

THE BROOKINGS INSTITUTION

FALK AUDITORIUM

WOMEN IN CIVIC TECH:
ENGAGING CITIZENS AND TECHNOLOGY
TOWARD THE PUBLIC GOOD

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Welcome:

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Panel: The Inclusion Challenge:

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P R O C E E D I N G S

MS. BERLIN: Hi, everybody. My name is Jen Berlin and we're going to get started here. I am vice president and chief of staff of the Brookings Institution, and it is a pleasure to have everyone here. Thank you for much for braving the elements. This is one of those spectacularly muggy D.C. days, so thank you for being here. We really appreciate it.

I am honored to kick off this Women in Civic Tech event, which marks the first collaboration for Brookings between one of our research programs and two of our professional networks: our Women's Impact Network and our Brookings Data Network. These two networks are largely made up of our junior staff, who go above and beyond every single day with their energy, their enthusiasm, and their efforts to ensure that Brookings is a better and more productive place to work. So a huge thanks to them for putting on such a wonderful event. And, of course, to our Governance Studies program and Nicol for being here.

In addition to our professional networks, Brookings' scholars are also deeply invested in the simple premise that policy-making benefits exponentially from the inclusion of diverse voices. As part of this commitment one of our best and brightest, Susan Hennessey, who some of you are probably familiar with or whose work you might even follow, recently launched Sourcelist. Sourcelist is Brookings' first database that's dedicated solely to women. And everybody who's in this room I think, we have information on it, should absolutely consider joining.

Sourcelist is an innovative tool that leverages technology to help organizations and journalists identify and connect with a broader and more diverse pool of experts. The goal essentially is to take away any excuse that diverse experts couldn't be found to comment on a story or to participate on a panel. So as I said, please consider joining.

Brookings has long recognized the important role that women play in

developing small policy. In fact, we today are proud to say that we are 52 percent female at Brookings. It's a statistic that, like I said, we're very proud of, but that we want to continue to build upon. And, as you all know, there's more work to be done. And places like Brookings and other organizations that are similar must use their platforms to shine daylight on the challenges that are facing women in tech sector and beyond. Without an intentional focus on inclusiveness civic tech companies run the risk of failing to support the stakeholders they serve and, as importantly, our society writ large.

Our panel today brings together four incredibly talented women, pioneers in the civic tech field: Melika Carroll, Sarah Koch, Shireen Santosham, and my colleague, scholar, and friend Nicol Turner-Lee. Nicol will introduce these extraordinary women shortly and then engage them in a conversation about the sector and a discussion about how women in civic tech are bringing to bear their experience, their interests, and their expertise in this incredibly important and growing field.

Our hope today is to highlight and celebrate the achievements of women in civic tech and, of course, to encourage deeper conversations and engagements on this subject now and in the future. Thanks so much, again, to all of you for being here we really appreciate it and I can't wait to hear what you all have to say.

Nicol, over to you. (Applause)

MS. TURNER-LEE: Thanks, Jen. Hi, everybody. Okay, I go to a black Baptist church and when the pastor says everybody say hello and look at your neighbor, then we say it with enthusiasm. Good afternoon, everybody.

GROUP: Good afternoon.

MS. TURNER-LEE: Thank you. I just want to say thank you and follow up with what Jen said for coming to Brookings. This has been a great opportunity for us to sort of collaborate on this event. It's an area and space that we at Brookings want to get more into.

I'm a fellow in the Center for Technology Innovation, where my portfolio

basically encompasses regulatory and legislative policy when it comes to communications and technology, algorithms and automated decision-making, and the bias that sort of creeps in that makes it less cool when it comes to AI, as well as the digital divide. I have a book coming out hopefully next year that will encompass the digital divide.

I have a long experience in public and civic technology because before I started at Brookings I was a digital evangelist, working in communities. And some of you know me, you know my long career of working with a group that was called One Economy to ensure that we -- actually, at that time it was called Public Interest Technology, leverage civic tech in a way to empower governments, technologists, and citizens to be actively engaged. And before I introduce the panel I want to sort of lay out this framework so we all understand the conversation that we're getting into and why it's so important that our affinity groups here at Brookings, the Women's Impact Network, the Brookings Network, our scholars like Metropolitan Program, as well as the Center for Technology Innovation, our executive office are committed to this.

How many of you in this room leverage some type of technology throughout the course of a day? How many of you do it more than once in a day? I'm not going to give you numbers because some of you will be found out that you have a problem. Right? (Laughter) But technology has clearly changed the way we live, learn, and earn in our society. And as it does more of that, what it is also engendering in communities is purpose. There's a public interest purpose for the outlay of technology.

And civic tech is one of those areas where you actually see the collaboration and convergence of technologists, government officials, entrepreneurs, as well as citizens come together to sort of coalesce around issues that they care about. It builds better democracies in terms of the engagement of civic tech around issues of voting, which we'll hear from one of our panelists.

It helps us to identify potholes and to actually spot them and to report

them. My first engagement with civic tech was an application in Boston where people could actually report where a pothole was and the city would actually come out and fix that.

There was Code for America that came later that was all about getting young people who were working in fields to actually help cities understand how to apply technology among various functions.

So civic tech has been out there for a very long time, but the key thing around technology is that it's always been used to solve a problem. And the conversation that we're going to have today is really about how are these leaders, particularly women, working in this space to solve problems?

Taken together, and I want to just share a couple of stats so that you all understand the importance of this conversation, civic tech can help cities allocate resources better and more efficiently. Civic tech can provide data-driven evaluations of city programs and services, and even apply it to contracting. Civic tech makes city planning more responsible and more efficient. Civic tech engages public accountability. Civic tech is probably what most of us, even if you live here in the District, want. We want to be closer to the services and products and deliverables of our cities. And that's a conversation we're going to have.

