



# **How Mobile Phones Can Improve Access to Services for Persons with Disabilities**

## **Presentation Transcript**

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*Female:*

Good morning everyone. Thank you for joining us this morning. Good morning. So this is the seventh seminar series of Imagine Payment Systems and today, we are talking about how mobile phones can improve access to services for people with disabilities. I would like to introduce Maria Stevens who is a senior technical advisor at the micro enterprise office of USAID. Maria is an expert of regulatory issues and Imagine Payment Systems and prior to joining USAID she worked as a financial economist with the U.S. Treasury.

And we have a panel today with Charlotte McClain-Nhlapo who is a senior advisor to USAID as well and then we have Axel Leblois joining us from 3G ICT and Douglas Goist. Thank you.

*Female:*

Well, good morning everybody and good morning to everybody online. I hope you can all hear us clearly. Great. Well, let me tell you a little bit about how I ended up here and I guess how we all ended up here. I've been working in the emerging payments systems world for I guess a couple of years now and I'm trying to study their legal regulatory and the math models and everything related to mobile financial services and one day I kind of put that all to the side and took out my cell phone and started playing with it and thought, "Okay, let me pretend I'm doing a mobile money transfer. Just forget all the regulation and just play with this a bit."

And in the process of that, I decided, well, wait a minute here, and I closed my right eye. And the reason why I closed my right eye is because I'm actually legally blind in my left eye. And I thought, "Well, let me see if I can do this with my left eye."

And as a matter of fact, even if I hold the phone up like this, I can't because I can see from my left eye, but I can't read with my left eye. And I thought, "Whoa, now what would happen if," and so from that conclusion, it led me to start thinking about people who had two eyes like my one left eye.

And that introduced me, from that experience, I learned about Charlotte and the work that she does within USAID which takes that one very narrow issue and looks at it within a much broader context of development from the lens of

persons with disabilities and through Charlotte, I met Axel and then at a dinner party, I don't know, two months ago, I met Doug.

So there was a lot of luck and at least from my perspective I think very good luck that brought us all together today to focus on an issue that I think is really important and sadly, I think a bit overlooked in the community of mobile financial service that at least I'm part of right now.

So what we're going to do today is hear from three experts in the field of what needs to be considered if we want to really level the playing field to include, really make our programs at AID fully inclusive. And we're talking about mobile financial services, we're going to focus I guess initially on the fact that the mobile money transfer service model that we see playing out in most parts of the world right now is SMS text based. And so it implicitly is site dependent.

So let's talk about it from that perspective and look at both the technology aspects and then also the legal, regulatory and policy aspects. And then even more importantly, it'll add a lot of the social aspects that are going to be needed to consider when developing fully inclusive programs within our development agenda. So without further ado, we'll turn over to Charlotte who will provide that broader landscape for us.

*Female:*

Thank you very much, Maria. I have to say Maria really has been a wonderful champion in getting this together and just really pushing the idea of looking at accessible technology within the agency. What I'd like to do is first of all, just say a bit about my office 'cause I think it's important that puts it into context and then provide an overview of persons with disabilities and how it links to the topic at hand.

So my office is a fairly new office. It's been running for about 18 months. It's the office for disability inclusive development. It sits within the policy part of USAID. And so the idea is that the work of the office should be looking at new policies that are coming out of the agency and insuring that those policies are inclusive of persons with disabilities. So it's quite a broad sweep in that regard. So it's not sector specific. It looks at all of the policies coming out of the agency.

I guess the question that people ask is well, why do we have to have an office in disability inclusive development. I think this is where the overview becomes really important. First of all, we now know from research that 15 percent of the world's population have some kind of a disability. If you think about that, that's one billion people. So this is a large population no matter how you look at it. It's also the population – sorry, I've got to do my slides.

It's also a large – it's a, a large population. It's a population that's global even though it's a growing population in developing countries and I think that that's important for us to think about in terms of our own work. Eighty percent of persons with disabilities live in rural areas and so the idea of mobile technology in my view then becomes very attractive in terms of reaching typically difficult people to reach.

I think it's also important that we recognize that persons with disabilities have a common experience throughout the world and that experience is that they're often poorer than most people, than their non-disabled peers, that they experience barriers, whether it's in accessing education, accessing healthcare, accessing employment or accessing financial services.

In some countries you could not access financial services because you were disabled. You could not for instance, open up a bank account because you had a disability. I mean, that's beginning to change and I'll talk about why that's changed, but the point that I'm trying to make here is that the common experience of persons with disabilities is one of exclusion and this is an experience whether you're living in Canada or Cameroon.

I think it's also useful for us to think about this demographic as not just people with impairments, but to think about the aging population because the aging population is huge and in some countries, it's the larger part of the demographics. And we need to think about how and what influence aging has on disability trends. I think in the usage of mobile technology, aging is a critical

factor. Thinking about older persons and how they use technology is an important piece and I know that Axel will give us some examples around that.

