WOMEN AND TECHNOLOGY: INCREASING OPPORTUNITY AND DRIVING INTERNATIONAL DEVELOPMENT

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COMMITTEE ON FOREIGN AFFAIRS

C O N T E N T S

WOMEN AND TECHNOLOGY: INCREASING OPPORTUNITY AND DRIVING INTERNATIONAL DEVELOPMENT

TUESDAY, NOVEMBER 17, 2015

HOUSE OF REPRESENTATIVES,
COMMITTEE ON FOREIGN AFFAIRS,
Washington, DC.

The committee met, pursuant to notice, at 10:12 a.m., in room 2172, Rayburn House Office Building, Hon. Ed Royce (chairman of the committee) presiding.

Chairman ROYCE. We will ask all of the members to take their seats. This hearing is called "Women and Technology: Increasing Opportunity and Driving International Development." And around the world, women and girls are, frankly, the hardest hit by poverty. I think people realize that, but at the same time, empowering women can be the best way to lift them and their families out of that poverty. As our guest, Geena Davis, has said, "believing in yourself is the greatest gift."

Today, few tools have the potential to empower women and girls like the Internet. Whether it is access to online education, or whether it is job opportunities, or expanding that social network, the Internet can dramatically increase a woman's access to information, dramatically increase her opportunity for her and her family.

A recent survey in four developing countries found that of those women who reported using the Internet, 75 percent said they used the Internet "to further their education." Many women surveyed also noted that the Internet and other mobile applications dramatically reduced the time and dramatically reduced the cost associated with tasks like learning about health concerns, arranging transportation, borrowing and saving money. Just ask the female fisherman in Kenya who now uses a popular mobile service to store and transfer money using just her cell phone that protects her business savings, protects her from theft. It enables her to spend her money as she chooses. Frankly, it empowers her.

Yet, while we take the Internet for granted here, more than 4 billion people, two-thirds of the world's population, lack access to that Internet. And women are more likely to be offline than men. Across the developing world, that is 200 million fewer women than men that have access to the Internet. And the disparity is particularly great in Asia and in the Middle East, and in sub-Saharan Africa, where women are half as likely as men to be online.

(1)

This means women are being excluded from one of the most powerful drivers of personal and economic opportunity of all time. And this is a problem for more than just those women who are left out. It means that families, communities, states, institutions, are all held back as well.

Study after study has shown that women spend more of their income on their families and communities, prioritizing things like what, food, medicine, education, that then improves the outcomes for their children. And in terms of broader economic growth, that means that it reduces the disparity in women's online access, and—what would the GDP boost be if we were able to do this to the portions of the world that do not have that kind of access? It would be $4 billion to $5 billion.

So it seems clear that failing to include women in the technology revolution is a big mistake. Likewise, failing to consider technology in our aid and in our diplomacy remains another costly oversight. The Internet is fast becoming as essential to a country's economic growth as electricity was, as ports are, as the rule of law is, and that is why the committee is developing legislation to ensure Internet access is a priority in U.S. development projects. For one, our aid agencies could better coordinate to lay fiberoptic cable under roads being constructed in the developing world. That is kind of a no-brainer.

In addition to having equal access to technology, it is important for women to have equal access to creating that technology. Globally, there are fewer women than men in science, in technology, in engineering, in math, in these STEM careers. However, there are some countries that have succeeded in having at least 50 percent of their STEM degrees awarded to women. Countries like the United Arab Emirates, Bulgaria, Oman, are pushing in that direction. They have 50 percent. We need to address what is holding women back from entering the sciences in so many other countries, including ours, I will add.

The Internet has changed the way that we buy, that we sell, that we educate, that we socialize. It has transacted more international commerce than any other marketplace, with trillions of dollars pumped across the net daily. It is a tremendous opportunity, but it is only an opportunity for those who have access to it. This hearing will help us understand what is needed so that more, especially women, more people can take advantage of this revolutionary technology, and in the process, bring a better life for their families and communities and more opportunity and hope.

So I now turn to the ranking member, Mr. Eliot Engel of New York, for his opening comments.

Mr. ENGEL. Thank you very much, Mr. Chairman. Thank you for calling this hearing. Let me welcome. Thank you, Mr. Chairman.

Thank you, Mr. Chairman—that is better—for calling this hearing. Let me welcome our witnesses to the Foreign Affairs Committee. Thank you for your hard work, and shining a light on what I view as an intersection of two issues critical to our foreign policy: The challenges facing women and girls as the growing reach of modern technology. I am looking forward to a good discussion. I would like to note that for the second time this month, our committee has a panel made up entirely of women. Two weeks ago, As-

sistant Secretary Patterson and Assistant Secretary Nuland were here testifying on the crisis in Syria, and today we have this distinguished group.

It is amazing the way technology has changed the way we access numbers, respond to crises, or simply communicate with one another. Today, a coffee planter in East Africa with a smartphone can know what his produce is worth in London. A doctor anywhere in the world can pull up a patient's medical record with the push of a button. Classrooms with broadband access have a gateway to an incredible wealth of knowledge, information, and face-to-face connections with people a world away.

Of course, technology can also be exploited for nefarious purposes. We know that ISIS has taken advantage of everyday encryption technology, and even video games to communicate and orchestrate attacks like the one in Paris. These abuses underscore why we need a full understanding of the way technology is growing and changing the global landscape, but they should not blind us to the fact that technology has brought massive benefits to billions of people around the world.

At the same time, it is important to recognize that those benefits have not been evenly distributed. When we focus on access to technology, we see that women and girls are at a tremendous disadvantage, just as they are in so many other areas. Women in developing countries are 23 percent less likely than men to be online. In South Asia, the Middle East, and North Africa, the gap is nearly 35 percent. And in sub-Saharan Africa, it jumps to 45 percent.

Those are really shocking statistics. Some of this disparity is due to structural economic inequality. The cost of technology can be prohibitive in places where women are not full participants in their economies. Some of these problems stem from other norms and ideas about women and girls that keep them as second-class citizens. For example, across much of the developing world, Internet cafes are the easiest way to get online. The constraints of childcare and responsibilities at home make this a difficult option for some women. Access to mobile technology could help break down these barriers but, around the world, 200 million fewer women than men own mobile phones today.

It is unbelievable. But beyond these practical limitations in many countries, Internet cafes, and the Internet in general, are considered inappropriate for women and girls. Even in some of the most remote areas, Internet cafes are packed with boys and young men, but women and girls are left out. In Azerbaijan, only 14 percent of women have ever been online, 14 percent; while 70 percent of men have access to the Internet.

In India and Egypt, 1 in 5 women reported believing that the Internet is inappropriate for them. Can you imagine that? Their reasons for not getting online range from concerns that their families would disapprove to not knowing how the Internet could benefit their lives. The reality, of course, is that access to technology could not only improve the lives of individual women, but could help to lift entire communities and entire countries. We know that keeping women and girls on the sidelines of society is a major drag on growth and prosperity. When women become full economic and political participants, the results are huge in terms of driving eco-

nomic progress, improving health and education, and raising standards of living. Getting more technology in the hands of more women is a critical way to tap that potential.

According to a recent study sponsored by Intel, getting an additional 150 million women online would add $13 billion to $18 billion to the combined annual GDPs of 144 developing countries. They would help countries become stronger, more stable partners on the world stage, and add fuel to the global economy. So the question isn't why should we break down the gender divide when it comes to technology, but how do we break down that divide?

What education and training efforts will best provide women with the knowledge they need to use technology for their benefit? What kind of partnerships will help make technology more accessible and affordable? How do we address the out-of-date taboo that technology is somehow inappropriate for women and girls? It is unbelievable. I hope our witnesses can offer their guidance in these areas, because I honestly believe that expanding access to technology could help solve so many problems.

I thank you, again, for all you do, all of you. I look forward to your testimony and I yield back, Mr. Chairman.

Chairman ROYCE. Thank you, Mr. Engel. This morning we are joined by a distinguished panel. We have Ms. Geena Davis. In addition to acting in multiple critically-acclaimed movies, she is the founder and chair of the Geena Davis Institute on Gender in Media. She also currently serves as the special envoy for women and girls at the International Telecommunications Union at the United Nations.

We have Ms. Sonia Jorge, she is executive director of the Alliance for Affordable Internet. She has over 20 years of experience in information and communication technologies in both the private and the nonprofit sector.

And we have Ms. Joyce Warner, and she is senior vice president and chief of staff at the International Research and Exchanges Board. She had a long career of serving in various international organizations with a focus on women's health, and women's development.

So, without objection, the witnesses' full prepared statements will be made a part of the record. Members here will have 5 calendar days to submit any statements or questions that you might have, or extraneous material that you want in the record of today's hearing. And so I would suggest that the witnesses would like to summarize their remarks. We will begin with Ms. Davis. Thank you very much, again, for your testimony today.

STATEMENT OF MS. GEENA DAVIS, FOUNDER AND CHAIR, GEENA DAVIS INSTITUTE ON GENDER IN MEDIA (SPECIAL ENVOY FOR WOMEN AND GIRLS, INTERNATIONAL TELE-COMMUNICATION UNION)

Ms. DAVIS. Thank you. Thank you, Chairman Royce, very much, and Ranking Member Engel and committee members. It is a great honor to be invited to testify here at this hearing on "Women and Technology: Increasing Opportunity and Driving International Development."

The efforts of the committee to ensure that women and girls are included and have the same opportunities as men and boys around the world are so appreciated, especially when it comes to the Internet. I have spent most of my adult life advocating for women and girls as a trustee for the Women's Sports Foundation, as chair of the California Commission on the Status of Women and Girls, as an official partner with U.N. Women, and, as the chairman mentioned, ITU's Special Envoy for Women and Girls and ICTs.

The empowerment of women and girls is an issue I am extremely passionate about, and it is why I founded my research institute, which studies gender in children's media to help women and girls to be seen, and heard, and valued across the globe. Technology is having a huge impact on my community, the entertainment industry, in terms of how content creators are using digital platforms to not only serve as the gateway for delivering movies and television programming, but also for the creation of new ways of building global communities.

And the Internet is having a profound impact on how the world engages with media, and can provide endless opportunities to empower women and girls, and to help create a systemic cultural shift by improving how they are portrayed and represented. These are the tools that will ultimately raise the value of women and girls in society.

My institute has sponsored the largest body of research ever done on gender images in children's media, covering over a 20-year span, and we worked side by side with the leading content creators to dramatically improve how women and girls are represented in media targeting children 11 and under. Our study of the careers of female characters in family films and in prime time in children's TV, conducted by Dr. Stacy Smith of the Annenberg School for Communication and Journalism, shows that women are missing from critical occupational sectors, such as the STEM fields.

Out of nearly 6,000 speaking characters in family films, males held 84 percent of all STEM jobs. This calculates to a ratio of five male STEM characters for every one female STEM character. No female leads or co-leads were shown with STEM careers. Looking across the categories of computer science and engineering, the ratio of males to females in these areas was 14.25 to 1. And in television, characters with STEM jobs were 79 percent male, and 21 percent female.

The vast gender inequality in media aimed at children is extremely significant as television and movie images wield enormous influence on how cultures perceive the value of women and girls, and in establishing societal norms. Improving these perceptions can be the real game-changer in achieving greater empowerment and participation of girls and women in the technology sector.

My institute's tag line is: "If they see it, they can be it." Technology has tremendous potential to transform women's and girls' lives, whether through STEM career choices, or by access to services such as e-health, e-education, e-commerce, e-banking, and other applications that can help women and girls address their day-to-day challenges. We need to vastly improve the gender divide. As the chairman pointed out, there were 200 million fewer women online than men at the end of 2013. We need to bridge the

opportunities gap. Women earned only 18 percent of U.S. computer science degrees. Women make up less than 20 percent of the U.S. ITC workforce, and only 30 percent of the European ICT workforce. This cannot stand, given the predicted skills shortfall in the ICT sector of at least 2 million jobs globally by 2020.

Encouraging women and girls to pursue careers in tech is critical to closing the economic gender gap. Studies from the ITU have demonstrated that companies that have a gender balance of women working in high-level positions on corporate boards have shown improved financial results. Women and girls will seek the skills to pursue these career opportunities if they can see other women in these roles and be inspired by them. The lack of real-world female role models in tech careers means that it is imperative for fictional female characters in STEM fields to be shown in entertainment media aimed at children.

Technology, and particularly broadband, will be absolutely crucial for achieving all 17 of the U.N. sustainable development goals, and all three pillars of sustainable development: Economic development, social inclusion, and environmental protection. They need technology as key catalysts.

We have the opportunity to ensure that women and girls are fully included in the expansion of the digital world, and that their voices and presence are shaping the agenda of meeting SDG–5, which addresses gender equality.