The disrupter, and I'm very happy to have Melika on the panel, the disrupter in this whole case is that technology is sort of changing the format of traditional industries in ways that civic tech is becoming even better than it was when I was -- I was going to say when I was growing, but I don't want to give my age. (Laughter) As I tell my kids, I've been in technology most of my life and the only thing I can probably beat them on is PacMan because I grew up under Atari and Sega Genesis. And they look at me at 11 and 15 and say, Mommy, what are you talking about? (Laughter) But it's been around for quite some time, but there's a new element in terms of the disruptive factor.

What does that mean for women? And that's really the purpose of this.

We didn't host this conversation as a civic tech conversation. We're actually hosting it a women conversation. Where do women fit in? It's more complicated.

Fifty-seven percent of women in this country hold professional jobs, but only 26 percent of those women are in computing jobs. Seventeen percent of women are chief technology officers. We have one here, chief innovation officer for the City of San Jose. Shireen will actually talk about that. Twenty-five percent of women hold data science jobs.

When you look at gender in terms of hiring bias and gender bias, that's one factor. If you look at the intersectionality of people like me who are women of color, that becomes another factor when it comes to where we fit.

Women are also mothers. We have children. We have to fit into this fray of this rapidly changing and emerging ecology. We're often not at the top of the pool when it comes to hiring. And oftentimes we're not decision-makers. So that factors into the growth and the deliberate experience of seeing women actually in those fields.

So we're lucky to day because we've got three rock stars here who are actually innovating in this space. And I'll be happy in a minute to bring them up to the stage to have this conversation that not only looks at the importance of civic tech, but the role that women play in this conversation.

So our hope, if you look up there, we talked about sources because want more women in this space. Sorry, guys, we want you, too, but, you know, it is "Women in Civic Tech." I'm just telling you so nobody gets offended. I just want to make sure it's all clear and transparent. Right?

But when you're tweeting, the reason we at Brookings are tweeting "Women in Civic Tech," you should talk to you in terms of Sourcelist, we're looking for you. So when you leave this conversation we not only hope that you will learn more about the field, but we also hope that you'll learn as women what does it take to actually to get to this field.

And as I shared on a panel I was on yesterday, a woman asked me, a young lady asked me, Dr. Lee, how did you get into this field and why are you doing this in technology? And the advice that I told her was because I decided to step into the room as opposed to standing outside of the door. That was the biggest advice, don't stand outside the door because women can be heard.

So with that, I want to turn it over to introduce these fantastic panelists that are actually going to come up. I will introduce you in some kind of order of your seat, if you will somehow make there because I think I messed up the whole seating chart. But let me start with Shireen Santosham, come on up, who is the chief innovation officer of the City of San Jose, California. (Applause)

Melika Carroll, my friend, who's senior vice president of Global Government Affairs at the Internet Association. Welcome, Melika. (Applause)

And my new friend, Sarah Koch, who is the vice president of social innovation at the Case Foundation. Let's welcome her. (Applause)

I would go into more detail about their bios, but I think we're going to jump right into the conversation, if it's okay with you. All right.

All righty. So hi, ladies. Let's get started. So I want to start with this conversation. I've laid out some of the statistics, why civic tech is important, why I follow it in my career and what we do in Governance Studies. But Shireen, we'll start with you, just what is civic tech in your world? As a government official what does that look like? What's an example? So we can sort of unpack what we're talking about today.

MS. SANTOSHAM: Sure. So I'd say, you know, cities are being asked to more and more with less resources. And civic tech is really just about using 21st century tools to solve 21st century problems. And, you know, that will range from using big data analytics to smart AI, to just doing basic things like apps and improving your process to deliver services. So I'll give you a couple examples.

One is we've got a major housing crisis going on, on the West Coast. As

you know, there's a really acute housing and homelessness crisis. We have low-income families living in unsafe conditions. And you may have seen some of the news about the fires in Oakland and others. And so we have an inspection unit that is meant to go out and inspect apartment buildings to make sure that there are safe conditions. And we worked with the University of Chicago Data Science for Social Good team and used big data analytics to create an algorithm that would more efficiently find unsafe housing. And so using those algorithms, which did essentially a simulation of 100,000 different iterations, we were able to improve inspections by 12 percent.

MS. TURNER-LEE: Oh, wow.

MS. SANTOSHAM: And so people now are in safer conditions than they were before.

We also have an app. We launched an app last year for service requests for everything from potholes to abandoned vehicles. We've already done over 100,000 requests through that app.

And I also recently launched a beta product with Box. So Box is a tech company. And one of the challenges is engaging people in local civic tech and the conversation. And what it is that it takes a video of our City Council agenda and normally if you want to figure out what's happening at a meeting you've got to wade through a really old technology platform. It's in PDF. It's really to understand what's going on in your community. And what it does is it takes a video, it ingests it at a rate of about two minutes for every one minute of video. It processes that video and it smartly tags faces, voices, keywords. And you can literally search for, say, what is this council member's position on this issue this time? And so it radically improves the ability for citizens to engage in their government.

MS. TURNER-LEE: Wow, that's really interesting. Okay, I just have to ask this. Do you have a tech background? I didn't really look at your bio. Like what's your education, so we at least know?

MS. SANTOSHAM: Yeah. I did actually policy -- I did international development and I did my MBA, and then I worked in tech, in telecoms.

MS. TURNER-LEE: So you hear that, everybody? You don't necessarily have to be computer scientists to do this stuff. I just had to put that out there. Right.

Melika, I want to come back to you after. Let's hear from Sarah because I know you're actually working with tech companies. I think it's important to sort of do this progression to get into your space.

Sarah, can you jump in in terms of what is civic tech to you and why should we care about this?