So, there have been some changes and I think this is really exciting because I think if there hadn't been any changes, this would be a very difficult area to work in. And many of the changes around disability and disability inclusion have been provoked by the entry into force of a UN convention on the rights of persons with disabilities.

And this convention is important because it has been and I have on the screen a map. It has been ratified by predominantly countries in the south, so low-income countries. So if you look at the Latin American content, it's completely red and it's red because that means that most of those countries have ratified the convention on the rights of persons with disabilities. This convention has now been ratified by 112 countries which is phenomenal given the fact that it's only been in place for the last five years. So it's a good signal. It's a signal that says, "States governments are thinking about this issue. They're wanting to do the right thing and more importantly, they have a framework in the convention on the rights of persons with disabilities that points them in the right direction.

So on this point, to say that the U.S. government has signed the convention, but has not ratified the convention yet.

Now, interestingly, this is a human rights convention, but it has a very strong social dimension to it and it also has a very strong development dimension to it and one thing that it has that most other human rights conventions don't have is a very consistent reference to the concept of accessibility.

And so in the preamble of the convention, the convention recognizes that accessibility is necessary for physical, social, economic, environmental, health, education. It basically recognizes that accessibility is essential for the enjoyment of all of the other rights that are contained in the convention. So accessibility is one of those concepts or one of those that continuously finds its way in the convention.

Article Nine of this convention defines ICT accessibility as an integral part of the accessibility rights on par with the other rights in the convention. And it looks at ICT products, including mobiles, and I think this is very important that it thinks about mobile technology. And then it addresses applications and services and it recognizes that inclusive technology, including mobiles, has far-reaching implications for industry, for government and obviously for persons with disabilities.

So in many ways, there is a clear promotion of accessible ICT within the CRPD. This slide comes from some work that Axel and his group have done previously and was presented in Geneva two years ago. According to the work they did a review of various pieces of the actual convention, they found that the convention mentions the term accessibility and access nine times and seventeen times in the text. So, it just shows you that this is – it's a really strong piece. It's one of those operative words of the convention. And then it's also important to recognize that reasonable accommodation, which is often linked to accessibility which is linked to accessibility, is also oft referenced at least seven times within the convention.

And then just lastly on this point to say that the reporting guidelines to state party's issues by the secretary general of the United Nations mentioned accessibility 57 times. So not to belabor the point, but accessibility is a critical issue and mobile technology is one of those tools that can help in this regard.

So where are these mobiles that I keep on talking about? And it was really interesting because when I was doing the research for this, I thought, "Well, this is a very odd list. I mean, of course you expect wealthy countries to be in the top ranking ownership of mobiles. So you know, UAE, Hong Kong, Saudi Arabia, Italy, they're right up there. But so are the middle income countries, so Montenegro, Bulgaria, Brazil are all in the first twenty, ahead of the UK, ahead of the U.S., ahead of Belgium, ahead of Japan, ahead of France, Canada and ahead of South Korea.

I think this tells you something. I think it tells you that people in low and middle-income countries are opting to use the mobile. But in poorer countries,

we're also seeing very, very high uptake of mobile phones. Guatemala, Ukraine, Ecuador are reporting more than one phone per person. So again, you know, ten years ago, twenty years ago, owning a mobile phone was seen as a luxury. Today it's not. Today, people have mobile phones because they use mobile phones as a tool.

I was reading a World Bank study on some work on miles in Kenya and they said in the report it says that in over a decade, the ownership of – Kenyans who owned mobiles went from three percent to ninety-three percent. And I thought, no I read wrong. This is not possible. In a decade, you can't have it going from three percent to ninety-three percent.

So I read it again and I read it again and then I realized that, well, no, actually this is what it was. And again, this shows us that there is strong penetration of mobile phones in developing countries. And what I wondered when I saw the 93 percent was, well, who's the seven percent? And then I thought, well, it could be places where there is no mobile coverage, but it also could be persons with disabilities. It could be people who live in remote areas. So again, just trying to kind of drill down and think about who are the drivers of this penetration.

On this screen, I have a map. Obviously I like maps. And this map shows you the growth rate of coverage of usage of phones in Africa and it really shows that Africa has by far exceeded the rest of the world in terms of ownership of mobile phones. And this, for me, is important because I think this is important for the work that we do. And what we're finding is that in many countries, the choice is not landlines anymore because landlines are expensive. But cell phones, mobile phones are considerably cheaper and that now is the choice. That is what people are using.

And so again, what we're seeing, there's a massive leapfrogging in technology and we're seeing that mobile phones are the things that people want to use. I think it's fair to say that mobiles are really part of democratizing financial markets. And they are opening doors much faster. I think this is really working towards more equitable economic growth.