Access to digital technology will be key to meeting this goal by providing women with the means to educate themselves and their children, to improve their own health and the health of their families and communities, to start their own businesses, to keep themselves safe, and to innovate to shape the future that they want.

Because I am privileged to live in this country as the mother of three children, I can encourage them to engage in any type of interest that they may want to pursue. I want to see a world where all children have the same possibilities and opportunities; a world where women and girls are valued equally to men and boys, and have the freedom to pursue and achieve their dreams.

Chairman Royce and Ranking Member Engel, once again, thank you very much for this opportunity to testify.

[The prepared statement of Ms. Davis appears in the appendix.]

Chairman ROYCE. Thank you. Ms. Jorge.

STATEMENT OF MS. SONIA JORGE, EXECUTIVE DIRECTOR, ALLIANCE FOR AFFORDABLE INTERNET

Ms. JORGE. Thank you, Chairman Royce, Ranking Member Engel, distinguished members of the committee. Thank you for the opportunity to submit a statement to the committee on opportunities for driving international development through increasing women's access to technology.

This issue is critical if we are to achieve the United Nation's Sustainable Development Goals, agreed in September of this year. The United States can and should play a leading role in driving this agenda forward. The Alliance for Affordable Internet, A4AI, is the world's broadest technology sector alliance working to reduce the cost of broadband in developing countries, and through high-level advocacy and direct in-country engagement. The over 80 members

or organizations of the alliance identify, research, and advocate for the policy and regulatory reforms needed to bring prices down and increase access to the Internet.

The incredible growth of ICTs over the past decade has transformed Internet access into a force that is critical for sustainable global development. Indeed, President Obama declared earlier this year: "The Internet is not a luxury. It is a necessity." Research has shown the benefits of broadband penetration. Investing in increasing broadband penetration in developing countries could lead to a return on investment of up to $21 for each $1 spent. Of course, the benefits of connectivity go far beyond the economic, bringing better health care to rural, conflict-affected, and other underserved areas, helping farmers cope with climate change, and connecting millions of children and young people to free online courses and learning materials. E-governance and social media are enabling citizens to participate more actively in civic life, while also streamlining delivery of public services, a move that, in Africa alone, could result in technology-related productivity gains of $10 billion to $25 billion annually by 2025.

Today, over 60 percent of the world's population, equivalent to 4.3 billion people, as was already said, remain offline, and these billions of people excluded from the life-changing possibilities of the Internet are predominantly female, and nearly all in the developing world. Mobile broadband, the primary means by which most citizens in the developing world access the Internet, has been critical for expanding Internet access. Mobile broadband across the developed world is widely spread with penetration rates reaching nearly 90 percent. Yet, this rate dropped to about 17 percent in Africa. This digital divide exacerbates existing economic and social inequalities, and stifles development across the globe by keeping women and other marginalized populations, those who arguably stand the most to benefit from an online connection, from accessing the empowering potential of the Web.

While an entry-level broadband connection costs about 1 percent of monthly incomes across the developed world, it costs about 10 percent for most in developing countries, and can reach over 100 percent of their incomes in many countries.

High prices hit certain groups harder. Excuse me, high prices hit certain groups harder than others, and income inequalities mask the true scale of the problem in many countries. For billions living in poverty, earning less than $2 a day, the cost of a basic broadband connection is prohibitive. Women are nearly 50 percent less likely to access the Internet than men in the same community. The Web Foundation study found that women are 30 to 50 percent less likely than men to use the Internet to increase their income, or to participate in public life. We need to change that. We need to change the gender gap. We need to work together to change the conditions in which women can have access to the Internet.

Skills and relevance are also another barrier important to address. To boost economic growth, empower democratic governance, and advance global development, cannot be overlooked as a key component of U.S. foreign policy, and there is a huge potential for the Internet to have a role in that space. Here are some concrete actions that the U.S. Government can support and invest in: Sup-

port policy reform, based on inclusive multi-stakeholder processes that will lead to market growth and lower costs; coordinate broadband expansion strategies with development in the energy sector; invest in International Telecommunications Union, a U.N. agency, that does efforts to expand collection of gender indicators and support national statistics agencies to do the same; support the development of inclusive and holistic national ICT and broadband plans, that address all aspects of the access and use ecosystem; recognize barriers faced by women, and ensure privacy and safety online; education programs and consumer campaigns to increase awareness of the utility of the Internet, as well as training on basic skills and safety online will be critical to ensuring women can access and fully utilize a safe and open Web without any fear of retaliation. Incorporate digital skills education into education programs from primary school onwards. And finally, develop and support programs that provide public access and to target underserved populations.

I look forward to our discussion here today and your questions. And I thank you again for this opportunity.

[The prepared statement of Ms. Jorge follows:]

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WRITTEN STATEMENT

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an initiative of the World Wide Web Foundation

**The United States House of Representatives
Committee on Foreign Affairs**

"Women and Technology: Increasing Opportunity and Driving International
Development"

November 17, 2015

Chairman Royce, Ranking Member Engel, distinguished members of the Committee. Thank you for the opportunity to submit a statement to the Committee on opportunities for driving international development through increasing women's access to technology. This issue is critical if we are to achieve the United Nations Sustainable Development Goals, agreed in September of this year. The United States can, and should, play a leading role in driving this agenda forward. To understand the factors at play, this statement begins with an examination of the state of connectivity globally, before looking more specifically at how women access and use the Internet. It concludes with a summary of possible policy recommendations and concrete steps that could be considered.

ORGANIZATIONAL BACKGROUND

Established in 2013, the Alliance for Affordable Internet (A4AI) is the world's broadest technology sector alliance, working to reduce the cost of broadband in developing countries. Through high-level advocacy and direct in-country engagement, the over 80 member organizations of the Alliance — including USAID, the UK Department for International Development, the Swedish Government, UN Women, Google, GSMA (the global organization representing mobile operators) and the Internet Society — identify, research, and advocate for the policy and regulatory reforms needed to bring prices down and increase access to the Internet. The Alliance is coordinated by the World Wide Web Foundation, a global civil society organization established by the inventor of the World Wide Web, Sir Tim Berners-Lee. A4AI's model is based on developing unique solutions for each country of engagement, and local coalitions are currently active in the Dominican Republic, Ghana, Liberia, Mozambique, Myanmar and Nigeria, affecting more than 300 million citizens across these countries.

A4AI ALLIANCE FOR AFFORDABLE INTERNET

THE BENEFITS OF INTERNET ACCESS

The incredible growth of Information and Communications Technology (ICT) over the past decade has transformed Internet access into a force that is critical for sustainable global development. Indeed, President Obama declared earlier this year, "The Internet is not a luxury, it is a necessity."[1]

Research has shown that a 10% increase in broadband penetration can accelerate economic growth in low- and middle-income countries by up to 1.38 percentage points.[2] In a region like sub-Saharan Africa, where GDP is an estimated US$1.712 trillion, even a modest increase in online penetration has the potential to yield billions in economic benefits.[3] Meanwhile, a 2014 paper from the Copenhagen Consensus Centre suggested that investing in increasing broadband penetration in developing countries could lead to a return on investment of up to $21 for each dollar spent.[4]

Of course, the benefits of connectivity go far beyond the economic. Internet access has the power to: bring better healthcare to rural, conflict-affected, and other underserved areas; help farmers cope with climate change; and connect millions of children and young people to free online courses and learning materials. E-governance and social media are enabling citizens — particularly those that live far from major cities — to participate more actively in civic life, while also streamlining delivery of public services — a move that in Africa alone, could result in technology-related productivity gains of $10-25 billion annually, by 2025.[5] At the same time, governments are moving to publish openly more of their data online, as part of the "Open Government Data" movement. Open Government Data is well established in the US as a tool for enhancing democracy, fighting corruption, and driving economic growth, and it is gaining traction in other countries too — but these benefits are contingent on the ability for citizens, NGOs, and businesses to access the Internet.

Recognizing these opportunities, the recently agreed global development agenda outlined in the United Nations Sustainable Development Goals (SDGs) includes two targets that speak directly to the power of ICT and Internet access to promote global development: target 5b seeks to "enhance the use of enabling technology, in particular information and communications

[1] Remarks by the President on Launch of ConnectHome Initiative (July 2015).
https://www.whitehouse.gov/the-press-office/2015/07/15/remarks-president-launch-connecthome-initiative
[2] World Bank (2010), Building broadband: Strategies and policies for the developing world.
http://siteresources.worldbank.org/EXTINFORMATIONANDCOMMUNICATIONANDTECHNOLOGIES/Resources/282822-1208273252769/Building_broadband.pdf
[3] World Bank (2014), Sub-Saharan Africa Data. http://data.worldbank.org/region/SSA
[4] Post-2015 Consensus: Infrastructure Assessment, Auriol Fanfalone (2014)
http://www.copenhagenconsensus.com/publication/post-2015-consensus-infrastructure-assessment-auriol-fanfalone
[5] McKinsey (2013), Lions go digital: The Internet's transformative power in Africa.
http://www.mckinsey.com/insights/high_tech_telecoms_internet/lions_go_digital_the_internets_transformative_potential_in_africa

technology, to promote the empowerment of women"; target 9c aims to "significantly increase access to information and communications technology and strive to provide universal and affordable access to the Internet in least developed countries by 2020."[6] Indeed, while these two goals set specific ICT targets, access to the Internet and the information contained online has the power to accelerate progress toward and underpin achievement of the full range of global development goals.

INTERNET ACCESS AROUND THE WORLD: A SNAPSHOT

Today, over 60% of the world's population — equivalent to 4.3 billion people — remain offline. These billions of people excluded from the life-changing possibilities of the Internet are predominantly female and nearly all in the developing world — in Africa, just 1 in 5 people use the Internet, and across the world's Least Developed Countries, just 1 in 10 is online.[7] Clearly, we have a long way to go if we are to meet the ambitious universal access target set out in the Sustainable Development Goals.

Mobile broadband — the primary means by which most citizens in the developing world access the Internet — has been critical for expanding Internet access. Global mobile broadband penetration has grown 12-fold to nearly 50% since 2007, however, growth has been unequal. Mobile broadband across the developed world is ubiquitous, with penetration rates reaching nearly 90%, yet this rate drops to just 17.4% in Africa.[8] Furthermore, growth of Internet use in that time has been unequal and the growth rate today is slowing.[9]

This digital divide exacerbates existing economic and social inequalities, and stifles development across the globe by keeping women and other marginalized populations — those who arguably stand the most to benefit from an online connection — from accessing the empowering potential of the Web.

Concerns about the quality of access and respect for human rights online also abound. For instance, the World Wide Web Foundation's 2014 Web Index reported that at least 1.8 billion Internet users have little or no right to privacy or freedom of expression online thanks to pervasive surveillance or censorship.[10]

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[6] United Nations (2015), Sustainable Development Goals. https://sustainabledevelopment.un.org/?menu=1300
[7] ITU (2015), ICT Facts & Figures. http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2015.pdf
[8] ITU (2015), ICT Facts & Figures. http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2015.pdf
[9] ITU (2015), ICT Facts & Figures. http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2015.pdf.
[10] World Wide Web Foundation (2014), The Web Index.
http://thewebindex.org/report/#1._executive_summary:_the_web_and_growing_global_inequality

BARRIERS TO ONLINE ACCESS

Time and again, the high cost to connect is cited as a primary factor for not using the Internet. While an entry-level broadband connection costs just 1-2% of monthly income across most developed countries, this figure skyrockets to at least 10% in most developing countries, and can reach over 100% of monthly income in a handful of countries.[11] The costs associated with purchasing a mobile phone or other Internet-enabled device (most of which are taxed as luxury goods), and with the maintenance of such a device, compounds the problem.

Of course, high prices hit certain groups harder than others, and income inequality masks the true scale of the problem in many countries. We will consider women in detail shortly, but it is worth noting that for the billions living in poverty (i.e., earning less than $2 a day), the cost of a basic broadband connection is prohibitive. Rural Internet users also have reduced access when compared with their urban counterparts. As well as being disproportionately hard-hit by high prices (as rural dwellers tend to earn less than their urban counterparts), technical barriers remain an obstacle in rural areas — with only 29% of the world's rural population covered with 3G networks.[12]

WOMEN AND THE WEB: AN OVERVIEW

Across the developing world, women are nearly 50% less likely to access the Internet than men in the same communities.[13] In a recent study by the Web Foundation examining the digital divide across nine cities in nine developing countries,[14] just 37% of women reported using the Internet (compared with 59% of men). Women comprise nearly half of India's population, but represent only a third of its online population[15] — a picture which is replicated across many other poor countries.