MS. KOCH: Yeah, civic tech is so fascinating when you all invited me here. Thank you, by the way, for having. Is that, you know, reading through this, this is the intersection of the three big things that the Case Foundation is working on right now. Because civic tech at its very heart is civic engagement. Right? It is what we call citizens at the center, and it's allowing people to participate in making their communities better. And that's incredibly powerful to actually provide that inroad to allow the citizens of San Jose to interact with how the city is being run. And it breaks down a lot of those walls and using technology to make it that more approachable is huge.

But civic tech also can be, you know, a really important part of the impact (inaudible) space, which, you know, another movement that we have at the Foundation of trying to encourage investors to invest for both the financial return and a social return. And civic tech companies, therefore, profit. They're out there trying to make money, but also trying to improve their communities. And they see that as a double value, that they can do both and to be able to pursue the business that they want while improving their communities.

And then the important layer to add on to that is the focus of why we're here today. And I so appreciate that you called out that this isn't a civic tech event, this is

a women's event about women in civic tech. Because we truly believe that for entrepreneurship to succeed it has to be inclusive and focusing on women and communities of color to say you already have incredible entrepreneurs who are role models. They're just not getting on the cover of *Entrepreneur* and *Fast Company*, but they are out there, they are doing this. And to try to change some of those statistics of how the money is flowing to these communities because women only get 2 percent of venture capital. So even if they have these amazing civic tech ideas that are out there, we have to figure out ways to get them funded so they can make the world a better place and they can help those communities be involved in how things are done.

MS. TURNER-LEE: That's right. That's right. That's such a great point.

Okay, so I'm going to run the education background question just everybody can get it out of the way. Tech background or --

MS. KOCH: No. No direct tech background. Sociology, which does help.

MS. TURNER-LEE: Oh, I'm a sociologist, too, my girl, or sociologist Ph.D.

MS. KOCH: When you're talking about how cities run, when you're talking about racism and sexism all day, like let me just tell you, it seemed at the time like there was no application for this degree, but it totally works every day.

MS. TURNER-LEE: I agree, I'm at Brookings. There's an application. (Laughter) Thank you.

MS. KOCH: For sure. Highly encourage anyone who have kids in college or in college themselves. But I did work for a tech startup, so I worked in nonprofits, in philanthropy, and tech startups. And so seeing all of the different ways that different entities can impact this space I think is really huge. Finding just because you believe in social good doesn't mean you need to work for a nonprofit. Nonprofits are great, I work at one, but finding the right pathway to do social good is really what matters.

MS. TURNER-LEE: Thank you. So, Melika, Internet Association, I've known you since you were on Capitol Hill. Talk a little bit about why you're here about civic tech and what your companies, your member companies, do.

MS. CARROLL: Sure. So Internet Association represents over 40 of the leading Internet companies. And I think we think about the industry as enabling all of this civic engagement. Right? And so you can think about the industry and the companies that we represent in sort of three ways in this conversation.

One is a lot of them provide tools for government. They will build tools and services and sell them specifically to government to improve how government interacts with the population. That's certainly one way or one involvement from the industry in this conversation.

There's also a lot of use by individuals to communicate to the government on these platforms and tools over the Internet, whether the government's invited that conversation or not. And I think there's an important role for a lot of the companies we represent where individuals have decided to use these tools to interact with government in a new way.

And then lastly, I think you could think generally another kind of approach to this and how a lot of our companies enable this civic engagement is person-to-person or group-to-group interaction. How do you find groups of affinity? How do you find groups with a common cause, a common view? Which is really helpful, especially when you're talking about women in tech. How do we build communities to help each other grow? Whether it's in this industry or an engagement or elsewhere, that's one of the ways to think about how our companies and the services they've built can enable this conversation.

And obviously, the point of view of what is a woman's perspective in this conversation is really important because women see a lot of these conversations slightly differently, have different ideas for solutions. And so we want to make sure that women

have a voice and that they know and are comfortable using all of these tools to increase their voice in this engagement. Right? And I think that's really important to all of us.

MS. TURNER-LEE: Now, you know what I'm going to ask you, right?
Background?

MS. CARROLL: Background. For those of you who have a political science degree, there's hope. (Laughter) And, you know, when I started in the tech industry a very long time ago in the semiconductor business, I thought, my goodness, I need an engineering degree, I've got to go back to school. And really, that's helpful and if you can get an engineering degree, please, by all means, go at it, we need more women, female engineers.

But I think the important thing of a lot of what we do in civic engagement's a great example what people do, especially in Washington or in policy circles, is translate. How do we translate what an engineer wants to do, build, see to a policy audience or a nonprofit audience or whatever? And so it's really important to be able to build that communication exchange and that's a really important piece of civic engagement, right? How do we communicate our needs, our goals, our objectives?

And so you don't need to become an engineer to become involved in tech or successful in tech. But also, again, if you do want to become an engineer, that's fantastic, as well.

MS. TURNER-LEE: That's right. Thank you. Thank you, ladies.

I want to kind of shift then to this conversation and go into the meat of unpacking a little bit more about civic tech. So we're watching now emerging technologies sort of take forefront: artificial intelligence, the stuff that I do, and algorithms here at Brookings, President John Allen, and my boss, Darrell West, we're really trying to take that one. And for many of the conversations that we're in, they have been groundbreaking, landscape altering.

Where do you think the governance is going to be when it comes to civic

tech? Is this going to be like an incremental shift in terms of the attention that it gets or is it going to be something that might be landscape-altering because as more people get online they're sort of expecting, right, the technology to serve them in this manner? Just curious.

And why don't we start with you, Shireen, since you're actually there? I mean, you talked about great applications.