So what does this mean operationally? I think what it means operationally is that you have to know your customer. Who are your customers? So in the case of Kenya, I would be asking myself if I was a service provider, if I was in the telecommunications industry, who constitutes that seven percent of the market. I think knowing your customer is absolutely essential in order for us to operationalize this and ensure that there's more access to people with disabilities, but not necessarily.

I think operationally, what this means is that the message has to be that persons with disabilities should be able to benefit from the same opportunities as others. And this is very inline with the USAID policy in disability, which essentially says you will not discriminate against persons with disabilities. So, for me, this is an important piece.

I think what it means is that as you seek to reach out to this group, you have to involve this group. So you have to involve people with disabilities in the design of mobiles. It's also important to involve regulators and service providers in the process 'cause again, you want to make sure that you have the right customer protection and client protection in these endeavors.

I think what it means is that you need to look at implementing proven solutions for accessible mobile technology with large impact. So, you know, pilots are great, but pilots should actually then be able to be scaled up. So how do we look at large impact? And then I think importantly to identify what are the drivers for growth within the mobile sector?

And I think that once we start thinking about these things, we will see the real opportunities for development actors and their partners to begin to design means through which to ensure access to services for persons with disabilities as well as bringing up the issue around human capital and working towards talent and towards the economic mainstream.

And I thought I should just say a few words about what does this mean for donors? I think it's really important that when donors think about development that they see mobile technology as part of that, that they see mobile technology



as a tool for inclusion. As I said earlier on, mobiles are an excellent tool for reaching difficult communities or unreachable communities, whether it's people living in remote mountain areas or whatever, but they are tools. Mobiles are tools for reaching the hard to reach.

I think donors can take the lead in terms of championing the use of mobile technology for development. And then very importantly, I think it's absolutely essential that when you look at mobile phones and you try to address the issue of inclusion that you look at building private and public partnerships because you have to bring in the providers. I think it's really important that that happens. And then I think lastly, for donors, there's a responsibility to begin to build the evidence base. I mean, how does this work for persons with disabilities?

Are people with disabilities increasingly using mobile phones? If so, how is this changing the quality of their life? So I think really building the evidence base around this is important. For governments, I think looking at making mobiles more accessible is no longer something that they should be thinking about, but it's not required by the CRPD and they will have to report on this issue.

It will help governments reach the unreachable. I mean they're super tools for if you're in a situation for early warning systems. You've got a tsunami coming, early warning, you've got cell phones out there, difficult communities to reach. You know, persons with disabilities to reach, you can use the mobile. So the mobile, I think in that sense, in that regard is very useful for reaching the unreachable.

But I do think that governments also have a responsibility to develop regulatory standards for customer protection. And then, you know, the obvious, this is an untapped market and that it makes economic sense to expand your market to reach that seven percent in the case of Kenya.

So in conclusion, I think that this is an exciting approach to using technological innovation to address development challenges. I think we also need to continue to remember that there still remains a very large digital divide between persons

with disabilities and non-disable people. And so even though we're seeing an increased number of persons with disabilities using mobiles, there still is a very large divide in that regard.

And then the cautionary point is that mobile technology cannot serve as the silver bullet for development. There have to be a whole range of other things that are happening around that. And then lastly, I think impact evaluations of mobile phones development projects are required, in my view, to better understand their impacts in terms of the economic and social outcomes for persons with disabilities. I haven't seen any type of evaluations of that nature and I think that those types of evaluations could be very useful.

And then finally, I think it's important to recognize that mobile phone technology must work in partnership with other goods and services and must be seen an investment and really can be a tool to address the issue of inclusion and I'll stop there. Thank you.

*Female:*

So, before we jump into the technology and Charlotte gave us a really good landscape and now we're going to sort of go from the general into the specific. I thought I'd just ground us a little bit with some stats. You like maps. I like numbers. We both like numbers.

So here are some more numbers to complement the numbers that Charlotte gave about Kenya 'cause I think it's instructional and we're all familiar with- I think we're probably most familiar with what's going on in Kenya than any other country, so it'll resonate with most people. But again, when I started thinking about this whole issue, I thought, well, what's going on in Kenya because surely, they must have thought, the big service providers must have thought about this issue. And I quickly did some goggling and realized that the official stats state that 1.4 percent of the adult population in Kenya is visually impaired from one degree to another.

That's official and Charlotte's correctly put out, it's hard to get those official stats when you have 80 percent of a disabled population rurally based. So those are probably very conservative numbers. Of that 1.4, that represents about

576,000 adult Kenyans who are visually impaired from one degree to another. So again, think about that, sight dependent technology that now comprises 80 percent of the adult population in Kenya is dependent upon this sight dependent technology. So look at those numbers next to each other.