Women are also currently less likely than men to use the Internet in an empowering way. The Web Foundation study found that women are 30-50% less likely than men to use the Internet to increase their income or participate in public life.

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[11] A4AI (2014), Affordability Report. a4ai.org/affordability-report/report
[12] ITU (2015), ICT Facts & Figures. http://www.itu.int/en/ITU-D/Statistics/Documents/facts/ICTFactsFigures2015.pdf
[13] World Wide Web Foundation (2014), Women's Rights Online. http://webfoundation.org/wp-content/uploads/2015/10/WomensRightsOnlineWF_Oct2015.pdf
[14] World Wide Web Foundation (2015), Women's Rights Online. http://webfoundation.org/wp-content/uploads/2015/10/WomensRightsOnlineWF_Oct2015.pdf. Cities included in the analysis: Nairobi, Kenya; Kampala, Uganda; Lagos, Nigeria; Yaoundé, Cameroon; Maputo, Mozambique; Bogota, Colombia; New Delhi, India; Jakarta; Indonesia; and Manila; Philippines
[15] Google India (2015), Women and Technology. https://www.womenwill.com/insights/india.html

BARRIERS TO INTERNET USE BY WOMEN IN THE DEVELOPING WORLD

Women, on average, earn 30-50% less than men — meaning high prices hit women disproportionately hard and cost remains a key barrier to women's access.[16] Yet the economic potential of bringing women online is tremendous: one study estimates that bringing an additional 600 million women online would contribute between US$13-18 billion to annual GDP across 144 developing countries.[17]

Skills and relevance also remain significant barriers for women. For those that do not use the Internet, lack of know-how was most commonly cited as a barrier for adoption by poor, urban women in the nine countries covered by the Web Foundation's 2015 Women's Rights Online research.[18] (See Figure 1, below.) Policies that address both awareness and digital skills are critical to reduce these barriers for women in developing countries.

Barriers to Internet use among female non users
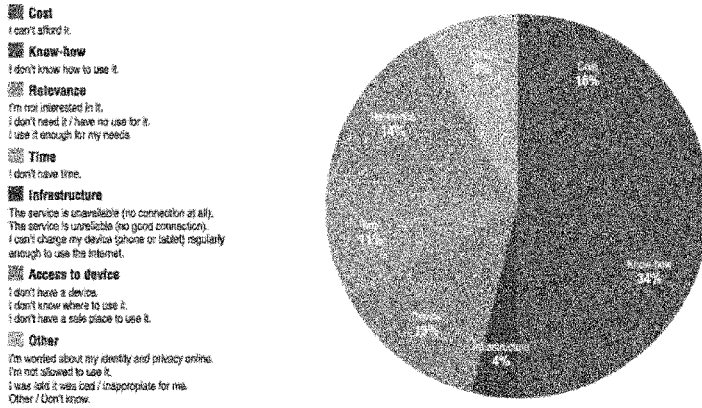
Figure 1. Barriers to Internet use among female non-users (Web Foundation, Women's Rights Online, 2015)

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[16] A4AI (2014), Affordability Report. a4ai.org/affordability-report/report
[17] Intel (2014), Women and the Web. https://www-ssl.intel.com/content/www/us/en/technology-in-education/women-in-the-web.html
[18] See World Wide Web Foundation (2015), Women's Rights Online for more information: http://webfoundation.org/wp-content/uploads/2015/10/WomensRightsOnlineWF_Oct2015.pdf

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SOLVING THE ACCESS CHALLENGE

The potential of the Internet — and specifically, women's access to the Internet — to boost economic growth, empower democratic governance, and advance global development cannot be overlooked as a key component of US foreign policy. The following policy recommendations provide a brief overview of concrete actions that the US government can support and invest in to ensure that Internet access becomes universal and affordable, and that it provides a safe, free and open platform to support digital inclusion for women's empowerment.

- *Support policy reform based on inclusive, multi-stakeholder processes that will lead to market growth and lower costs.* Clearly, lower prices will allow more women and men to come online. The A4AI 2014 Affordability Report provides a roadmap for policies[19] that have proven to support these outcomes, including: frameworks that support open access and infrastructure sharing among infrastructure service providers; and universal access policies that focus on expanding access in rural areas, in part through the provision of public and shared access facilities.
- *Coordinate broadband expansion strategies with developments in the energy sector.* Electricity is an essential infrastructure variable in the path toward affordability — A4AI research shows that the lower the electrification rate, the higher mobile broadband prices are, and vice versa.[20] Collaboration between national governments, energy ministries, and other stakeholders within the energy sector to coordinate broadband and electricity infrastructure expansion plans with a view to reducing unnecessary costs and increasing shared infrastructure options across the sectors is critical to increasing affordability and enabling wider access.
- *Invest in International Telecommunication Union (ITU) efforts to expand collection of gender indicators, and support national statistics agencies to do the same.* The collection of gender-disaggregated and gender-specific data is critical to understand realities faced by women and other unconnected populations on the ground. While many international organizations and national statistical agencies have recognized this need, many efforts require additional resources and capacity to collect and analyze this data in a thorough and holistic manner. Ensuring that gender data is properly collected and analyzed will improve the availability and quality of gender-based data for decision-making and policy making purposes.
- *Support the development of inclusive and holistic national ICT policies and broadband plans that address all aspects of the access and use ecosystem.* National ICT and broadband policies and plans must address infrastructure and supply-side issues needed

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[19] A4AI (2014), Affordability Report: Roadmap to Affordable Internet. http://a4ai.org/affordability-report/report/#a_roadmap_to_affordable_internet
[20] A4AI (2014), Affordability Report. a4ai.org/affordability-report/report

to reduce the cost to connect and expand Internet access, and must also work to stimulate and support increased demand for Internet services by all population groups. Specifically, policies must support and create focused programs, applications, services, and content that are relevant to women's everyday challenges and needs, making them relevant and meaningful to their livelihoods and making women more likely to see the value of Internet access.

- *Recognize barriers faced by women and ensure privacy and safety online.* In addition to cost-related barriers to access, women also face serious barriers around privacy and safety online. Sector policies should aim to contribute to and achieve gender equality and, most importantly, ensure that offline inequalities are not replicated online. Education programs and consumer campaigns to increase awareness of the utility of the Internet, as well as trainings on basic skills and safety online, will be critical to ensuring women can access and fully utilize a safe and open Web, without fear of retaliation.

- *Incorporate digital skills education into education programs from primary school onwards.* Web Foundation research points strongly to the overwhelming difference that education makes to women's use of technology, even when controlling for other factors such as income and age. Primary school enrollment rates are quite high in many developing countries; by incorporating ICT literacy basics and online safety training in primary and secondary school curricula, digital opportunities can be expanded to many of those that are excluded today.

- *Develop and support programs that provide public access and target underserved populations.* Public access represents an important avenue for providing offline populations and those users that cannot afford Internet access with online resources and services. Resources to increase access at community centers and local public institution facilities, such as libraries and schools, and support for universal access and service funds will help to create more equal growth and close the digital divide.[21]

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[21] To learn more about the role of universal access and service funds in supporting affordable Internet access, please see "Universal Service and Access Funds in the Broadband Era: The Collective Investment Imperative" at http://a4ai.org/wp-content/uploads/2015/03/A4AI-USAFs-2015_Final-v.2.pdf

Chairman ROYCE. Thank you, Ms. Jorge. Ms. Warner.

**STATEMENT OF MS. JOYCE WARNER, SENIOR VICE PRESI-
DENT AND CHIEF OF STAFF, INTERNATIONAL RESEARCH
AND EXCHANGES BOARD**

Ms. WARNER. Thank you, Chairman Royce, Ranking Member
Engel, and distinguished members of the committee. On behalf of
IREX, I am very honored to have the opportunity today to discuss
our experience and the important relationship between women and
information and communication technology in the developing
world. I want to also thank my colleagues for their compelling re-
marks this morning. And I will try to—you may find some overlap
because I think we have some similar recommendations.

Since 1968, IREX has worked in over 125 countries to build just,
prosperous, and inclusive societies, and we use technology across
much of our programming. Our work is supported by the generosity
of the American people through the U.S. Department of State, the
U.S. Agency for International Development, as well as private do-
nors, including the Bill & Melinda Gates Foundation and the Car-
negie Corporation of New York. Our approach is to focus holis-
tically on both IT access, but also broadening digital literacy. I
know we talked a lot this morning about why the issue is impor-
tant, including improving GDP, and we have also talked about the
alarming disparity for women and girls, the overall less access to
the Internet, less mobile ownership. I want to highlight also,
though, that less training and exposure even where access is avail-
able, is an important factor creating the digital divide. And accord-
ing to the 2015 World Wide Web Foundation report, women are 1.6
times more likely to report a pure lack of skills as a barrier to
Internet use. And I think we would all agree that nations cannot
develop and grow unless they engage their full human resource po-
tential, and closing the gender digital divide will be key to achiev-
ing this.

So I would like to share a few things of what we have learned
at IREX. First, women and girls need safe public access points. We
know that girls and women often choose public libraries because
they are perceived as safe, reliable, and affordable. And we have
partnered with the Gates Foundation in 11 countries to turn public
institutions, like libraries, into Internet access points. And we are
pairing that with providing access and training librarians to sup-
port them.

Second, it is really important to introduce girls to technology as
early as possible, and definitely no later than their adolescence.
The after-school tech clubs IREX has created in eight countries
have helped girls gain digital skills with positive results into young
adulthood, including increased confidence and employability. By
supporting girls early on with digital literacy skills, we can help
stem a lifetime of gender disparity.

Third, we need to invest and support infomediaries, and by this,
we mean trusted community members, teachers, librarians, other
adults who can help coach and train both younger and older women
to use technology effectively and positively. Infomediaries can also
help them filter the massive amounts of information that is avail-
able. In addition to working with librarians, we have partnered

with the State Department to expand the use of technology by master teachers from across the developing world, the overwhelming majority of whom have had no prior training in using instructional technology in the classroom. The goal is to make technology a regular part of learning and not only a special subject or an elective.

And finally, we have learned that women also need to find relevant and valuable information to them, and that is both available in their local language, but in addition, it is information they can use in their everyday lives.

In partnerships with USAID and a local Jordanian research organization, we have just recently launched a gender clearinghouse. This is the first of its kind in Jordan, and it is allowing women to access information on their human rights.

The core of what we need to achieve gender parity in technology around the globe exists today, and so we have a few recommendations. First, we need to expand the notion of literacy to include digital literacy. ICT needs to be included in formal education. It is not a side subject. So while we used to have the three Rs, I think now we need literacy, numeracy, and digital literacy. We need them all working together, and we need to introduce that as early as possible.

Second, we should prioritize investments in community institutions like schools and libraries where we can build on existing infrastructure for public access. For example, there are 320,000 libraries in the world, and 70 percent of them are in developing countries. Imagine if each was connected to the Internet, and staffed with a skilled infomediary to support Internet access by women and girls.

Third, we need to balance the overall expanding of IT access with better digital literacy and skills, and ongoing coaching, so that women and girls can use this technology to better their economic, family, and life outcomes, so as to not inadvertently, without those skills, expand the divide rather than shrink it.

And finally, we should look across all of the work we are doing in the U.S. Government and among our development partners, and make sure that everything we do is taking the gender digital divide into account. Whether we are working on health, or food security, or environmental issues, are we looking at everything, and making sure that we are addressing this wherever it is possible?

And increasing mobile subscriptions alone will not actually purely equalize this gender divide. Governments, international agencies, nonprofits, and private enterprises need to work together. And I thank the committee for this opportunity.

[The prepared statement of Ms. Warner follows:]

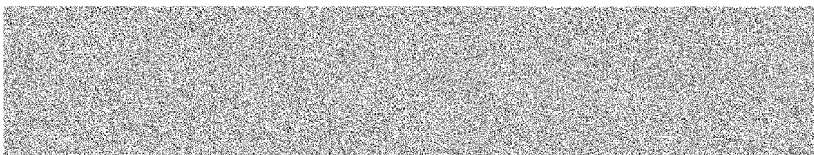# Women and Technology

Increasing Opportunity and Driving International Development

Testimony of Joyce Warner
Senior Vice President & Chief of Staff
International Research & Exchanges Board

House Committee
on Foreign Affairs

November 17, 2015

Women and Technology

INCREASING OPPORTUNITY AND DRIVING INTERNATIONAL DEVELOPMENT

Testimony of Joyce Warner, Senior Vice President and Chief of Staff,
International Research & Exchanges Board (IREX)
House Committee on Foreign Affairs | November 17, 2015

Chairman Royce, Ranking Member Engel, and distinguished members of the Committee, on behalf of IREX, I am honored to have this opportunity to discuss the important relationship between women and information and communications technology (ICT).