MS. SANTOSHAM: Yeah. So, you know, I feel like I'm in an incredibly lucky position because we are the largest city in Silicon Valley, so I have a front row seat to all of the great work that's happening by the companies represented by the Internet Association, all the startup community. And what I will say is that there's a really wide gap still between policymaking and the laws and where the technology is, and so there is a lot of work to do to catch up. And civic tech I think mostly has been incremental, but it needs to be more transformative. And we certainly are working towards that in San Jose, but the greater that gap grows, the more distrust you'll have between government and the population. And so really bridging that in a meaningful way is very, very important.

MS. CARROLL: I think that's a great point.

MS. TURNER-LEE: Melika?

MS. CARROLL: Yeah, there's an expectation, I think, if you can do something very simply that you do everyday on a device that you want to be able to have the same interaction with your government, and that's what will produce sort of a positive relationship with -- especially local government, I think you're really seeing this quickly.

I do think that from a revolutionary perspective or a transformational perspective the opportunity is the same. If you think about how technology has transformed transportation, healthcare, financial services, every aspect of society and the economy, even politics when you think about it, how some of these communications tools and services have transformed our political debate, I think obviously the opportunity for transformation with government is huge. There's some justification in doing it a bit more

slowly. There's some policies that have to be put in place.

But I think the industry has been very interested in working with governments to see how we can support that transformation because we see a lot of opportunities that are transferrable from how does a big corporation do something or even nonprofits are doing really well in leveraging these tools? And how can we transfer those learnings and those tools to government?

MS. TURNER-LEE: Sarah?

MS. KOCH: Yeah. You know, I think it's also an interesting question of what types of terminology matters and doesn't matter. Right? Because there's a lot happening in the civic tech space that people who cling to like this is civic tech, we are doing civic tech, but there's a lot happening by people who I encounter who are absolutely running civic tech companies. But they're kind of like, oh, no, no, I'm just running a good business, you know. I'm just doing -- I saw an opportunity and I'm making that happen.

And so I think some of that is becoming more comfortable with knowing that the tent is bigger than just those who are identifying in it and figuring out how do we harness the incredible things that people are doing across the board, even if they're not self-identifying into this space.

MS. TURNER-LEE: Well, it appears to be, potholes is easy, right? When you actually -- potholes are easy to actually identify. Driver's license went online, you know, that was sort of a way to sort of engage technology. But we're actually seeing, like when you talk about algorithms that are helping to reduce or create more efficiencies and stuff like that, what are the roadblocks? Is it the adoption factor with civic tech that citizens don't trust government enough, let alone 21st century tools? Or is it the fact that Silicon Valley is just much faster? I'm reflecting on healthcare.gov when President Obama had to call in Silicon Valley to help us figure out how to actually make this technology efficient. Right? It was backwards versus starting with technology companies

to do that.

Can you talk a little bit about that? I just want all you ladies to kind of respond.

MS. SANTOSHAM: Yeah, I say one part is that the potholes are part of the issue, meaning that the problems get framed do you want to spend money on fixing potholes or on this obscure technology piece? And so how you frame that conversation is really important.

And one of the things I do, I spend a lot of time doing, is educating our city council, our staff, hosting sessions with industries, so that people understand the tech itself.

And I'll just give one concrete example around where we really need to be focusing, and that's around in transportation the most revolutionary technology that's going to affect everyone across the board is autonomous vehicles. And we've got a lot of autonomous vehicles already running around our roadways because we're in California. But we really feel like if we don't shape this space and you just allow companies to just run wild, you're not going to really have the best outcome for the public, meaning you might have single-occupancy vehicles that make your roadways even more jammed than they are today. You'll have ghost cars roaming. And so how does the government play a role in shaping the system to benefit everyone?

And so we actually put out a Request for Information from companies that focused on safety, equity, incentivizing shared autonomous electric vehicles, and creating a more livable city. And so we're actually proactively working with the companies to shape that space, and we had an overwhelming response. We had over 30 companies come to us and most cities get maybe 2 or 4 companies, you know. And so that's the kind of thinking and the dramatic mind shift that I think we need.

MS. TURNER-LEE: Is that the same thing, Sarah, in your work? When you look and then try to create inclusive economies that it comes with some kind of

charismatic leadership to sort of drive this?

MS. KOCH: Yeah, I think that the leaders matter, right, because it's not enough just to put out really great research. I mean, I would love it if when I handed an investor a report that said you can make more money if you invest in diverse teams that they would look at their portfolio and say, well, my goodness, I should really be investing differently. (Laughter) But it doesn't always work that way, right? It's not putting out all the data in the world without the people behind it who can bring that to life and really bring a point home, you have to have that kind of balance of both of them.

But you also can't rely just on a leader. Right? Because if you put all of it on, oh, this person is going to solve all of our problems, then they're just a person, right, and they can choose to go on any path in their career. So you have to find that balance of making sure that there's the right research, the right programs and examples and role models that are exemplifying that, and the right leaders that we can look to kind of guide the strategy.

MS. TURNER-LEE: Right. And Melika, with regards to Silicon Valley, I mean, do they get frustrated? Do your member companies sort of get frustrated with government when it comes to these things?

MS. CARROLL: You know, it's changed really quickly over the last, let's say, five or six years. I feel like some local governments, some state governments, and some agencies here in Washington have been a bit more forward-leaning in using some of these tools. And as those experiences move forward and people get a level of comfort, agencies get a level of comfort at every level, then there's more interest in adopting some of these tools.

But it's certainly -- I think there's a lot of interest because, again, every government worker, whether they're at the local, state, or federal level, uses these tools in their everyday life. I think everybody sees the opportunity. It's just making sure that there's a level of comfort around what the tools can do.

And I think if one thing has slowed down adoption, it's not a very sexy topic, but it's procurement. Right? How governments buy tools and services is a very regulated environment, justifiably so, and those laws and regulations were created years ago when these tools didn't exist. And so there's a lot of just tactical, if I can call it that, work to do, which we're working on with every level of government to make sure that's addressed going forward.