There's also a gender issue here because disproportionately more women are visually impaired in the Kenya context. I think the numbers are 60 percent women to 40 percent male. And again, those are conservative numbers, so there's potentially a gender based issue to look at in this as well.

So think about this both from an access perspective and then from a per capita GDP perspective. If you think about all that loss potential talent going into active production of people who cannot contribute fully because they can't see what they're doing, this becomes a clear economic issue as well.

So this is a really broad issue. We're going to dive into the technology right now, which is critical to the discussion, but I want you to think about these other factors as well and also think about the stigma because while the apps are critically important for evaluating a lot of the problems that we're bringing up here, if stigma prevents a child, for example, from accessing education because of their blindness or other disability, I don't think there's an app for that. So we have to keep that in the back of our mind. I don't mean to downplay the technology. It's very important, but I want us to look at this whole issue as holistically as possible.

*Male:*

Thank you, Maria and good morning. We certainly appreciate the invitation to share our thoughts and findings on mobile phone accessibility this morning. My name is Axel Leblois we have been at \_\_\_\_\_ fund in 2006 to promote the ICT accessibility provisions of the convention on rights of persons with disabilities. So mobile phones are a very important part of our work since I think this year for the first time, there will be more mobile phones on the planet than human beings. So that's a considerable kind of milestone for ICTs around the world.

And I appreciate very much the comments on the statistics that we were given before. When we go to countries and discuss with governments, one of the

most difficult challenges is that the population of persons with disabilities is systematically underestimated. And for many years, people used for their census, medical questionnaires where they were asking in households, do you have someone with a disability. And of course, the response most of the time, because people don't self identify a disabled person would be, "No, we don't."

And so for example, when Brazil went from medical questionnaire to a functional questionnaire where you ask persons, "Can you do this, can you do that? Can you read a newspaper? Can you climb seven steps without stopping, without help?" And so on and so forth. Then, your number increases considerably. So Brazil went from 1.5 percent actually 12 years ago to 14.5 percent with the changed questionnaires. Ten times. So in many places, when you ask governments what they think the population is, they are in like the low, one, two, three percent. And in fact, it's a complete underestimation of the rarity.

So with that, I would like to tell you what we'll cover today. I would like to tell you a story that shows that even though the population of persons with disabilities is somewhat invisible in the statistics, mobile service providers, when they do the right thing, actually can find that there is actually out there a vast population of users who really want to have accessible mobile phones.

So I will start with the \_\_\_\_\_ story who comes to us from Japan. I will then go over a couple of the features that are most important for persons with disabilities and mobile phones. Some of them you already know. Some of them maybe you don't. I think Doug will give us a terrific demonstration to actually give some examples there.

And then we'll go through the Ampesa SMS based system that is currently so successful in Kenya to see what could possibly be some of the issues that persons with disabilities may face. And I say may because we have not tested it, but those are kind of clear steps we should be checking. So let me start with Japan because it's like an old story now. It's \_\_\_\_\_ on one, it's like over ten years ago, eleven years ago.

And at the time, Japan was one of the first countries where you had an almost saturated market and Entity Local had 51 percent market share, so the dominant player in the country. And as any company that's seeking revenue growth and profit growth, they didn't know where to go to grow their revenues except to get market share against their competitors.

So they started to think about where can we find a user that may not have adopted mobile telephone yet. And then they realized that usage was sharply decreasing with age. So folks over 70 years of age, only 30 percent of them had a mobile phone at the time. So they looked at the issues that were preventing elderly persons to adopt phones, mobile phones, and they realized that accessibility was the major issue.

So they started a whole corporate-wide campaign to implement universal design principals across all aspects of the company from choosing handsets, designing handsets, designing stores, customer service, I mean all the whole chain for the customers. So just to give you a quick example, you know, even their stores were equipped with everything you need to accommodate the needs of a blind person and deaf persons and persons with mobility challenges and so on and so forth.

And so after a very systematic series of market tests, they launched their product line, which included some, as an example, large \_\_\_\_\_ characters, dedicated buttons to all certain prerecorded numbers automatically and read-aloud functions which are well known today, but were not known ten years ago, voice inputs for text messages and emails, access to a network of talking books. They were the first to implement the small mobile daisy reader for blind persons.

They had an optional \_\_\_\_\_ so that you could put the phone on your bone on the head and the sound would be transmitted to the nerve directly. And I tried that phone. It was unbelievably clear and outstanding technology.

So since we have a great audience here today, I'm going to do a test and I want to ask you how many of those Acu-Acu phones that were designed with all

those accessibility features do you think Entity DoCoMo sold in Japan between 2002 when they started to test the market to 2009 when I got the number, which I will give you in a minute. Any volunteer? Any number that you would like to –

*Female:* [Inaudible]

*Male:* One million. So I've got one million here.