Since 1968, the International Research & Exchanges Board, better known as IREX, has worked in over 125 countries to build just, prosperous, and inclusive societies. We do this by developing leaders, promoting quality education and access to information, and strengthening communities and institutions that promote positive change.

IREX has integrated ICT into its programs in areas as diverse as basic and higher education, youth leadership, peacebuilding, media, and open governance. Today our programs focus on holistic digital inclusion by expanding ICT access, building ICT skills, and broadening digital literacy.

Our work is supported both by the generosity of the American people through the US Department of State and the US Agency for International Development (USAID) as well as through private donors, including the Bill & Melinda Gates Foundation and the Carnegie Corporation of New York. The Gates Foundation specifically has provided significant support for our work in transforming libraries into modern community centers featuring public Internet access and ICT skills training.

Why Women and Girls' Access to Information and Communications Technology Is Important for Global Growth and Development

Every day, our world grows more reliant on technology and digital information to achieve our economic, civic, health, and education goals. Substantial data exists showing that technology adoption is fueling economic growth—contributing 21 percent of gross domestic product increase in developing countries in the last five years.[1] However, even as we see more people benefiting from technology and increases in access to information at the national level, we're also seeing stark divides emerge within countries and communities between the digital haves and have-nots.

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1. Matthieu Pélissié du Rausas et al., *Internet Matters: The Net's Sweeping Impact on Growth, Jobs, and Prosperity* (n.p.: McKinsey, 2011), http://tinyurl.com/prffbuu.

Technology itself is neutral. It does not inherently equalize or "level the playing field." In fact, technology can amplify existing inequalities in a community or country.

Within this context, there is an alarming gender digital divide. Women and girls are not benefiting equitably from the advantages that information and communications technologies bring to developing countries. There are a number of key gender deficits in how women benefit from technology:

- Currently, 200 million fewer women than men have access to the Internet, and the deficit is projected to double.[2]

- Women in Africa are 23 percent less likely to own a mobile device and 37 percent less likely in southern Asia.[3]

- Women who are part of other marginalized groups—the rural, elderly, disabled, and/or poor—have the least access and skills to use technology globally, more so than any other group.[4]

- In sub-Saharan Africa, women access the Internet at 40 percent the rate that men and boys access it.[5]

- Women are 1.6 times more likely than men to report lack of skills as a barrier to Internet use. Women who are not current Internet users identified the biggest barrier as "not knowing how."[6]

Nations cannot develop and grow unless they engage their full human-resource potential. Closing the digital divide is a key factor in their ultimate success.

How Investments In Technology Can Improve Economic and Civic Participation for Women and Girls

These challenges are daunting but not insurmountable. IREX, with the support of USAID, the State Department, and the Bill & Melinda Gates Foundation, has been working to reverse these trends. From our experience, we know that over the lifetime of a woman there are opportunities to introduce cost-effective interventions for greater ICT access that will maximize the benefits to women, their families, and communities.

IREX seeks to advance women and girls' ICT access and skills across their lifetime.

- *Introducing girls to ICT access and skills in adolescence is an important start to a lifetime of engaging with technology.* Since 2004, we have partnered with both public and private donors to develop after-school tech clubs in eight countries.[7] There young people can use their new technology skills to advance community service projects. The girls who participate in this program not only gain digital skills, but also reported strengthened competencies in decision-making skills, self-esteem, self-efficacy, and avoiding risky behaviors. The participants also credited the program with helping them to find a job and

2. Yana Watson Kakar et al., *Women and the Web: Bridging the Internet Gap and Creating New Global Opportunities in Low and Middle-Income Countries* (n.p.: Intel, 2012), http://tinyurl.com/ban7odr.

3. Shireen Santosham et al., *Bridging the Gender Gap: Mobile Access and Usage in Low- and Middle-Income Countries* (n.p.: GSMA, 2015), http://tinyurl.com/ntp2vnk.

4. World Health Organization and the World Bank, *World Report on Disability* (Geneva: WHO, 2011), http://tinyurl.com/psmu8mz.
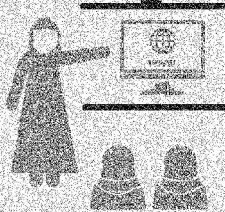
5. Kakar, *Women and the Web.*

6. Anne Jellema and Ingrid Brudvig, *Women's Rights Online: Translating Access into Empowerment* (n.p.: World Wide Web Foundation, 2015), http://tinyurl.com/nu8dtoa.

7. "Tech Age Girls (TAG)," IREX, http://tinyurl.com/okqgbow.

Technology in the Life of a Woman

OUR RECOMMENDATION	OUTCOME

Adolescence

Girls need digital literacy (basic understanding of computers, smartphones, etc.) to be a central component of their education, along with basic literacy and numeracy.

A+

Girls achieve more in school and become digital natives at the same rate as boys.

Young adulthood

Young women need infomediaries, someone who combines tech resources and coaching skills. Infomediaries can be librarians, teachers, or other mentors in the community.

Young women stay engaged with and deepen their confidence with ICT, increasing their self-esteem and employability.

Adulthood

Adult women need access to information, learning opportunities, and networks to overcome isolation and succeed economically.

Women increase their income in both the formal and informal economy, have more opportunities for civic participation, and have access to more information to address their challenges in life (child rearing, health, etc.). They also become role models for the next generation of female digital natives.

22

achieve leadership positions at work. For example, in Tunisia youth clubs have helped connect more than 2,500 young people, 60 percent of whom were women—many in underserved areas, and many who one year ago had never even held a mobile phone.[8]

- *Providing safe public Internet access and trusted infomediaries helps young girls and older women learn to use technology.* Since 2006, we have partnered with the Gates Foundation in 11 countries to turn public institutions, like libraries, into information and communications technology access hubs.[9] This initiative pairs ICT modernization with ICT skills training for librarians, 95 percent of whom are women. The libraries are a safe space for Internet access, and the librarians play a critical role as trusted infomediaries or public-access information intermediaries,[10] which is particularly important for first-time internet users.[11] In Ukraine, for example, female library patrons (in particular, girls under age 14 and women over age 45) were more likely than males to report improved computer skills thanks to the assistance of a librarian.[12] Libraries also host hackathons and career clubs that can be important feeder programs to channel young women into advanced ICT skills programs.

- *Supporting teachers with ICT skills reaches both adolescents and education professionals.* Since 2006, we have partnered with the State Department to expand the use of technology by master teachers from across the developing world.[13] These master teachers receive training that they apply in their classrooms. They also share their new knowledge with colleagues to help strengthen the entire school system. The overwhelming majority of teachers we have worked with have had no prior training on the use of instructional technology for the classroom. Teachers are a key influencer in their communities. By exposing, modeling, and supporting girls' effective and equal access and use of technology at an early age, teachers can have a tremendous influence on young lives. For example, in Bangladesh one of our master teachers returned home with a focus on training other teachers at five all-girls schools to expand their staff's ability to integrate ICT in their classrooms.

- *Empowering community leaders is crucial as these leaders play an important role in engaging and empowering adult women through technology.* Since 2010, we have partnered with the State Department to provide intensive leadership training to community leaders from across the world who are working in the areas of transparency and accountability, tolerance and conflict resolution, environmental issues, and women and gender issues.[14] As a result of this training, a Ugandan community leader is now connecting rural women to mobile technology solutions so they can get data on crop pricing, connect to markets, and get a fair price. Another participant from the Commission of Blind Women of Peru is providing independent living training to blind women to help them gain skills needed for entering the workforce. The training includes how to access and use computers and other technologies.

8. "Tech Age Teachers Tunisia," IREX, http://tinyurl.com/oaub8gm.

9. "Beyond Access," IREX, http://tinyurl.com/nixk45g.

10. "The Global Impact Study | Infomediaries," University of Washington, http://tinyurl.com/oz95pcs.

11. A. Sey et al., *Connecting People for Development: Why Public Access ICTs Matter; Global Impact Study of Public Access to ICTs Final Research Report* (Seattle: Technology & Social Change Group, 2013), http://tinyurl.com/phgkqvz.

12. "Bibliomist—Global Libraries Ukraine," IREX, http://tinyurl.com/o85cdey; IREX program data from the Global Libraries Ukraine Bibliomist program, 2014.

13. "Teaching Excellence and Achievement Program (TEA)," IREX, http://tinyurl.com/olpxzt4.

14. "Community Solutions," IREX, http://tinyurl.com/nf8e795.

- *Supporting adult mentors and role models for adolescent girls strengthens women's engagement and empowerment through technology across generations.* Since 2013, we have partnered with the State Department, USAID, the US higher-education community, and private-sector partners, such as Microsoft, in support of the Young African Leaders Initiative (YALI) – Mandela Washington Fellowship.[15] The fellowship provides intensive executive leadership training for the best and brightest young Africans ages 25–35 across the continent in business, government, and civil society. A number of these young leaders are working to bridge the gender and digital divide. One fellow from Ghana is running a social enterprise that is teaching girls to code, thereby building their economic independence and confidence.

- *Facilitating online civic participation is an essential part of women using technology in adulthood.* Since 2014, we have partnered with USAID to promote gender equality and awareness in Jordan.[16] In partnership with a local Jordanian research organization, we have just launched an online "gender clearinghouse" that allows Jordanian women to easily access information on their human rights.[17] This type of digital information platform for women is the first of its kind in Jordan.

What We Have Learned from Working with Women, Girls and Technology

Everything we need in order to achieve Internet gender parity around the globe exists today. (That certainly must be the most inspiring and optimistic thing you will hear today.) We do not need to invent any new technology to accomplish our goal. This realization shapes all of IREX's technology work.

- **Infomediaries are critical. They are already in place, and most of them are women.** Throughout the developing world trusted community-level leaders exist as information hubs. These infomediaries are the critical nodes to effect change for girls and women writ large. Infomediaries are found within familiar professions and roles, such as librarians, teachers, and community organizers. They represent trusted and relatable voices. They hold a tremendous amount of influence in their local information ecosystem. In most countries, the bulk of these positions are held by women. Infomediaries should be the focus of our work, our investment, and our policies. Even better, none of these infomediaries needs to become a tech expert. Their social capital and knowledge of local culture is far more valuable than knowing how to program a computer. They need only be armed with simple skills, technology access, and peer-to-peer connections to serve as mentors and role models that cascade the benefits of technology to women and girls across their community.

- **Build on existing infrastructure.** When it comes to infrastructure and institutions, we also have most of what we need. Existing public spaces such as schools, youth centers, and libraries can be infused with technology and trained staff to create safe space for women and girls to access information and increase their digital literacy. These are settings that have proven to be safer and more equitable for girls and women to access technology for the first time—and they are often overwhelmingly staffed by women. It can be tempting for governments to build information centers, telecenters, or other new incarnations with bold names that may attract more attention. However, modernizing existing institutions already in place and trusted in communities

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15. "Mandela Washington Fellowship for Young African Leaders," IREX, http://tinyurl.com/px8hauv.

16. "Takamol—Jordan Gender Program," IREX, http://tinyurl.com/pe4oubd.

17. "Haqqi Home Page," IRCKHF, http://tinyurl.com/qjfopa2.

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is far more cost-effective. There are 320,000 libraries in the world and approximately 70 percent are in developing countries.[18] Modernizing existing infrastructure would yield far more connections for women and girls than would reinventing the wheel.

- **Include the voices of women in designing programs to improve ICT access and skills.** Just as Silicon Valley has successfully adapted to the voice of the technology user, we need to do the same as development practitioners. IREX takes care so that our investments, policies, and programs are always shaped from the earliest stage by the voices of the women and girls we hope to benefit. We start with the human-centered design principles that were used to develop the software and hardware found around the world and apply these principles to our development work.

- **Tap into existing funding.** We also don't need to solely invent new funding streams or allocations. However, work is needed to unlock some untapped resources. Chief among these are Universal Service Funds (USF). These are the tax structures put in place for mobile network operators to expand ICT access for everyone—not just for urban markets that are the most profitable. USAID has done a tremendous amount of admirable work in helping countries around the world establish USF funds. However, in 2013 GSMA (Groupe Speciale Mobile Association) found that 64 USFs contain more than USD 11 billion that is waiting to be disbursed.[19] These funds, when combined with government budgets around the developing world and the private sector, can solve this issue. The US can tie aid to specific commitments in budgets that support women and girls and bridge the digital divide. The US Government can tie loan guarantees to developing countries on the condition of gender equity of technology access. The Overseas Private Investment Corporation can make bridging the gender digital divide a key priority in assisting US companies to invest overseas in opportunities that include women. It is not surprising that so many women in the world remain unconnected when these financial balancing mechanisms are not being utilized. We can work with GSMA, governments, and OPIC to use these funds to equalize the playing field for women and girls.