MS. TURNER-LEE: I mean, if I could actually stay on there, so when I was working at One Economy, which was this small startup that wanted to change the world when it came to digital access -- I was very young at the time. (Laughter)

MS. SANTOSHAM: So yesterday.

MS. TURNER-LEE: Yeah, right. (Laughter) I would say a big two years ago. But we were trying to actually get cities to create these portals that would actually aggregate content into a walled garden so that people could go in and say, oh, I want to access my school, I want to find out what is a good afterschool program. The procurement process was ridiculous. I mean, it was great because they were paying about 100,000 for a website at the time, and this is not the Internet that we know today. These were very static Internet. These are walled gardens. They were related to the AOL modem. I mean, it was around that period of time. But that procurement process really stopped, I think, some of the innovation back then.

MS. CARROLL: The procurement process and also policies around data.

MS. TURNER-LEE: Yes, yes.

MS. CARROLL: You know, governments at every level have tremendous data, some of it which is confidential, but some of it is not or could be shared for research or for development of new services and tools. And so there's a conversation at the federal level, absolutely. My former boss, Senator Schatz, was working on legislation to try to make federal government data available to the public more easily. I

think there's an important conversation to have around that as far as leveraging some of these tools, as well.

MS. TURNER-LEE: Right. And Shireen, I mean, working in the city, does this get your way? How do you deal with those kinds of blockages that actually limit your ability to do all this cool stuff?

MS. SANTOSHAM: Yeah, so procurement is a huge issue. We are very fortunately in San Jose to have something called a demonstration policy that was put in place about a decade ago by some forward-leaning leaders. And it allows us to test pre-commercial applications with private companies for a fixed period of time and not for monetary exchange, but it allows us to test new technology. And so we test a number of things, everything from autonomous vehicles, like I mentioned, to this AI platform to others. And now this year, we're going to be looking at further refining that policy; also looking at speedier procurements for IT. And we're hiring our first city's chief data officer.

MS. TURNER-LEE: Oh, wow.

MS. SANTOSHAM: Yeah.

MS. TURNER-LEE: Yeah, that's like a new role.

MS. SANTOSHAM: Yes.

MS. TURNER-LEE: Like chief privacy officer, chief innovation officer, now chief data officer.

I want to talk a little bit about, Sarah, and bring in the conversation in on the data side, right, particularly because the Case Foundation I think you told me, you know, you're using civic tech to support democratic processes. Right? Really looking at how it plays into elections and just people being aware of how they can get into the conversation. You know, we talked about government and potentially the partnership of companies, what about with citizens? What's at the core of citizens not adopting civic tech?

MS. KOCH: So, you know, I think that some of it is understanding where

the value is because civic tech is just like any other B-to-C type of company. Right? Like you still have to figure out what value are you as a civic tech company providing to the people who you want to use your service and what are they getting back?

And so when you think about some of the really interesting new civic tech companies that I've seen are trying to increase voter engagement. Right? Especially for young people, voter's rates were down a little bit on the 2016 presidential election, so, of course, young people also tend to look at entrepreneurship as an avenue. So there are all these people who are saying, okay, I've identified a problem, I want to create a technology solution to try to improve this, like figure out how I get my peer group better engaged on this, but you have to also have an educational piece, a culture change piece. Like there's so much more that comes into this because it's not just an everyday average part of people's lives. You almost need to train people to be civically minded while offering them a technology service that will help them to do that. You have to convince them that this is something that they should be participating in.

So that puts an extra layer onto people when they're trying to think about things, but it still works within this business mindset. There are all sorts of non-civic, non-impactor social enterprise companies that are started, still convincing you that what they're doing is a good idea. You know, getting in a stranger's car wasn't anything that was normal for people before Uber and Lyft. (Laughter)

MS. CARROLL: Right.

MS. TURNER-LEE: Yeah, tell us about, right?

MS. KOCH: They had to convince people that this was a good idea.

And so I think there's that same element of entrepreneurial thinking that comes into it, but we have to embrace that and still think of the people we want to engage as those consumers.

MS. TURNER-LEE: Yeah. No, it's so true. Like my mother won't do certain things online. I'm like you've got to do it. You're not going to be able to get to the

office, it's closed, okay. Like you got to go online to do certain things. Right?

But I guess from my research I'm really concerned, though, about the people who don't have access, right. Pew has really reported that there are about 11 percent of Americans who do not have access, a disproportionate people of color, they're poor, they live in rural areas, they are foreign-speaking, they're older Americans. You know, civic tech is great, but if you have moved to an online economy and not an inline economy and you're sitting there in places that actually have "Closed" signs, you can't use it. Right?

And there's a penalty now. Twenty years ago, there wasn't a penalty for not doing stuff online. Now you're paying a surcharge.

How are we going to address with the civic tech movement, and then we'll go on to questions about being a women in this space, how do we deal with those disparities going forward?

MS. SANTOSHAM: So I'll tell you that that's top of mind for us in San Jose. I mean, we're the largest city in Silicon Valley and there's not great federal data, frankly, on this issue. So the 477 data from the FCC is by census block, so it doesn't tell you which neighborhoods in your community are really affected. And so we commissioned a project with Stanford University and went and surveyed our low-income population. And it turned out that over half don't have broadband at home in the middle of Silicon Valley at a time when 70 percent of homework is online.

And so now we coupled that with we really need broadband investment overall and worked on the 5G issue quite a bit. And so work at the FCC level, we actually decided that we didn't agree with the direction that the FCC Broadband Deployment Advisory Committee was going on, and so our mayor publicly resigned from that commission. And we went home and we did the work in our community. And actually, yesterday, we just signed deals with three telecommunications firms to deploy over 4,000 small cells in San Jose. It'll be the largest deployment in the United States.