*Female:* Three million.

*Male:* Three million. All right, so they sold 15 million.

*Female:* What's the population in Japan?

*Male:* So, at the time, I don't know what the population was, but \_\_\_\_\_. So it says that when you do the right thing and you do it for the right product and services with the right accessibility features, it helps many more people than what you think. If you take even the United States where we have a lot of statistical data, you would find that a lot of folks actually use accessibility features when you don't think that the persons in question live with a disability.

So, in 2003, Microsoft did a survey in the United States among their adult users of Windows to see how many people would actually be using their accessibility features. They did that because they didn't know for at the time Windows Vista how much \_\_\_\_\_ they should give in the operating system to accessibility features. There was a big debate in the company. And so the number was 57 percent of the adult computer users, age 18 to 64 were using some form of accessibility features.

So when you think about the person with disabilities, if you do the right thing from an accessibility standpoint, not only do you expand the population of potential users because you give access to persons who don't have access otherwise, but you serve the entire population.

*Female:* Does this number induce upgrade sales, repeat customers?

*Male:* For Microsoft?

*Female:* For this 15 million.

*Male:* Oh, for the 15 percent – it's the number of subscribers that those Acu-Acu phones.

*Female:* Not repeat customers?

*Male:* I don't think it includes the repeat customers. Those are the number of – it may be that people shifted from the traditional phone to an Acu-Acu phones, but that's the number of subscribers that Entity DoCoMo has of folks using Acu-Acu product line. And that statistic was given by an Entity DoCoMo executive at an IT meeting and that's where we got the number from because we asked them to share their numbers.

When you go to Japan, everybody know the Acu-Acu phone, by the way. I mean, every single aging person knows the Acu-Acu phone. So anyway, to go back to this statistic for Microsoft. I think it says that you already serve a lot of people when you address those issues.

There are many success stories across the world. AT&T in the US has done a terrific job with involving persons with disabilities in their product design and reviewing their customer service. In France, you had the association of mobile

operators negotiating with the person with disabilities and the telecom regulator roadmap that was actually very successfully implemented over the years. In Egypt, one of the major service providers offers free screen readers to their blind users, for example. In Morocco, Moroc Telecom does the same, so it's in the developing nations, you'll see some service providers already very much aware of the potential to better serve their market by including accessibility features.

And the common success factors to come back to Charlotte's point earlier is you need to understand your users needs and really adopt as much as possible a universal design approach and that includes dedicated marketing and involving persons with disabilities in all stages of development. So when we talk about accessibility features, what are those?

So I've just – mobile accessibility 101, so to be very clear, one is to perceive for every controlling structure or output, you need to be able to perceive it to understand it and to operate it. And if any of those three things is not there, then you can't. You are not able to use the system. And so you can either have accessibility features with augment your capacity to use the device or you can have alternative modes when visual, auditory, speech, physical dexterity and cognitive impairment are in the way of you using the device.

So I can't go over everything that exists with that, but example of accessibility features that I'm sure you know, for persons with visual impairment, if you have a regular phone with an old system when you press keys, you would always see the number five has a little elevated dot. That's an international standard for low vision persons. They can actually figure out which key is on the keyboard because the five, which is in the center, has the elevated dot. So that's an accessibility feature, which is very simple, very basic. But you can also have tactile feedback or audio feedback like voiceover on an iPhone to tell you what you just pressed.

For hearing impairment you have visual letters to notify the user of incoming calls messages, low battery whether it is in the menu. For speech impairments, people use a lot of SMS predictive texts, for example. Dexterity would imply that you'd be able to answer calls by pressing any key so you don't have to be



very precise in your way to handle the device. Another example for \_\_\_\_ would be to associate photos with the numbers you want to call. So those are just very quick examples but there are tons of them, which I could go for hours. I don't want to do that today because of the time constraints.

And then the alternative modes, for example, for visual impairment, text to speech is the most classic one. You can actually read aloud most menus, texts and content on the mobile phone that is equipped with a screen reader. For hearing persons who have hearing impairment, video reader services with sign language is implemented on the large scale here in the U.S. for example.

Persons who have speech impairment may like to use peer-to-peer video transmission for sign language. For dexterity issues, you may have voice recognition for controls and input and for cognition; you may have a mobile phone with only \_\_\_\_\_.

So all those examples are just here to tell you, there are plenty of those accessibility features or alternative modes of communication with a mobile phone, which area available to today, are working in a proven technologies and that can be implemented. So, with that, I would like to say that in fact, they are also with new technology coming up, a number of new things happening for a person with disabilities with mobile phones.

First of all, you have new operating system environment like Android or iOS or others. Last quarter of last year, Android had 50 percent market share in shipments of smart phones and Apple 24 percent, so those two represent 75 percent of the world market for smart phones.