How Policymakers and Development Professionals Can Promote Women and Girls' Access to Technology

Over the past decade, it has been tempting to believe that the growth of mobile subscriptions will ease digital inequalities on its own. But we've seen that governments, international agencies, nonprofits, and private enterprises will need to work together to maximize these investments.

- **Embrace, empower, and amplify the women-in-tech role models.** This maximizes return on investment. Supporting vibrant female role models inspires adolescent girls and their mentors. It also strengthens the network of young IT professionals through peer-to-peer learning and counteracts stereotypes that create educational and occupational obstacles.

- **Prioritize investments in community institutions** like libraries and schools that are trusted, open, and truly beneficial to everyone. We know that girls and women often choose public libraries because they are perceived as safe, reliable, and affordable, and because libraries often have trained female

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18. "About Beyond Access," Beyond Access, http://tinyurl.com/pyz373x.

19. *Universal Service Fund Study, Conducted on Behalf of the GSM Association* (n.p.: Ladcomm, 2013), http://tinyurl.com/lgb5irk.

infomediary staff.[20] Working with community-hub institutions like libraries and schools ensures that everyone can benefit.

- **Couple access with ability.** Just putting one laptop per child in schools or setting up a cell phone tower in a village does very little except introduce new and expensive line items into already strained budgets. We must ensure that the skills to navigate and contribute to the global information society are delivered equitably in concert with connectivity.

- **Expand the notion of literacy to include digital literacy.** Everyone in the world is born a digital novice. Thus, digital literacy should be on par with literacy and numeracy within education systems and curricula. ICT should be included in formal education—not as an elective or side project within education systems—and introduced at the earliest possible age. If left as a side subject, computers and technology resources will continue to be enjoyed only by those who fight for time on the keyboard and mouse. Fifty years ago, social norms dictated that certain topics in books were not suitable for women. Today, this sounds absurd—but often we find that this is how technology education is delivered in practice in many education systems.

- **Encourage US government agencies to adopt a gender digital divide strategy.** Help agencies across the US government align their efforts to support women and girls' access to information and technology. USAID's "Digital Inclusion" fact sheet is a good starting point.[21] US bilateral agreements, transnational pacts, trade policies and other international instruments can model and encourage integration of technology access for women and girls into wide-ranging programs and policies that affect global economic growth.

- **Leverage existing frameworks to build support across countries.** The recently adopted United Nations Sustainable Development Goals provide a unifying framework for countries, host governments, nongovernmental organizations and the private sector. In particular, goal 5 calls for countries to "enhance the use of enabling technology—in particular, information and communications technology—to promote the empowerment of women."[22] ICTs also cut across a number of Sustainable Development Goals. The framework identifies technology as a tool that can drive progress across all three pillars of sustainable development, which include economic growth, social inclusion, and environmental sustainability.[23] Many countries have national "digital 2020" or "information society" strategies that could be strengthened to address the gender digital divide.

20. Technology & Social Change Group, "Global Impact Study" (n.p.: TASCHA, n.d.); A. Terry and R. Gomez, "Gender and Public Access Computing: An International Perspective," *Proceedings of HICSS* 44 (2011).

21. US Global Development Lab, "Digital Inclusion" (n.p.: USAID, n.d.), http://tinyurl.com/qxta8tj.

22. "Sustainable Development Goals," United Nations Sustainable Development Knowledge Platform, http://tinyurl.com/ph4ntgn.

23. Joel Turner and Amber Ehrke, "Connecting the Next 4 Billion: How Access to Information Underpins Every SDG," DevEx, http://tinyurl.com/o43vzav.

Chairman ROYCE. I thank you, Ms. Warner. We thank all of our witnesses here.

Let me start with a question that goes to this issue of how media itself portrays women working in the STEM fields. And my first thought here would be, because the studies that you have focused on here in industrialized nations, because that is rebroadcast out around the world, both are lesser representation on screen and off screen, probably impacts the number of women and girls interested in STEM in the developing world. And that is the essence of my question there.

Ms. DAVIS. Absolutely. You are right. Eighty percent of the media consumed globally is made in the United States. My institute has also researched—done the first global gender-in-film study, and it is—the representations are no better in foreign films as far as women in these fields. And the importance of it is, I can't overemphasize how powerful media images are. And they can be in both a positive and a negative way. For example, there being far too much stereotyping and hyper-sexualization of female characters. That is obviously negative. But if you show female characters doing nontraditional and important things, the message comes across clearly.

The most interesting example I have of that is in our study of the careers of television female characters. One of the most well-represented professions was women in forensic science. There are so many female forensic scientists on TV because of the CSI shows and everything, that I don't have to work to get more representation there. And in real life, the numbers of women wanting to pursue this career has absolutely skyrocketed. I think about 75 percent of people wanting to study this field are female, and colleges are scrambling to keep up with the demand for the courses. So it just shows what I mentioned earlier, the words we live by is, "If girls can see it, they can be it." Because we fail to have enough real-life female role models in these fields, in the STEM fields and ICT, we need them on screen so that girls can see that, and we need them in great numbers as well. We have to have boys and girls see that women are good at science and good at engineering and math, and that that is viable for them.

Chairman ROYCE. I have another question here, and it goes to the use of technology.

Some years ago, I passed an Anti-Stalking Act here, but as technology changes, we are now seeing it is not just the phone. It is access to the Internet as an area where what you might think might make women feel more secure, you also have the online stalking, the online hacking that threatens their security. So have you seen any evidence for the panel here, any evidence on balance that technology is decreasing the overall amount of harassment of women, or is technology just a neutral tool when addressing this cultural issue at the end of the day? What is your perception on that issue, and how can we impact it?

Ms. JORGE. Thank you. So I am sure that everyone has something to share on that. I think one of the most important things to recognize, and a study by my colleagues at the Web Foundation just found this clearly through very in-depth research in 10 countries across the developing world, is that the realities and the in-

equalities that exist offline are normally transferred to the online world, including the challenges, the difficulties, the norms, tend to be duplicated online. And what we are doing the way we work, is to ensure that, first of all, that is not the case. And that the kind of policies, the kind of programs, the kinds of projects to empower women, not just through access, but the way they adopt, the way they use technology, first of all, are safe, but also are informed by policies that will protect women to do that safely, but always giving them the voice that they need, as women, to express freely and in an open way. And that is very important.

So it is important that we have the right programs in place to not only support, to protect women, but it is not just about the online world. That is just a replication of the huge inequalities that around the world we need to deal with as well as in the offline world. So it leads us to think about are there disparities that we know exist, that Geena already mentioned, that Joyce mentioned in terms of education, in terms of the STEM fields, in terms of a woman's ability to have access to information, to understand their rights.

In many countries in the developing world, the ability of women to understand and to use and act on their rights is very limited. And one thing that the online world and access to technology can do is allow women much faster and good access to information that they otherwise wouldn't have.

And so in that way, we can use online platforms and the Web and technology to not only increase women's ability to have more access to information, understand their rights, act on their rights, and have more support to have their own agency as women in their own societies.

Chairman ROYCE. Technology is going to be empowering. Mr. Sires. I am out of time, we will go to Mr. Sires.

Mr. SIRES. Thank you, Mr. Chairman, and thank you for being here. This is a very important issue for empowering women in many of these countries. I was just wondering, when you talk about this stigma that in some of these countries have, women using the Internet, and getting good at it, would you call it jealousy, just from the male role in some of these countries, or what is actually the stigma that you are talking about? Anyone?

Ms. WARNER. I would mention, you know, stigma may be one element of it, but I think part of what we found effective is making sure that men, whether they are in a teaching role, whether they are in a family role, whether they are in a policy or employer role, understand the value broadly of the Internet for women. And so we have done some work with a partner in Nepal and India, in very rural areas, and looking at rural community centers, and women who did not normally leave the house. Once men were understanding more about how this might contribute economically, more financial transaction management for women, then I think once that was expressed and they understood that, then they were able to embrace the participation of women in technology more.

Mr. SIRES. Ms. Davis.

Ms. DAVIS. I think a tremendous amount is attributable to unconscious gender bias. If everyone is raised in a culture that doesn't show that women take up half the space in the world, that doesn't

show that women do half of the interesting things, men and women internalize an unconscious bias that most of us don't realize the extent of how much we have that. And so that needs to be overcome through education and through seeing women involved in this. But it is something that is inhibiting progress in so many sectors of society, and particularly in this one. So people just aren't aware of the unconscious bias they have against women in these kinds of positions.

Mr. SIRES. Yes. Ms. Jorge.

Ms. JORGE. Thank you. I totally agree with my colleague witnesses. I would like to say that, you know, if you look at some of the recommendations that many of us have already made at this table, they very much lead to exactly that question. How do we change that? And how do we, through education, through targeted programs and projects that are addressing some of those inequalities, change that, those ideas, but also that reality, and allow women to express and to have new opportunities that they otherwise wouldn't have? And technology can have a role in that. So I would say that by bringing access that is meaningful, that is relevant to women's lives, that is relevant for them as economic agents, as social agents, as creators, as Geena mentioned, is extremely important. And women need to be supported to have those opportunities.

Often, as we know, and in this country, we are very fortunate, but we are not at all at the point where we are supposed to be yet. Many programs, as you know, also in this country have supported women from embarking on STEM fields. And that is something that is also very needed everywhere; not just through the profession, but especially through cultural and social environments as well where some of these differences, the lack of role models, the lack of opportunities, have really kept women back. And we have a responsibility, not just as gender advocates, as I assume we all are, and I assume all of you are in this committee, to create opportunities for many more women to have those opportunities in their lives, being social agents, economic agents, as creators, whatever those women decide for their own lives. And that is really important. It is also their choice.

We are here to create and we want to create opportunities for women to be able to act on the choice that they have with technology, however they would like to use it. But we need to make it relevant. We need to make it informed. We need to make the technology useful and meaningful. If we don't do that, we fail at what we are doing.

Mr. SIRES. Well, thank you. I always get jealous in my office when I have a staffer come in and teaches me how to work my computer, or work my phone. And to me, that is a jealousy factor that is not just in my office, but I think in some of these countries also, when they see a woman being so good at some of these gadgets. But I thank you very much for being here, and thank you for all of your information that you have given us. Thank you.

Chairman ROYCE. Ileana Ros-Lehtinen.

Ms. ROS-LEHTINEN. Thank you.

Mr. SIRES. Former prosecutor from Florida.

Ms. ROS-LEHTINEN. Be afraid. Thank you so much, ladies. Thank you for your testimony, and I apologize that I came late.

So Ms. Davis, I wanted to ask you if you could give all of us late arrivals an overview about what your very interesting institute is doing. How do you gauge success? What are the metrics that you use to know that you are doing what you seek to achieve? So I apologize, but I am so interested in your work.

Ms. DAVIS. Thank you. Yes, so I have been doing this about 10 years. My institute has sponsored the largest amount of research ever done on gender depictions in children's media. And the reason I wanted the data was I wanted to be able to go directly to my colleagues in the industry. So rather than taking on the mantle of educating the public, because I have access to the creators of children's media, I can just go directly to them with this information. And it has proven to be invaluable.

So many creators were simply not aware of how bereft of female presence the movies and television they made for kids was. In the area of television, we looked at all of the different sectors, prime time, and daytime, and reality, but children's programs has the worst ratio of male to female characters. And that is true in family film ratings, also have about the same ratio of male to female characters. And so they are shocked. They are absolutely shocked. And I think we can attribute that to everyone having the same unconscious gender bias. We were all raised on the same ratio of male to female characters.

In film, the ratio of male to female has been exactly the same since 1946. So it is in all of us, this idea that women do not take up half the space in the world, and that they do not do half of the interesting things. And as we mentioned earlier, 80 percent of the media consumed globally is created in the United States. So we are, in fact, responsible for exporting a very negative impression of women around the world.

Ms. ROS-LEHTINEN. And in the 10 years, excuse me, that you have had the institute and you presented this, have you seen a marked improvement? I know I have got three granddaughters, 6, 3, and 1——

Ms. DAVIS. Right.

Ms. ROS-LEHTINEN [continuing]. And sometimes I am just appalled by the shows that they watch.

Ms. DAVIS. Right.

Ms. ROS-LEHTINEN. And they are supposedly on, you know, great kids-oriented stations.

Ms. DAVIS. Right.

Ms. ROS-LEHTINEN. And it is just such a lopsided view of women's roles in the world.

Ms. DAVIS. It really is. And the remarkable thing is how unconscious so much—people literally didn't think about this until we had the numbers. In fact, before I had the numbers and I spoke to people in my industry, very often they would say, oh, no, no, no, no, that has been fixed. That has all been fixed. And they would name a movie with one female character——

Ms. ROS-LEHTINEN. And then whip up another princess.