Part of that money will go back into improving our processing and deployment approach so that companies can work more easily with us. And then the remaining, which is about \$24 million, will go into a digital inclusion fund for our city. And that will allow us to work with our community leaders and really go into areas that the private sector has deemed not profitable for them and they haven't been able solve in many years, and so that we can really tackle that issue in our community.

MS. TURNER-LEE: And for those of you that are not aware, when we talk about small cells, if you were here yesterday you heard it from FCC Commissioner Brendan Carr, but as we move into a 5G generation world, what's basically going to happen is we have to deploy these small cells to minimize the distance between broadband signals, so that people can have better coverage. It's a wireless solution on that.

Melika, what are companies that you work with doing to sort of solve divide?

MS. CARROLL: Yeah, absolutely. For the industry, both, I mean, from a business perspective, but also I think a lot of our companies feel a social mission on this issue. Right? Ubiquitous broadband is necessary. It's necessary in the U.S. and it's necessary at a competitive price and affordable price. And so different companies have different programs, whether they're through their foundations or even parts of their business, to invest in broadband deployment.

I think this is a great opportunity a necessary one for private-public partnerships. There are parts of the country outside of densely populated areas, obviously, that are really difficult to connect. And big rural parts of the country that are not easily accessible through some sort of wireless solutions. You really need to wire some of these parts of the country.

And so I think the only solutions there, and it's an important part of the conversation, again, if a lot of our engagement's going to move online, we need to make

sure everybody has access and if it's not for some reason immediately possible at home, through our public institutions, libraries and things like that. And so leveraging the federal funds that are there and the programs is really important.

MS. SANTOSHAM: And can I just add one more point on what Melika was saying? You know, just because you have coverage doesn't mean you have access. I mean, what our survey showed is that even the low-income populations said we can't even afford \$10 a month for these plans. And so if you're not getting some kind of almost free service to folks, in some cases you're not going to reach them. And so that's an important conversation.

And then the second thing is that 5G small cells are not really going to work in rural areas. And so small cells are not going to solve that issue and we need to have substantive federal funding to think about digital infrastructure the way we think about roads.

MS. KOCH: I also think, you know, there's something interesting around the use of technology to solve the problems of people who don't have access to technology. Right? Because the small cells, like that's thinking about how do we leverage technology to bring more access, you know, all of these different pieces.

And I'm seeing more and more entrepreneurs who are developing tech solutions for the intermediaries, you know, for those people who are serving those who don't have access, to figure out how do we bring those technology solutions to the people who can then better support those who don't have access. And so thinking about who are those important connector points who can make sure to kind of bridge that gap with people?

One of the most interesting ones, and, of course, the name of the company isn't coming to my mind right now, but came out of a lot of the increased voter ID laws that states are passing, and so looking at the percentage of voters who didn't have the correct kind of identification to be able to vote. And I think she said that was 2

million potential voters who didn't have IDs and wouldn't be able to vote in elections. And so their goal was to how do we better leverage technology to get IDs into the hands of people? And a lot of those people understandably need to use technology to get the IDs. They don't have access or they don't have the documentation, and so she's working with a lot of the intermediaries who can leverage this technology to help people who don't have access otherwise in order to get IDs into the hands and to be part of the civic process.

And so it's using tech in a lot of different kind of ways to weave everyone together.

MS. TURNER-LEE: That's right. Thank you, ladies. I have a book coming out on this in 2019 here at Brookings. (Laughter) I appreciate all that because it means I'm going in the right direction in terms of that.

But these stories are really real. Right? They actually happened and I think they will really degrade I think the effectiveness of some of the things that we're trying to do. And people shouldn't have to choose between broadband and bread, particularly if they're trying to connect to their local governments in meaningful ways.

So let's now talk about women. Talk about, you know, this whole idea of more women in this space. As I shared earlier, it's been hard being a woman, it was a hard career being an African-American woman in this space when I first came to D.C. Even though I was doing tech advocacy on the ground, you know, as I shared, I used to stand outside the room because no one looked like me. And now as a woman I feel empowered because I think we bring different solutions to the table and we bring different insight. And now being a mother it's all added on.

So I want to talk a little bit about why is it important for women to be in this space? We've unpacked the problem and we've unpacked the opportunity. Why do we need more women? Why do we need more of you ladies up there and myself actually talking about this stuff?

MS. CARROLL: Well, one thing, I've helped co-found a group called GlobalWIN, the Global Women's Innovation Network. And it was a group that was meant to help women interested in innovation and policy to network with each other and grow our careers. Through that group, I think we've also done some stuff together through that group.

We met with a female VC, again, to talk about the challenge of how do we get more female-led startups funded. And if part of the problem is talking to people with money, then let's find more women with money, and so we met with a female VC. And she was talking about trying to encourage young women to get into tech early and these hackathons that are popular -- popping up throughout the country. And the young women who are participating in the hackathons really didn't like the mixed hackathons very much because what happened when talking to them, they found out that a lot of the things the guys decided to put their time and energy on, you know, a problem to solve or a game to develop, the young women weren't interested in spending the time on that. And so they started doing young women only hackathons and these women started developing different tools, different programs, different games. And they were to address societal problems and some of the stuff we've talked about today.

And so, to me, that's the reason you need to have more diversity, whether it's gender or ethnic. And technology, if you think of technology as something that's transforming every aspect of the economy and society, we need everybody's perspective in that transformation. And so that's the reason we need to do better.

MS. TURNER-LEE: That's right.

MS. KOCH: And I love your point because we see that women investors are more likely to want to invest for impact. Women entrepreneurs are more likely to have a social mission in their companies. And so if we want to foster this intersection of technology and social good, then we need to be fostering the people who are more likely to proactively want to do that, and that is women. Not that men can't also do that.