And because of the size and the huger market that they carry, the cost of everything is going down, including the applications that run on those operating systems. And then at the same time, you have decreasing costs of processing power and memory and smart phones themselves become more affordable including in developing nations. When you think about it, even if your smartphone is going to cost you \$60.00 or \$70.00 with an Android operating system, it may be a huge investment for a person in a developing nation but it's

such an incredibly powerful tool for someone, that it's still an investment people may consider.

So we see a smartphone increasing in shipments everywhere around the world today. So some of the new enabling mobile technologies are near field communication where you can actually use your mobile phone to do something next to you. Geopositioning system to know where you are, voice recognition and text to speech technologies, advanced optical character recognition. You can take a picture of a text or something that's in front of you and read it aloud.

You have new peripherals for brail, for switches, for persons who can't move. So you have hundreds of new apps, essentially designed for all types of disability appearing today on Android and iOS operating system. Some on the other operating systems, but less so because of the size of the markets for Android and iOS. Example of new apps, you can control your house environmental things, like you can put on your fan or switch it off, put the lights on. You can actually use a mobile phone to control an electronic kiosk \_\_\_\_\_ ATM.

You can do path finding to see where to go to what kind of services. You can actually find out which kind of value you have in your hand. I see that you will \_\_\_\_\_ I think they looked at it. Yeah. You have apps for special education for autistic children. Mobile E-book reader to read books in your mobile phone and real time captioning for persons who are deaf and want to know what's going on in their conference call, for example.

So, that's the transformation to mobile phone market. It's extraordinary, so in one way, if we aren't careful, then the mobile phone can become a big barrier for persons with disabilities but it can also open up a lot of new possibilities that did not exist a few years ago at all for the vast majority of persons with disabilities. So the mobile phone is a risk, but a fantastic opportunity.

So what are the issues specifically for developing nation mobile users? First of all, I many please, mobile operators have not yet understood that this was a good business case to go after persons with disabilities and seniors. Although I think this is coming as I mentioned earlier.

In some countries, you see that operators do take initiatives and to your point, Doug, you can see that again, it is set at the \_\_\_\_\_. They \_\_\_\_\_ reader from \_\_\_\_\_ factory to all their blind users, free of charge. And Code Factory sells thousands of licenses at a time to those operators for a \_\_\_\_\_ price. It's a win-win situation. It's a much better business model for the developer and the person with disabilities has no additional cost to benefit from the technology.

And I think personally, it should be implemented everywhere. We also \_\_\_\_\_ worldwide for to use universal service funds from the telecom sector to actually cover the cost of any assistive technology or any additional features or any additional cost for smartphones for persons with disabilities. It's a very legitimate use of a service fund. Twenty-three countries already use USF for persons with disabilities.

So with that, it's certainly still a case of handset with accessibility features not being available everywhere. There is a cost of high-end smartphones as we discussed it before, but one thing which is really, really important and Doug, you alluded to it, there is a lack of text to speech and voice recognition in many languages. So whereas in English in major languages, you do have today the iPhone operating with the voiceover. In many languages, it's not available.

So if it's not available, then there is no way to use any assistive technology that includes text to speech and voice recognition features. So I think from a building block standing, for policy standpoint at a national level, governments that have issues of minority languages or national languages not having those functions available should seek private public partnerships to get it done because without it, there is a huge barrier to use new technology.

And then although the new Android and iOS environments lead to hundreds and thousands of new apps to come out, they still needs to be translated into local languages, localized. So those are additional barriers we need to think about. For example, how many of those apps are available in Swahili? I don't know. But it's a question that one needs to ask. So we have seen that huge explosion of mobile payments, which you alluded to earlier, Mara, so it's an extraordinary new field for the mobile users. So just to clarify what we are

talking about today and I will be as brief as I can because of the time. I know. I understand.

There is direct mobile billing via phone which people can use. There is mobile web payments through apps or through websites. There is payment via near field communications, where you have specialized point of sale systems, when you just use your phone nearby the point of sale and you just pay that way. That's very much popular, for example, in Japan.

And what you are talking about today is the first possibility which is an SMS based transaction which actually does not require any bank or credit card account, no \_\_\_\_\_ specialize point of sale systems whereas the other systems like payment with near field communication most cases you imply you have a bank account or a credit card already, which is not applicable in developing nations. So we focus on number four which is the type of system that already is most successful right now in Kenya.

So, Empesa, you have talked about it in this seminar series before, so I don't want to be too long about it. It's an SMS based system. It has a huge successful user base of over 13 million users as of the end of 2010. I don't know how many there are today, but maybe more. Probably more. It has penetrated the vast majority of households in Kenya and certainly of the poor population in Kenya, which is remarkable. So again, it's an SMS based system. There is a picture on the slide that shows the screen of the Empesa application and it shows you how simple it is. It's just you have different line items to choose what you want to do.