Ms. DAVIS [continuing]. As proof that gender and equality had been fixed. So they were not aware that the populations were so

bereft of female presence. And, so, there is definitely a shift in their consciousness, and we untapped a tremendous desire to do right by women and girls, but now they understand in what ways they need to do that. And we haven't been able to measure yet an increase in the percentage of female characters.

As of 2014, it is still exactly the same. But I feel very confident predicting that within 5 years, the needle will move for the first time in nearly seven decades.

Ms. ROS-LEHTINEN. And the filmmakers and the TV show makers, they will realize that they have got a wonderful audience there. I mean, it will be good for their intake and box-office hits——

Ms. DAVIS. Absolutely.

Ms. ROS-LEHTINEN [continuing]. And the ratings for TV shows, because parents are very well aware, not just moms, dads too——

Ms. DAVIS. Right.

Ms. ROS-LEHTINEN [continuing]. They are very aware of the gender disparities that their kids are subjected to.

Ms. DAVIS. Right.

Ms. ROS-LEHTINEN. So thank you for what you are doing, and thank you for the excellent research that backs up what you are saying. And I think that you will be seeing the fruit of your labors coming up in the coming years. I congratulate all three of you. Thank you so much for having this hearing, Mr. Royce. I am sorry that I came late. Thank you.

Chairman ROYCE. Mr. Eliot Engel of New York.

Mr. ENGEL. Thank you, Mr. Chairman. Ms. Davis, thank you, again, for being here, and thank you to all of the witnesses. Ms. Davis, in 2012, you were appointed by the ITU as a special envoy to promote technology among women and girls, and you have done incredible work on gender in the media with your institute. How women and girls are depicted in the media, and entertainment industry, affects, of course, how they perceive their ability, talents, and their future prospects in life. So it is incredible work that you do.

We have seen some progress on gender equality in the U.S. in the media. We have seen you as the role of the first female President on TV. I must say for the record, I would like to see a female President. No names mentioned. But obviously, there is more to do.

Can you comment on the fact that it is important for women and girls to access information and communication technologies to end gender inequality and to empower them; but, it also seems to me that we need to encourage men and boys as well to change their perceptions of women's roles. So if you could comment on that, that would be great.

Ms. DAVIS. Absolutely. Thank you very much. We find that the more hours of television a boy watches, the more sexist his views become. And that a girl's perceptions of what she can be in life goes down the more media she consumes. So it is a very negative and important message that comes through for children. We always emphasize that it is equally important for boys to see women and girls engaged in unstereotyped activities, to be engaged in the STEM fields.

My theory of everything, and why I am focused on what kids see first, is that we are, in effect, creating a problem that we have to try to solve later on. We are instilling gender bias in boys and girls from the very first entertainments that they consume, and the first popular culture they are exposed to.

So that is why I am so focused on what boys and girls see in the beginning. And it will change everything, I think, if we can have kids grow up free of these biases, that we would be looking at a different world when that happens. And that is why it is important around the world that we spread this message, and we show women and girls taking up the space that is rightfully theirs.

Mr. ENGEL. You know, it is amazing because I even see it in my own kids who are now in their 20s and 30s, that some of the perceptions or things, not only in this issue, but in many issues that I sort of grew up with and saw around me, that they are—it is incredulous to them that such things can even exist, because they were raised in a different world——

Ms. DAVIS. Right.

Mr. ENGEL [continuing]. And so it is really important that we change those perceptions. Thank you.

Ms. DAVIS. Thank you.

Mr. ENGEL. Ms. Warner, our committee has held a few hearings that focus on women's and girls' access to education, and if you look at these global reports, they indicate that the gender gap in primary education is closing, but women and girls continue, obviously, to lag behind in education rates in parts of sub-Saharan Africa, the Middle East and South Asia, and the result of that is that 600 million women around the world are illiterate, which is nearly twice the number of men.

So how do we go from promoting access to education to promoting digital literacy? Can we do both at the same time? And how important is it to introduce young girls to information and communication technologies at an early stage? Obviously, it is important.

Ms. WARNER. Thank you. I would make a couple of points. First, I think that there is no going back on the technology. So we have to find a way to integrate it. And one of the ways we found to be effective is to look at what are teachers using around instructional technology, and how are they engaging students across the subjects, so that it is not just about teaching it as a separate subject.

The second point I would make is that as we look at long-term engagement for women, and we have done a lot to increase access to primary education, that I think we are starting to see the challenges of not investing in secondary education that is stopping things at primary. And so to the extent we can both advocate for, and even with limited resources, invest in seeing that more women receive secondary education, and I should say quality secondary education, because I think, as we all know, just being in the classroom may or may not lead to educational outcomes.

The World Wide Web Foundation has found that women who have had some secondary education are actually six times more likely to be online than women who have not had any secondary education. So I think the combination of not making it just a separate subject—now, that is to say, that we also agree we should expand the number of women in technology fields, in STEM fields,

and make that investment. But, in addition to doing that, we need to make technology just not seem like something separate to daily life.

Mr. ENGEL. Thank you. I see my time has expired. Thank you, thank you, all three of you, for your great testimony. Thank you, Mr. Chairman.

Chairman ROYCE. Mr. Ted Yoho of Florida.

Mr. YOHO. Thank you, Mr. Chairman. I appreciate the panelists being here. And, you know, there is a paradigm shift going on. I am a veterinarian by trade, and I graduated in 1983. And up to the 1970s, it was a male-dominated field. And when I went to vet school, it was about 65 percent male and 35 percent female. Now it is about 10 percent male, 90 percent female, and it has changed. And I think a lot of professions have done that. And, I think, in large part, you know, what they see on television. So I commend you for doing that. And, of course, your role in "The Long Kiss Good Night," you know, being a housewife that was a chef. I still remember that chefs do those things, you know. And that was a great movie, and I am sure that has inspired a lot of people.

Ms. DAVIS. Hopefully not to become assassins.

Mr. YOHO. A great movie. Anyway, what I have seen is, you know, when we look around, and when we have 60 percent or greater of the world's population as was mentioned, off the Internet, 4.3 billion offline, and primarily women, what experiences do you find with the illiteracy rate being that high in relationship to using the Internet?

If you want to—start with you, Ms. Jorge. What do you see with that? I mean, is it hard to get people to transition over that, and what are you finding as far as problems?

Ms. JORGE. Yes, it is, indeed, and education is a key variable that determines how women not only engage with technology, but use it in a way that is meaningful. So not just for receivers of information, a one-channel way of receiving information, but actually acting on the information that they can receive, that they can use, that they can learn from. And, in fact, you know, a recent study showed exactly that, and proved that, again, education, if you don't have that variable there, if it is not addressed, it really limits the way women can engage with information and technology.

So, and that is why it is so important, and that for us, and for IREX, and so many, you know, colleagues like, you know, Geena's institute, to really focus on the education piece, because it is a key ingredient to make sure that when women have access, they can not only engage with that technology much more meaningfully, but they can also use that access in ways that will be more productive.

Mr. YOHO. Let me ask you this: How much are you using the Internet for education,you know, like a classroom to bring the world experts to teach if—any of you have experience with that? And what are you seeing? Is it more productive than having in-room classrooms, or as an assistant to a person in a classroom? Anybody?

Ms. JORGE. With the caveat that I am not an education specialist, I am, you know, an expert in policy and regulation. I have to say that from my experience, also as a mother, and doing a lot

of research, and reviewing a lot of really good research by many of our partners, it is important to have both.

Mr. YOHO. Okay.

Ms. JORGE. There is never just one kind of curriculum that should just be focusing on technology or not. It is the combination, and using technology in a way that is useful for implementing the curriculum, for bringing skills up, et cetera. It is not that the technology is a silver bullet, but the technology is an extremely useful element for education to improve the quality——

Mr. YOHO. It is a tool.

Ms. JORGE. Exactly. But in developing countries, what is interesting, and it is important for us to highlight here, because we are focusing on international development questions. When there is very little education, or no access to education at all, it is extremely important that the Internet has become one platform to have access to information and educational tools that otherwise wouldn't be there.

So the gaps and the realities of those environments are also quite different than, say, the environments that you would have here as privileged where our children go to schools where my children, all of them have access to either a Chromebook, or an iPad, or what have you.

Mr. YOHO. Right.

Ms. JORGE. Those are, you know, exceptions when you consider the entire world, and especially the developing world that we are focusing on, and the situation of women and girls in the developing world.

Mr. YOHO. All right, let me go to Ms. Warner, because I saw her reaching for the button. Let me get a response from her.

Ms. WARNER. Thanks. I would say that technology, all by itself, is neutral. So really what is key from an educational setting is making sure that folks know how to effectively use the technology in a learning context. So that may be to either supplement with newer information in the STEM fields. We use it a lot with English language learning, so native speakers' voices can be brought in around the world.

Mr. YOHO. Right.

Ms. WARNER. But I think the second issue is using it as a type of learning method. Does it engage more for project-based learning? Does it teach some of the critical skills, more than the rote learning that we want to see that are 21st century skills that so many employers around the world are seeing lacking?

Mr. YOHO. Ms. Davis, do you have anything to add to that?

Ms. DAVIS. No. No, you know, I agree with what they said. I am not an expert in that field, but it makes a lot of sense.

Mr. YOHO. All right. Well, I appreciate it. I am out of time, and thank you for being here. And keep up the good work.

Ms. DAVIS. Thank you.

Chairman ROYCE. Bill Keating of Massachusetts.

Mr. KEATING. Thank you, Mr. Chairman. It is great to welcome a graduate of Wareham High School, in Massachusetts, Ms. Davis. And it is a pleasure to be here. I am in the next town over in Bourne, and I am sure we are all proud of your success and the work you are doing in this regard.

I wanted to touch base on something I think is just as important too, and that is how important your work is for males and young men. I mean, a mother is a child's first teacher, and particularly in other countries in the world as well as domestically. Empowering mothers to have this information, to have this access, we have found with investments in USAID, that money is better served empowering women and mothers, because it goes better to the health of the children, the welfare of the child, but also the education of that child. So can you speak a little bit about how empowering this is for mothers—how it is for young boys having a mother that is more in a position of having these resources?

Ms. DAVIS. Well, it is incredibly important. And like you said, the value of having a mother who is educated is not only important in their self-esteem, in their presence, but also, the more a mother is empowered, a woman will invest 90 percent of her income back into the community and to her family and to everyone's health and well-being. And so it is an incredibly powerful tool that we have to empower the mothers and the women in developing countries to have this knowledge, have access—the more access to the knowledge that will empower them, the better.

Mr. KEATING. Yeah. I don't know if any of the other witnesses wanted to touch base on that?

Ms. JORGE. Actually, I guess I could just share a story that one of our colleagues who is here in the room shared that I think is quite telling of that, and it is a story based on a case in Madagascar where women have put together a project to allow women to report gender-based violence using information and communications technology and using their mobile phones. And not only was it important for women, through the project to learn about their rights and report cases of domestic abuse, but their sons and their daughters became much more aware of the issues that their mothers were being faced with and the rights that their mothers had as mothers, and would remind them to report those cases of domestic abuse when they took place. Because they had the ability to have a tool that would allow them, and they would remind their mothers, you have the right to report and to not have to accept what is happening to you.

And so that is a very powerful example of how not only the children, sons and daughters, can learn about the rights of their mothers, but their rights as children as well and see the potential that some of these new tools can provide to them as they engage as people in their own lives.

Mr. KEATING. Are you aware of any concerns to the—you know, this is an enormously powerful tool to mobilize people around a common cause, particularly internationally, but are you—not every country in this world, unfortunately, has the greatest of missions and purposes right now, and there are very oppressive governments and terrorist groups that are out there.

Do you come across any concerns that in the hands of some of these countries or groups with deep packet technology, that they can identify who is using these kinds of technological tools and target them? And if that is the case, is there something we can do about that?

Ms. WARNER. Yes. I think that this is a concern, that some governments can use this as a way to oppress, to easily identify activists and others who may be trying to produce a counternarrative. I think one of the things we have found that is really important is in working with activists or journalists or others, is to make sure that our work includes really good skill building in digital security, that this is an important element for individuals to know.

And just to add to that, there was a question about general harassment of women, not targeting of activists and others before. And I think in Iraq one of the cell phone companies has developed a special plan with, like, a bye-bye button to block callers who are harassing. So I think to the ability we can engage the mobile companies to understand what types of services would be female friendly, that that will both help them gain more customers, but also make the service have a more positive value.

Mr. KEATING. Okay. Thank you very much. I yield back.

Chairman ROYCE. Matt Salmon of Arizona.