Man, if those stats changed and all of them were equally likely to want to go towards civically minded things or impact-minded things that would be the best solution. But right now let's play to where our assets are, and that's bring women more into the conversation and give them the tools that they need to succeed.

MS. TURNER-LEE: Shireen?

MS. SANTOSHAM: There's some really interesting research, I don't know if you've seen it, from Paul Gompers at Harvard Business School. And it basically shows conclusively that more diverse teams on VC teams that include women are higher performing. Yet, if you look at the graphics that he has over the last 20 years, he calls it "the great stagnation." So, you know, today, over 90 percent of both entrepreneurs and VC, venture capital, firms are male and over 80 percent of them are white. And those numbers have kind of stayed steady over like 20 years, where if you look at what has happened in the medical field and the legal field, you see women going like this. And so he calls it "the great stagnation."

And so I think the performance point is a really key one that we need to bring men into the conversation to talk about, hey, this is hurting your pocketbook. It's not just a social (inaudible).

MS. TURNER-LEE: Good thing.

MS. SANTOSHAM: Right? And I'll say something slightly controversial, which is because women are kind of locked out of the tech sector in that way, I mean, I think civic tech benefits from that because we've got a lot of talented women in the civic tech.

MS. CARROLL: I think it's an important enough problem in the sense that the industry, I think the technology industry, recognizes it and is really putting a lot of time and energy in trying to address it in Silicon Valley. Like, frankly, most sectors of the economy, unfortunately, are very -- have an underrepresentation of women, especially in leadership roles.

From our perspective, we've just created a new role and hired somebody to focus on diversity and inclusion 100 percent of their time at the Internet Association. We think it's probably the first time in a tech association in Washington to do that. And the issue is we want to be thinking about diversity across the policy areas we engage in and across the industry, so it's not just how do we get more women and diversity of gender or ethnicities from a policy perspective on HR type issues, but also how do we think differently about artificial intelligence policy and privacy policy and political speech or election advertising? Right? All of these issues you want to have a comprehensive approach that includes different perspectives in that conversation.

MS. TURNER-LEE: That's right. I mean, that's actually a really good point. We look at the diversity. I study more of the diversity of people of color in this space and, you know, not offense to the companies, right, in Silicon Valley, but less than 2 percent of the population of decision makers are people of color. And if you go higher on the rank it becomes 1 percent. And those numbers have been pretty much stagnant. Google just put out their numbers and it's basically stayed the same.

And I think you all are right, the output of that in the work that I do is if you have less diverse workforces when it comes to people of color, you have bias that creeps in because people act out their unconscious bias or their familiarity around what the world should look like and that shows up in the things that we do every day. Right? And so there are countless examples from photoshopping, I give this example, photoshopping apps where the people are not diverse in terms of people of color and darker tone folks get lighter and they get their bone structure changes simply because no one told them that people of color don't all look the same. Right? Like everybody else. And I think that's so important.

I think the same thing holds true for women. Right? The lack of diversity of women also leads to very stagnated decision-making when it comes to that.

You know, there are two questions, a Part A and Part B. My daughter is

11. When she wanted to take robotics at school and she showed up in the class, she was one girl out of all these boys. And she came back and said, Mommy, I'm not doing this class. And I was like, no, do it. She's like I'm not, you know. I'm the only girl. I don't want to do it. Right? That's a problem because she was, at that time, eight. Right?

Does it start with the pipeline? Do girls have to be trained that they can actually become the hidden figure that many people thought they weren't going to be?

MS. KOCH: So I think absolutely, yes. And we've had a lot of conversations about kind of the next generation of aspiring entrepreneurs and how do we make sure that we equip them with the skills that they need, with the perceptions that they need. But we also want to make sure that we don't forget about the people who are there right now. Right? How do you balance building the pipeline and knowing that in 10 years they could build the next incredible company with the people who really need that support right now. And I think that's a little bit of a multilayered strategy.

But one thing that we tried to do to make sure that we're hitting everyone is the value of storytelling and culture change. Because if we keep putting up every example of a successful entrepreneur right now is a white man in Silicon Valley, then we're going to think that those are the only people who can be successful. So we need more stories of women. We need more stories of people of color. We need more stories of people who are outside of California, New York, and Massachusetts, who are building these companies because we know that they exist.

So can I do shameless plug?

MS. TURNER-LEE: Yeah, go ahead.

MS. KOCH: Okay.

MS. TURNER-LEE: I've already done a few, so it's okay. (Laughter)

MS. KOCH: I'm not sure if you heard, she's writing a book. (Laughter)

So I'm not sure if you've heard, we have a media publication called Faces of Founders at FacesOfFounders.org, where we're trying to put more stories of successful entrepreneurs

and people who are building businesses right now regardless of their race, place, and gender. And so to bring that about and to show people that this is real, we can start having really open and honest conversations about implicit bias, about selection bias, and to start to change the conversations that we have with investors and with media, you know, where it starts out really defensive, where they're like, oh, well, we just don't know where to find those entrepreneurs. I'm not saying that they don't exist, but we just haven't come across any of them.

And to be able to provide a resource to say, well, we have 40 of them here. They might still not be exactly what you're looking for, but can we use this as a starting point to figure out what else that you might need in your pipeline and where else you might need access to learn more about entrepreneurs that are happening there? And that's really changed things.

So hopefully, that affects the entrepreneurs today, but also can be examples for people like your daughter, to start to see people for the next 10 years who look exactly like her, who are building incredible businesses and changing the world.

MS. TURNER-LEE: That's right. You know, I made her take the class anyway, right? (Laughter) So you know, it was non-negotiable, she had to go.

Where could we find that report?

MS. KOCH: So FacesOfFounders.org

MS. TURNER-LEE: Okay, perfect. Thank you.

Pipeline issue, and then I want get into Part B is none of us up here are tech people except Melika, so I want to talk about that next in terms of that. But pipeline?

