice or common woman, this dialect, that dialect, and, you know, we finally got it that it was -- that someone that sounded like someone's, kind of, kindly auntie who had a certain amount of high school education but not more, not less, and that people responded a lot better to those messages than all the other options.

And that, you know, you think, you got information, you got a technology,

you sign some people up -- it's hard work.

MR. KIMENYI: I just want to comment on going back to mobile technologies. I know that there are several cases where banks are using these lending, but training people in terms of basic entrepreneurship skills -- bookkeeping and record keeping and so on -- and they do it, but with expectation that they now can go to the bank and apply for a loan, they will answer questions. And so this is working and many of them seem to be taking on, you know, like, how do you repay the loans, you know, go through that and that seems to be working and is free, it's offered by some banks, and then you go and apply for the loan.

So, there could be some applications that way.

MR. WEST: So, we have time for one last question and I'm going to ask it. The role of women and the impact of women. There have been some studies suggesting that mobile devices are a big empowerer of women in particular, just because in many countries they face various types of barriers. So, I'm just curious what our panel thinks, particularly, in terms of how all this affects women.

MS. PARTRIDGE: I'm happy to comment. We did a study on women and mobiles a couple years ago for the GSM Association and for the Cherie Blair Foundation for Women, and we did very in depth quantitative research in four emerging market countries, and what came out of that is a pretty significant gender gap in terms of mobile phone ownership in developing countries. At least at the time we did the research, there were 300 million fewer women owning cell phones than men.

And when you look at other aspects of these markets, for instance, we know that in many countries women are responsible for up to 80 percent of food

production in the country, and yet they're also the primary caregiver in the home. So, if someone gets sick at home, they are pulled out of the fields, which means that their productivity goes down. They're also in need of healthcare and health support that they're not able to get.

So, the cell phone can help them on so many levels in terms of their actual productivity and revenue generation in terms of their ability to provide effective healthcare in the home and maximize just the overall workings of their home and their own business.

We did find, however, that most women did not have cell phones because they didn't see a need for it, they actually didn't see how it was going to be helping them, and what we surmised from that is that while their lives, their worlds were relatively small and they had immediate access to most of the people that they needed to talk to, they had not yet experienced the value of services that can go beyond just talking to your neighbor or being in contact with your husband or your family members.

And so, as value-added services are becoming more available -- for instance, one of the countries where we did the research was in Kenya where M-Pesa was much more available and everyone was aware of the different types of value-added services, the women in Kenya actually understood the value of the cell phone much better than the women in the other countries where we did the research where fewer value-added services were available.

MR. WEST: So, public education does help.

MR. KIMENYI: I think, basically, once women get the phones, I think there is actually more utility in terms of what they can get out of it, the information,

relevance, health, agriculture, because they are in particular, far away in rural areas, many of the women.

But I can say that adoption rates, in particular, looking at Kenya, adoption rates in Kenya may not be that different between men and women. In fact, they may be very close.

I mean, I talk to people at the -- my mother passed away a few years ago at 87. She knew a lot of things I didn't know about the mobile applications. They knew how to withdraw money. That's one of the things they get to know even at that age.

So, even -- I think it's very wide, but in terms of empowerment, I think it's a very important tool. We know that -- by the way, a lot of questions were scaling up and all that, is that we have a lot of -- because we are doing these small scale pilots trying to see what works and what would not, so we are trying to do a lot of things and see how this happens.

We have one that we are trying on violence, and violence in terms of male/female -- domestic violence -- to see where having mobile phones with -- some of them giving them mobile phones and asking them to report any potential incidences, and it's very small scale because we haven't even gone to the full pilot. But the idea there is that we expect that having a mobile phone is a major -- so they can report without even the husband knowing, people can come, and I think that's -- so, I think it's an important tool for empowerment. We need just to see how to get them more—

MR. WEST: Okay, Alex, we'll give you the last word on this.

MR. COUNTS: Yeah, thank you. So, I think that there is -- will be a tendency for women's adoption and benefit from these technologies to lag, all things

being equal, and I think that looking for some strategic ways to close that gap or eliminate that gap would be important, one of which is, I think, and this is why we've -- one of the reasons we've been focusing on both mobile for development and microfinance is that microfinance is a huge infrastructure that has been dominated by interfacing with women clients, up until now dealing with the currency of money, but also can now deal with the currency of information and connectivity.

So, piggybacking on that, using that to channel the market, desensitize, give people familiarity, I think is an important play and using that infrastructure.

Second of all, I think just developing applications that are oriented to the issues that women care about. The mobile midwife program in Ghana not surprisingly found that when you went down the socioeconomic ladder, the likelihood that a woman would have her own phone or even that her family would or her community would, went down. It was surprisingly, you know, a lot, but still, the poorer you got, the less likely.

Well, by having an application like a mobile midwife program, that, again, we were through with MTN and other partners we can deliver for free, at least for now, that that actually seems to be spurring women getting their own phones because the men are -- you know, these messages that come about -- you know, that aren't relevant to them, it's a hassle for them, so -- or at least the woman having more access to it and more familiarity with it.

So, there's kind of an apps development angle in terms of -- with a kind of a woman lens. And then, you know, lastly, I think that this idea of empowering the poor themselves to become the kind of enumerators, the monitoring and evaluation arm of the international development sector, is very powerful because I think we make a lot of

assumptions that are, frankly, wrong, because we don't have real time gender disaggregated data on how things -- what's working and what's not, and by having that data, I think we can actually lead to a much better decision making, better public policies. Of course, better information doesn't always lead to better public policies, as happens in a couple countries around the world, but it leads to the possibility of it. And then with the free media, which is, I think, more and more common, I think there are some powerful synergies.

So, again, I think it will take a combination of market forces and a kind of public interest, you know, work on behalf of the poor and behalf of women to piggyback on these much larger trends that we don't have control of, but how do you create pro-poor and pro-women outcomes. And that's going to be the work that we're going to be doing and it seems like a lot of you are going to be doing in the years ahead.

MR. WEST: Okay, well, thank you very much. I want to thank Alex, Mwangi, and Brooke for sharing your insights with us and thank you very much for coming out.

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I, Carleton J. Anderson, III do hereby certify that the forgoing electronic file when originally transmitted was reduced to text at my direction; that said transcript is a true record of the proceedings therein referenced; that I am neither counsel for, related to, nor employed by any of the parties to the action in which these proceedings were taken; and, furthermore, that I am neither a relative or employee of any attorney or counsel employed by the parties hereto, nor financially or otherwise interested in the outcome of this action.

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