Mr. SALMON. Thank you, Mr. Chairman.

First and foremost, I want to go on the record agreeing wholeheartedly with Mr. Engel that Carly Fiorina could make a great President of the United States. Just having a little fun.

Chairman ROYCE. I would just point out that Geena Davis played one.

Mr. SALMON. And since Ted Yoho opened up the door on movies, I have two daughters. My oldest is 35, the other one is 30. I think they get really angry for me telling their age, but they are both very well educated, very successful, and they would both be very thrilled to drive a convertible with Brad Pitt in the back.

So, anyway, you have done some phenomenal work, Ms. Davis, raising the profile. Every father that has daughters wants exactly the same opportunities for his daughters that he does for his sons. I have two daughters and two sons, and I want the same thing for all of them. You said that in—maybe confronting is the wrong idea or wrong thought, but you have addressed with some of the leaders in Hollywood the disparity, and you have said that they have kind of referred by citing anecdotes of individual movies or productions. Are you making some headway, do you think, with them in general, and what are some of the things that we could do to maybe aid in that effort?

Ms. DAVIS. Right. Thank you. Yes, definitely we are making great strides. I am really heartened by the response to the research. It was before we had the research that I found that people were, even creators of content, were unaware of how few female characters they were including in their products, but once they know or once they can engage with the research, they are very motivated to want to make change.

We did a survey of everyone who has heard my presentation in Hollywood in our industry, and 68 percent said what they learned had changed two or more of their projects, and 41 percent said it had changed four or more of their projects. So we are very excited about that. There is lots of movies and TV shows that have come out that we know that we have impacted. And it is something that is very simple. For example, we were at an animation studio, and I mentioned that in some G-rated films, crowd scenes are made up

of only 17 percent female characters, and—you know, which makes no sense in the 21st century that we would be showing kids that much imbalance.

And at the meeting, the head of the studio said, hey, guys—because it was 99 percent men around the table—could we just stop doing that? Could we just agree right here that we are going to make crowds 50 percent? And they all said, of course, because it was so unconscious. So I think a tremendous amount of our work is done simply by awareness. And as you suggested, it is not a confrontational way that I approach the studios at all, it is as a colleague in a very private and supportive environment, and we partner with them basically to bring it to the front of their minds, and it seems to be working, so I am very optimistic.

Mr. SALMON. I think diplomacy is something we all need a little bit more of, and congratulations on that.

Ms. DAVIS. Thank you.

Mr. SALMON. Ms. Jorge, as access to the Internet increases around the globe, how can we leverage distance learning to help empower women and girls in the goal of increasing educational opportunities? Can we do more to encourage the development of country-specific distance learning in both basic education as well as university instruction? What specific steps would you recommend?

Ms. JORGE. Yes, absolutely. Thank you for the question. As I said, you know, those specific target programs to help women and girls have access to education would be very important. It is also very important that education integrating technology starts very early on, and it is not just left at the primary level, as Joyce already made the case, but should continue and be very clearly expanded.

I think actually the work of IREX and Joyce's, you know, team in education is actually quite relevant for your question, especially we are partners in some of the work that we do, and one of the reasons why is because we believe in the power of libraries and public access in developing countries to be not only centers of knowledge, centers of education, but also centers for people to have access to these opportunities that they otherwise wouldn't be able to have on their own.

Because access is so important, the reality is, as you probably understand, it is very difficult, as it is now and especially despite the growth in the sector, to make sure that all populations are covered with the right type of coverage that Internet requires. And so because of that and because clearly competition and markets by themselves have not been able to ensure that everyone has access to a connection, let alone being able to have the income to afford a connection when that might be possible, it is very important that public access is there and it is strengthened to be way to not only bring education opportunities, but to strengthen the kind of education programs and projects that are out there.

And I would say—I would really love Joyce to add to that, because IREX has done some really fantastic work in that area integrating the education field and needs with libraries as a platform to improve education.

Ms. WARNER. Thank you. I did mention that. I did want to actually add one thing that we are just starting to do now with Course

Talk, which is kind of the Yelp of MOOCs, I don't know if they would say that is their official term, but that is how I describe them, and USAID, and that is, we are trying to look at what MOOCs are looking like in the developing world. This is research that is just starting.

We are also partnering with the University of Washington Tascha Institute on this. And one of the things we are trying to figure out, and we have three countries we are looking at right now, Colombia, Philippines, and South Africa, is how are people engaging with MOOCs, how could they be used for development. Most people are showing that people who take MOOCs are trying to advance their careers, their employability. So what factors increase that, what are the challenges, what are some of the gender issues there. And I think the research is ongoing right now, so maybe it is more of a preview that this is something we are concerned about.

I think that when you look at engaging women and really all learners online, the ability to combine blended learning can also be very effective. So what does that mean? Maybe folks are online and they are remote from the main educational institution providing it, but there is an infrastructure in place for them to meet together in their village, the same people who maybe are learning together, and how do you blend that in person with the online learning.

Mr. SALMON. Thank you. I yield back.

Chairman ROYCE. Thank you. We go now to Lois Frankel of Florida.

Ms. FRANKEL. Thank you, Mr. Royce. And thank you so much for this hearing. I consider myself pretty well informed on women's issues, but I have to say, this is very shocking to me, and I thank all of you for being here, because I know I often—every day I say to myself, how did we live without the Internet? It is really something.

And, you know, even my own—my mother is 90 years old, and she loves her pink iPad. I mean, she is on that iPad all day. And, you know, my niece has this little 2-year-old, I don't think he is even 2 years old, and we go out and he grabs the phone and he is playing games. So it is just—it is—I will say it is pervasive, but—so, anyway, I have a few questions.

I just want to say to Ms. Davis, I am a great fan. I am glad to see you are alive and well. I have been worried about you. I know you went over the cliff—I see you go over the cliff and then I think you just went blind and died on Grey's Anatomy. Did you live or did you die?

Ms. DAVIS. Well, I didn't die. I only was—I had a——

Ms. FRANKEL. Oh, you had the brain tumor.

Ms. DAVIS [continuing]. A brain tumor and then I went blind, but I didn't die, no.

Ms. FRANKEL. Okay. That is good. I couldn't remember. Well, I knew you had the brain tumor, and anyway, I was worried about you. But I am glad you are doing well.

And so my first question is to you, which is how do you fight—with what you are doing with the media, where does the box office come in and how do you, you know, get around the fact that I am sure everybody—they look at the bottom line and making money?

Ms. DAVIS. Yeah. Absolutely. So research shows that films about women or directed by women, are equally successful once you adjust for the budget, but it is something that people are hesitant to embrace. There is this belief in Hollywood that women will watch men, but men won't watch women, so our hands are tied. That is why I don't talk to them about making more female stars, I say whatever you are already making, add more women to the population. And the interesting thing is, there is a test called the Bechdel Test, which has a very low threshold; it is, are there at least two women who talk to each other about something other than men, and you would be amazed how many films do not pass this test. However, a study has shown that films that do pass that test make more money.

So there is definitely evidence that adding more female characters is not only a good idea for our population, but is a profitable idea as well.

Ms. FRANKEL. Thank you for that. Now, I have heard a couple of ideas for solutions, because I try to write them down. One, of course, is the whole media thing, Ms. Davis, that you talked about. But I heard you say expanding literacy to digital literacy, build on existing infrastructure, expand coaching opportunities.

So my question is this, have you done an analysis at all of what, for example, USAID is doing? Is there a list of recommendations of how we—you know, the Congress can engage either with budgetary items or policy?

Ms. JORGE. Yes. Thank you for the question. That is extremely relevant and exactly the reason why we are here. USAID has done some really fantastic work in supporting many of the programs that many of us are actually working on, both not through just NGOs, but also the private sector or private sector organizations, in trying to come up with better solutions to address this problem. Including addressing the kinds of systemic problems around the gender income gap and other kinds of inequalities that exist in society in general.

But coming back specifically to ICTs and technology and access to the Internet, what can be done, what can be done better, and what can USAID and other agencies of the U.S. Government do to support that? A few things: One, give high priority to establishing time-bound targets for gender equity in ICT, access and use. There was an attempt to do that by the Broadband Commission at the U.N. level, a group that I was—you know, I was honored to be part of, in fact, inspired by a request by Geena here a few years ago. I am afraid to say that we haven't done much headway into that, and the reality is that the gap still exists and we don't see very clear gender equity in ICT access and use, but neither do we see it in the kind of policymaking that needs to be supported at the international level to ensure that not only gender analysis and gender considerations are included, but that policy is developed to address the gaps that exist.

And so we have not made enough progress, and we need to, and it would be very important for the U.S. to have an important role to ensure that that moves and that we can actually move the needle and ensure that policies are focusing on women.

Affordability is an issue. The fact and the reason why I mentioned income gap is that women across the world earn on average from 30 to 50 percent less than men. And by default, they are given a lot less opportunity, just from an income perspective, to be able to access, to purchase, to afford the kind of access that the Internet requires, and so that is a huge problem that needs to be addressed. And by reducing costs and reducing prices to the end users is very critical to make sure that the reality of women's lives, that we hope continues to improve, is recognized when developing policy. If you are developing policy for the average person that doesn't exist, obviously a large group of the population is going to be left out of the impact of that potential policy, especially if they start from a different point.

It is also very important to work with civic women's groups to find ways that technology can enhance civic participation. One of the most empowering effects of technology and access to the Internet and the information that the Internet brings to women, is by allowing women to become more active citizens in their societies, with their governments, something that we here not only take for granted, but are able to exercise and enjoy the benefits of that benefit.

Most women in developing countries don't have the ability to enjoy that, not only civic participation, but free and open civic participation without fear that their actions, their thinking, their ideas may not be retaliated against. And so we need to support that kind of civic engagement and civic participation by women and especially by women's groups that are much closer to the—live the realities of women in developing countries.

And as some of our colleagues already mentioned, I would say always put women at the center of policymaking. Here we are in this room, people come in and out, but I can tell you I have been counting how many of you women policymakers have been on the bench, and there are very few of you, and if there were more, many more of these issues would be considered. It is no different in any other part of the world.

When women are at the center of decisionmaking, issues are thought differently from a different perspective, they are imagined in new ways. And so more women at all levels of planning, development, policymaking is absolutely critical to ensure that those concerns come through in the final result of policymaking, in international development, in the kind of support that we as a government here in the United States can make international development, and the kind of impact that we want to see taking place as a result of our actions. Thank you.

Ms. FRANKEL. Thank you very much.

Chairman ROYCE. And, Lois, last month on our hearing on the anti-poaching bill, we had the academy award winner for best director, we had Kathryn Bigelow here, who directed "The Hurt Locker" and also directed "Zero Dark Thirty," so——

Alan, Alan Lowenthal.

Mr. LOWENTHAL. From California. Thank you, Mr. Chair. And thank you, witnesses, for being here. And I apologize for coming a little late.

Last night as I was going through preparing for this, and I know
we are kind of looking at both developing and developed nations
and kind of—I was shocked by something, and it was the last para-
graph of the memorandum that was put out by the chair of the
committee, where it said that in the United States, fewer women
are now completing technology engineering degrees than what oc-
curred 30 years ago. So there are fewer now, and half of all that
enter technology companies leave them by mid career. These are
staggering statistics, and it really just knocked me for a loop when
I read that.

And so what are we going to do from a policy standpoint here
within the United States to really reverse this? Less than 30 years
ago: It is just a shock. And I just want to know if you can help us,
as we begin to kind of grapple with this, both the idea of both ac-
cess, but also retention. How are we going to deal with this issue,
and—which is just shocking, absolutely shocking. And I ask for any
help, me not knowing kind of where to go from here.

Ms. WARNER. So in full disclosure, it is not my personal exper-
tise, but I would say——

Mr. LOWENTHAL. Not mine either, so you can say anything you
want.

Ms. WARNER. Okay. Thank you. I would say a couple things. One
is I think many of the technology companies as they look at how
their family policies and others are designed, and what it takes to
advance and stay in the field is very important.

There was a report done a few years ago by the Department of
Commerce actually, that looked at women in STEM and what is
going on and why people go in and study and then leave the field,
and I think that that might be something that really looks at some
of the patterns.

Mr. LOWENTHAL. Are there some things that you remember from
that, that really stand out——

Ms. WARNER. Yeah.

Mr. LOWENTHAL [continuing]. Why we are going in the wrong—
we are not even talking about being flat, we are talking about
going in the wrong direction?

Ms. WARNER. I don't remember if this was the number one rea-
son, but I think a lot of it had to do with the scheduling and the
work and being able to balance, once you had a family, the work-
load and the hours and——

Mr. LOWENTHAL. I got it.

Ms. WARNER. Yeah.

Mr. LOWENTHAL. Anybody else want to give some help?