People in Kenya believe it's quicker, safer, cheaper, more convenient and that is because they have 25,000 agents out there in the country that effectively help users versus you know, 1,000 post offices or 800-something bank branches.

So I think one of the power of that system is the proximity item in that they have the ability for small entrepreneurs to build those shops to actually serve the Empesa customers everywhere in the most remote areas. I think it's a huge

factor we need to understand. By the way, it created a lot of jobs for many people.

So how did that work? As you know, you need to first register as an authorized Empesa user and you have got to go to a retail outlet. They will actually modify your SIM card to put the SIM card resident application on your mobile phone and that will include your identification number. And then you can deposit or withdraw cash from your account by exchanging cash with electronic value at those Empesa retail stores.

And so what is very important to understand from a security standpoint and for persons with disabilities is that the security of the system comes from the addition of three necessary items. You must have a phone with a SIM card that has the app in your Id number in it for your account. You must show your identification papers like your \_\_\_\_\_ card to be able to actually go to the Empesa center and retrieve money or deposit money. And you must know your pin number. So those three things together make the system actually quite safe today and people seem to think it's very reliable.

And the Empesa retailer \_\_\_\_\_ paid fees and you can transfer funds to other Empesa users, pay bills, purchase mobile real time credit and the cap for a transaction is \$500.00 per transaction. So that's pretty much the system. And as you can see, those little Empesa points of service all over the country and they go from very sophisticated to less sophisticated, but I'm showing this picture here because this picture tells you right away that someone with a wheelchair probably would have a little bit of a difficulty to get to the cashier there. And so one of the issues we need to keep in mind is not only the accessibility of the mobile phone, it's the accessibility of higher train of services that we need to consider.

So what are the general accessibility issues? The physical access to the Empesa agent facility, but also I would say one thing we need to keep in mind is that in countries like Kenya and I don't know the statistics and I apologize for that, but in most developing nations, you will see that young persons with disabilities receive primary education at a much lower rate than the general population. And certainly in most developed nations, \_\_\_\_\_ among deaf persons is huge.

So they can't use SMS because they can't read or type. So you have to understand that because the structural issues around population of persons with disabilities among young persons with disabilities, there is a barrier to access in any case that is going to be there. So then there are some mobile accessibility factors. I think the –again the availability of \_\_\_\_\_ mobile handsets with accessibility features is a real important aspect to track.

Also, I think if you listen to what Doug just explained, I don't anticipate anyone in the world to start using Empesa unless they're already a screen reader user because you need to have some level of confidence in using text to speech before you are going to deal with money on your mobile phone with it. Right? So I don't know how many folks in Kenya today are text to speech users. Unless you know the number it's impossible – you know how much Empesa users you could find among blind persons, for example.

I think from a security standpoint, technically you can have like Doug has just right now, little \_\_\_\_\_ that you plug in your phone. So you can shut off the sound from your loudspeaker and put it in your ear so you can read the instruction or read the feedback from the phone without sharing it with anybody else. So that is a good level of security. You can also – there are many phones where you can have text to speech confirmation of the text and numbers you have entered. So, that way I think the user could possibly technically it's possible to make it accessible at an independent level.

So the \_\_\_\_\_ step I would say if one wanted to evaluate mobile payment accessibility today, such as in Kenya with Empesa, the first step would be to identify the available accessible handsets and the assistive application in Kenya and English and Swahili which are the two dominant languages, conduct accessibility tests of Empesa with Association of Persons with Disabilities. It's not costly at all. It's just a matter of getting a \_\_\_\_\_ users, asking them to go through the process, through the whole process, from registration, the point of sale to doing the transaction to going back to the point of sale.

And then share results with mobile service providers like Safari \_\_\_\_\_ obviously. And then perhaps a valued alternative to promote accessible solutions for a

person with disabilities. And I would emphasize one thing which is it's one of the aspects that is most important with that new technology is user training.

So without user training, that is going to be out there and not being used. I know countries where operator give away free license of text to speech screen readers but the licenses are not activated by users. So without the training, someone taking the user by the hand and showing them how to do it, they won't do it. It's very difficult.

So typically for that kind of thing, a partnership with Organization of Persons with Disabilities is a great way to go and quite a few operators around the world have used Organization for Persons with Disabilities to service their customers' mobile operators. So those are some of the suggestions in can make based on what I've seen in different countries. I think it would be a very useful think to do, actually. Thank you for your attention.

*Female:* Before we go on to questions, Charlotte, do you want to mention a little bit about what AID might be doing to follow on what Axel just said?