Ms. DAVIS. I would just say that I think there is so little encour-
agement for women in this field that—you know, there was a study
at Yale not too long ago where they sent out resumes from—it was
actually a woman's resume to apply for a position in the science de-
partment at colleges, and they—so they sent out identical resumes
except the first name was changed on some of them to a male first
name, and it turned out that the man got far more offers for a posi-
tion at a higher salary and he was judged to be more likable and
somebody that you would want to work with.

So in the face of that, that your teachers from grade school on
and your professors in college have bias against women in the

STEM fields, it kind of makes sense that that is reflected in how many women pursue it, how many—you know, that we are not making—sorry we should have made—been building on——

Mr. LOWENTHAL. That is right. Rather than building, we are going in the wrong direction.

Ms. DAVIS. Right, right.

Mr. LOWENTHAL. And that is what is so shocking. I can understand beginning to build, to deal with some of these issues——

Ms. DAVIS. Right, right.

Mr. LOWENTHAL [continuing]. But to be going in the wrong direction is just shocking.

Ms. DAVIS. Yeah. We just need a cultural shift as far as this is concerned, and this hearing is bringing a lot of attention to it, which I think is very welcome.

Mr. LOWENTHAL. Well, thank you. Any other thoughts?

Ms. JORGE. I will just share a quick story——

Mr. LOWENTHAL. Yes.

Ms. JORGE [continuing]. A personal story that I think is telling of the realities that we face as parents, as citizens. I was looking just recently with my older daughter at different school options, and when I went to visit a particular school that I cannot disclose the name, I was asked—you know, my daughter is very interested in math and science, but also she is a musician. And so we were talking about her qualities, et cetera, and the kinds of things that she wanted to get out of the school. The assistant headmaster asked me, oh, so what does your husband do? What is his profession? And so I told her, and she carried on the conversation.

And so my daughter asked me, she didn't ask you what you did? And so, you are right. So I turned back to the assistant headmaster and said, are you interested in what I do? And she was pretty shocked and kind of embarrassed, so much so that she tried to overcompensate in even more embarrassing ways. But the truth is that is the reality that we face, women, girls, face in many environments, including in what are, you know, largely perceived as very well educated, very important and nice schools, very privileged schools, I must say, and still the stereotypes and the kinds of things that we have to address are so ingrained, as Geena and Joyce have been saying, that are flabergasting.

And so I can tell you that none of my daughters would ever go to that school until another person changes. But this is the reality that women and girls face on their daily lives regardless of where we are in the world, and in some places more so than others because of other issues. And so can we do something about it? We can, and that is why we are here. And I hope that you through your, you know, actions, through your policymaking, through your support in international development support programs that can help change these realities that should not exist.

Mr. LOWENTHAL. And I think that is a wonderful reason for having this hearing, and I agree, but I think the narrative, just for us to be aware of just how serious the problem is in the United States, not just in developing nations when we are talking about developing nations, that we are going in the wrong direction real clearly, raises the red flag, that this is an amazing—you know, this is such an important area, that we need to be using our resources wisely,

bringing all people into the system, and making sure that everyone really is able to function as we move forward.

And the fact that we are losing women and not having them go into the most important professions, and the data is clearly going in the wrong direction, is really cause for great alarm, great alarm.

Ms. JORGE. May I?

Mr. LOWENTHAL. Yes.

Ms. JORGE. I just want to add one more thing just so that we also complete the thought, is that I think it is also important to think of these issues not just from an overall gender perspective, but thinking of all the different kinds of women and men in the world from different backgrounds. Because the kinds of things that we are discussing in terms of inequalities based on gender are even more exacerbated for women and some men, but especially for women of different races, different socioeconomic groups. And they face even greater barriers and greater, you know, obstacles in their lives.

And so it is important to not just be aware from a general gender perspective, which is clearly very important, but also to be very aware of other differences that affect the way people have access to opportunities, including their backgrounds, whatever that might be.

Mr. LOWENTHAL. Thank you. And I yield back.

Chairman ROYCE. Thank you, Congressman Lowenthal.

And we will be incorporating the testimonies of our witnesses here in the legislation that we are writing in the committee.

And we want to again thank our witnesses for their trips out here today and all the work they have put into this testimony. It is now part of the official record and will be part of our legislation.

We stand adjourned.

[Whereupon, at 11:40 a.m., the committee was adjourned.]

A P P E N D I X

Material Submitted for the Record

FULL COMMITTEE HEARING NOTICE
COMMITTEE ON FOREIGN AFFAIRS
U.S. HOUSE OF REPRESENTATIVES
WASHINGTON, DC 20515-6128

Edward R. Royce (R-CA), Chairman

November 17, 2015

TO: MEMBERS OF THE COMMITTEE ON FOREIGN AFFAIRS

You are respectfully requested to attend an OPEN hearing of the Committee on Foreign Affairs, to be held in Room 2172 of the Rayburn House Office Building (and available live on the Committee website at http://www.ForeignAffairs.house.gov):

DATE: Tuesday, November 17, 2015

TIME: 10:00 a.m.

SUBJECT: Women and Technology: Increasing Opportunity and Driving International Development

WITNESSES: Ms. Geena Davis
Founder and Chair
Geena Davis Institute on Gender in Media
(Special Envoy for Women and Girls, International Telecommunication Union)

Ms. Joyce Warner
Senior Vice President and Chief of Staff
International Research and Exchanges Board

Ms. Sonia Jorge
Executive Director
Alliance for Affordable Internet

By Direction of the Chairman

COMMITTEE ON FOREIGN AFFAIRS
MINUTES OF FULL COMMITTEE HEARING

Day___*Tuesday*___Date_____*11/17/2015*_____Room_____*2172*_____

Starting Time _____*10:12*_____Ending Time _____*11:40*_____

Recesses: *0* (___to ___) (___to ___) (___to ___) (___to ___) (___to ___) (___to ___)

Presiding Member(s)
Chairman Edward R. Royce

Check all of the following that apply:

Open Session ☑
Executive (closed) Session ☐
Televised ☑

Electronically Recorded (taped) ☑
Stenographic Record ☑

TITLE OF HEARING:

Women in Technology: Increasing Opportunity and Driving International Development

COMMITTEE MEMBERS PRESENT:

See attached.

NON-COMMITTEE MEMBERS PRESENT:

none

HEARING WITNESSES: Same as meeting notice attached? Yes ☑ No ☐
(If "no", please list below and include title, agency, department, or organization.)

STATEMENTS FOR THE RECORD: *(List any statements submitted for the record.)*

SFR - Rep. Alan Lowenthal

TIME SCHEDULED TO RECONVENE _____
or
TIME ADJOURNED *11:40*

Jean Marter, Director of Committee Operations

HOUSE COMMITTEE ON FOREIGN AFFAIRS

FULL COMMITTEE HEARING

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Testimony of Geena Davis

WOMEN AND TECHNOLOGY: INCREASING OPPORTUNITY AND DRIVING INTERNATIONAL DEVELOPMENT

HOUSE COMMITTEE ON FOREIGN AFFAIRS

Thank you Chairman Royce and Ranking Member Engel, I'm honored to be invited to testify at this hearing on "WOMEN AND TECHNOLOGY: INCREASING OPPORTUNITY AND DRIVING INTERNATIONAL DEVELOPMENT". The efforts of the Committee to ensure that women and girls are included and have the same opportunities as men and boys around the world is critical, especially when it comes to access to the Internet.

I have spent most of my adult life advocating for women and girls as a trustee for the Women's Sports Foundation, as chair of the California Commission on the Status of Women and Girls, as a partner with UN Women and as ITU Special Envoy for Women and Girls in ICTs. The empowerment of women and girls is an issue I'm extremely passionate about, and is why I founded my institute which studies gender in children's media to help women and girls to be seen and heard across the globe.

Technology is having a huge impact on my community, the entertainment industry, in terms of how content creators are using digital platforms to not only serve as the gateway for delivering movies and television programming, but also for the creation of new ways of building global communities.

And, the Internet is having profound impact on how the world engages with Media, and can provide endless opportunities to empower women and girls and influence a systemic cultural shift by improving how they're portrayed and represented. These are the tools that will ultimately raise the value of women and girls in society.

My research Institute has sponsored the largest body of research on gender images in children's media ever done, and we work side-by-side with the leading content creators to dramatically improve how women and girls are represented in media targeting children 11 and under.

Our study on the careers of female characters in Prime Time and Children's TV and Family Films, conducted by Dr. Stacy Smith, Annenberg School of Communication and Journalism, shows that women and girls are missing from critical occupational sectors such as STEM. Out of nearly 6,000 speaking characters in Family Films, males hold 84% of all STEM jobs. This calculates into a ratio of 5 male STEM characters to every one female STEM character.

No female leads or co leads are shown with STEM careers. Looking across the categories of computer science and engineering, the ratio of males to females in these arenas is 14.25 to one! And in Television, characters with STEM jobs are 79% male and 21% female.

The vast gender inequality in media aimed at children is of significant importance as TV and movie images can wield enormous influence on how cultures perceive the value of women and girls and in establishing societal norms. Improving these perceptions can be the real game changer in achieving greater empowerment and participation of girls and women in the technology sector.

My Institute's tagline is "If they can see it, they can be it."

Technology has tremendous potential to transform women and girls' lives, whether it be through STEM career choices or by access to services such as e-health, e-education, e-commerce, e-banking and other applications and devices that can help girls and women address their day-to-day challenges.

We need to vastly improve the gender digital divide: ITU data suggests that there were 200 million fewer women online than men at the end of 2013; and over 1.7 billion women do not own a mobile phone.

We need to bridge the opportunities gap: women earned only 18% of USA computer science degrees; and women make up less than 20% of the U.S. ICT workforce, and only 30% of the European ICT workforce. This cannot stand, given the predicted skills shortfall in the ICT sector of at least two million jobs globally by 2020.

Encouraging women and girls to pursue careers in Tech is critical to closing the economic gender gap. Studies from the ITU have demonstrated that companies that have a gender balance of women in high-level leadership positions and on corporate boards have shown improved financial results.

Women and girls will seek the skills to pursue these career opportunities *if they can see* other women in these roles and be inspired by them. The lack of real-world female role models in Tech careers means that it is imperative to have fictional characters in the science, technology, engineering and math fields in the entertainment media aimed at children.

Technology, and particularly broadband, will be absolutely crucial for achieving all 17 of the UN's Sustainable Development Goals, and all three pillars of sustainable development – economic development, social inclusion and environmental protection – need Technology as key catalysts.

We have the opportunity to ensure that women and girls are fully included in the expansion of the digital world, and that their voices and presence are shaping the agenda of meeting SDG-5, which addresses 'Gender Equality'.

Access to digital technology will be key to meeting this goal, by providing women with the means to educate themselves and their children; to improve their own health and the health of their families and communities; start their own businesses; keep themselves safe; and innovate to build and shape the future they want.

Because I'm privileged enough to live in this country, and as a mother of three children, I can encourage them to engage in any type of interest that they may want to pursue. I want to see a world where all children have the same possibilities and opportunities as my children. A world where woman and girls are valued equally to men and boys and have the freedom to pursue and achieve their dreams.

Chairman Royce and Ranking Member Engel, once again thank you for this opportunity to testify.

PREPARED STATEMENT OF THE HONORABLE ALAN S. LOWENTHAL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF CALIFORNIA

House Foreign Affairs Committee:

Women and Technology: Increasing Opportunity and Driving International Development

Opening Statement and Questions

Tuesday, November 17, 2015

Thank you Mr. Chairman, and thank you to the witnesses for joining us today.

In communities around the globe, there are 62 million girls who should be in school but are not. As we know all too well this is not a coincidence and no accident.

And in these communities around the globe there seems to be an unspoken way in which we communicate the role of girls and women both in and outside of the classroom.

A 2012 study conducted by the Intel Corporation estimated that there are about 200 million fewer girls and women online than boys and men in developing countries.

There is a clear and present "digital gender divide" at play. In developed countries women make up more than 50 percent of internet users, yet in the developing world women are significantly less likely to have access to or use the internet.

The words we use in our daily attitudes, actions, beliefs, stereotypes and ideology show an unspoken message that girls and young women are not suited for jobs in science, engineering, math or technology.

Over the last 40 years we've examined our own perceptions of the role of women in the United States and we've broken down and challenged barriers to prove that anyone can succeed in these fields regardless of gender.

This important hearing today calls to our attention how difficult this has been in our nation. And we know the challenges we face in communities across the globe that are much more rigid and much more difficult to challenge.

We must examine where we are at today and ask ourselves how we support increasing opportunities for girls and women around the world so they can adopt a new process.

Thank you, and I yield back.

○