*Female:* So, actually Maria should be doing this because it's coming out of her shop, but Maria and I are working on a pilot project, have designed a pilot project that we hope to roll out in Kenya and it will be doing very much what Axel has been talking about. I think one thing we haven't thought about, Maria, in the pilot was the actual access point. And I mean, I should have been the first person to think about that.

But this is why we have these kinds of discussion because these issues come up. So I think it's really important to look at when you're going to do a pilot, like in the case of this pilot that we're thinking about is really to start looking at all aspects of it. So it's not just the mobile itself. It's not just the training, the user training. I think you raised a really important point with that picture of the Empesa corrugated shack that has a step.

So I mean, even if you have the technology, you can't get in. You still would be reliant on somebody. So I think we need to think about having more seamless step-by-step approaches to this. And the idea really is to look at what the need is in a place like Kenya for accessible, for mobile phones and address the issue around accessibility. And this really came about from a conference that Maria went to.

*Female:*

So was facilitating at a conference last December hosted by the Institute for Money Technology and Financial Inclusion and I hope they're online over there, at least one or two. And on this panel were two researchers who presented a snapshot of their research at that point in time. And the topic of their research generally was that they were looking at how the introduction of a mobile money transfer model was changing the current business model of a select group of women entrepreneurs in rural Kenya.

And in the process of this research, they learned about a whole group of businesswomen in Kenya who are not part of their study, but who wanted to be. And this came about when one of them members of the group approached the researchers and said, "You know, in addition to my being a businesswoman in Kenya, I also happen to be the head of a school for the blind in Kenya and I know of this whole group of business women, visually impaired businesswomen in Kenya who would really like to be part of this broader network of businesswomen, but they don't feel welcome. They don't think that they will be welcomed to this group. They'll be a drag to this group.

So that was issue number one. This is that perception issue. And so the researchers became aware of this whole community that they otherwise wouldn't have known about. And so that took them in this other direction of saying, well we need to now look at how mobile is being used or probably not being used by these businesswomen and how that's impacting their business model.

So, this issue is alive and kicking and the really cool thing about that case in Kenya is that these women were already advocating for themselves, which gets to Axel's point and Doug's point of you've got to have a voice at the table. Well, they do have a voice, but that may not necessarily be the case in other places.



So I think that's another thing that we certainly need to recognize in our own analysis.

*Female:*

I mean, I think the idea then is really to begin to speak to the service providers and say, you know, you have a market out here. You have people who would like to have technology, who would like to be part of Empesa or whatever money mobile systems that are there. But to help them think that through as well and so we're hopefully going to get this pilot up and running. And again, as I said in one of my concluding slides is that we're looking for the greatest impact.

So we really see this as a pilot that will influence or provide the evidence base necessary, information necessary for service providers in Kenya to then scale it up and to take into consideration part of the market that they may not have been including. It was really interesting. I was looking at Safari Com's foundation page and if you type in disability, it came up a few times and I always get excited when I see that. But then when I read what it was, it was all Safari Com foundation I handing over X amount of shillings to a school for the deaf. So they were seeing it as part of their corporate responsibility, but still in a very charitable form.

And so what we want to work on and get them to think about is this 15 percent is part of your clientele and not just part of your social corporate responsibility. And to help them to think that through by providing them with good evidence on the table that this is doable and more than just doable, it's necessary and now required by law, thanks to the convention.

*Male:*

And Charlotte, to your point and Axel's about service providers and training, it's very important as like you've both alluded to, if somebody comes in providing they have access, to get a phone through a provider, even in this country, when I go around to different stores, mobile phone stores, the sales staff have no idea what I'm talking about. So there's no training. They don't even know how to turn voiceover on. So, if somebody, an elderly person or somebody's coming in, then they're going to walk out because they're frustrated.

*Female:*

Right, so can you imagine a tiny little stall in the somewhere in the highlands of Kenya, you know, the person comes in who's blind, they're just like, well, you know? So again, I mean the training is going to be really important and it's going to be important for all sorts of providers. It's going to be important for those guys that staff those kiosks so that they can understand that we're not turning deaf people away. We're not turning blind people away because they can actually use a mobile phone.

*Female:*

Well and one final point, and I'm sorry to bring this up. I sound like the anti-money laundering bogey-man here, but there is an embedded KYC, know your Customer issue here because if I have to rely on Axel to undertake my money transfers and then to verify the receipt of money coming into my phone, as much as I like and trust Axel, how do I know that that actually is going to take place, by accident or design.

So then let's say that that money ends up somewhere where it shouldn't end up. Who's responsible for that? Is Axel responsible? Well, he's gone now. Am I responsible because it's my phone? Probably, but was it my intent to have that money go there? Certainly not. So there are some security issues that need to be acknowledged when we're thinking about people for whatever reason not independently undertaking financial transactions through the mobile phone.

Should we open up for – yes, let's open up for questions.