MS. SANTOSHAM: Yeah, I mean, I largely think the pipeline issue is a little bit of a copout to be honest. (Laughter) I mean, there's a lot of people in tech who are not engineers. There's a lot of roles in tech and so why are we still seeing these numbers? And there is an implicit bias there. And one of the interesting things about the research I mentioned from Paul Gompers was that you know what was the determinant

of whether a VC firm was diverse or not was whether a senior partner at that VC firm had a daughter. And so this stuff goes deep, right? (Laughter)

And I think there's something we have to do about reflecting on our entire society around our implicit bias in order to make this pipeline happen. And certainly the work that the Case Foundation is doing is so important because it creates that spark, right, in people and I think that spark is really important.

MS. KOCH: And I think the thing that's important throughout, whether it's for your daughter when she's 11 or for women throughout their career after that and whether they're in engineering or not, is a support network, whether it's self-created or something that you can join. And again, I think your daughter, if all of her girlfriends were saying go do it, who cares, right, you can do this, you know, and you'll be the only girl in a class full of boys, awesome, right? I think if you're taking these risks professionally or personally it's a lot easier when you've got a really good network of women supporting you, wherever that network comes from.

And I know Brookings has these networks within it and I think more organizations are developing them, and I think that's an important part of it. I mean, there's some for young women, as well.

MS. TURNER-LEE: Are there -- I mean, Melisa, having worked on the Hill -- and I want everybody, if you have a question, please begin thinking about your question. We did get news that the congresswoman won't be able to join us because they went into a second wave votes, unfortunately. That happens. We know we're in Washington, D.C.

MS. CARROLL: We want them to do lots.

MS. TURNER-LEE: Right, we want them to vote before recess. There's a whole lot of stuff happening down the street, you know, and it's important that she stay there. But I was going to say that leaves a lot more time for Q&A and I have a couple more questions for our esteemed panel and after that I'll actually open it up. So please

start getting your questions ready.

The other question I have then is on the unpacking of policy. Right? I know Senator Schumer has come up with the support of the Rooney Rule. Your former boss, Senator Schatz, has actually also talked about having that in place so that there's more diversity in hiring. Is this something in terms of a policy play that we should be thinking of?

MS. CARROLL: You know, I think every company's got to make that decision based on, frankly, from our perspective, their corporate structure. A lot of the smaller companies are restricted in their board composition because of their structure, whether they're not public yet. You know, several of our companies have decided to come out in support of the Rooney Rule. I think whether they've actually announced it or not, in the tech industry I think from my experience there's an effort made to try to interview a diverse panel, whether they've actually signed up for the program or not.

MS. TURNER-LEE: That's right. And the Rooney Rule is very important. They actually employed some athletics where there's a certain amount of diverse candidates that actually come to the slate as opposed to having one person --

MS. CARROLL: It's requirement to interview a diverse set of candidates.

MS. TURNER-LEE: Yeah. And we're seeing a lot of progress there and diversity on the Hill where the Rooney Rule has actually been instituted, so there's a possibility to actually do that so you get more women in there, as well.

I wanted to ask just one more question. There's a lot of young women that are here in the audience that are listening to this great panel that are thinking no one up here has a direct tech degree. I'm a sociologist, you know, you were almost an engineer. Right? Exactly.

MS. CARROLL: In my dreams.

MS. TURNER-LEE: What advice could you actually give to people, the young women that are sitting here, who want to sort of explore the areas that we're

talking about with regards to civic tech?

MS. CARROLL: I'd say follow your passion what the topic is, what are you passionate about, and think of tech as a tool. So don't worry about being an engineer or coding, although, again, that would be great if that's your passion. But what is your passion? What is the thing you want to solve, fix, address, and prove? And how are you going to use the tech tools to help you get there? That's what I'd recommend.

MS. KOCH: I'm going to build off something that Shireen said earlier, that there are a lot of founders out there who are not technologists and the ability to surround yourself with the tools that you need, whether that's finding a technologist co-founder or someone else who can bring that expertise. You know, even if there's a founder who is a technologist, they're probably not an expert in marketing or communications or customer acquisition. And so they find the people who are good at that. Technology is one piece of the puzzle, so find your partners in this who believe in the same mission that you want. Don't negotiate mission. Just negotiate skills.

MS. SANTOSHAM: Yeah, I completely agree. I mean, I think the main problem for any sort of entrepreneurial person is figuring out where they can deliver value. Like what is that problem you're solving? What is that pain point? And if you can identify that, you can then figure out what skills you need and you can always hire tech skills.

MS. TURNER-LEE: That's right. And I would say for myself, I mean, I'm a sociologist by training, only know sociology. I started in the tech space, honestly, working with One Economy, in a nonprofit, just because I wanted to give back. And that's led to me testifying before Congress on several issues related to tech policy without the direct skillset of being an engineer or a technologist.

The area that I want to echo my colleagues here is just have passion. My passion is around making sure there's equitable access for all, and that passion is what drives my ability to want to stay engaged in this debate. And as I said, don't stay

outside the room because you're not going to hear the conversation. Get in the game, get in the conversation. And sometimes just fake it till you make it for women. (Laughter) Because it gets you very far until somebody realizes that you really don't know that policy and then, you know, then you go to the Internet or you read a book and then you say I do know it. Okay. Because that's something that we women do know how to do is multitask. Okay? (Laughter) Just want to put that out there.

One other thing before we go to audience questions, Brookings is a think tank. I like to ask all you ladies, are there places at think tanks like Brookings can actually engage the civic tech space? You know, we're doing a lot of cool stuff here in our Metro Program, our Governance Studies Program, our Sourcelist which is actually trying to identify women who can be asked to serve as experts and panelists and moderators. So if you haven't really got the message from Jen, Sourcelist is a place where you become visible, and that's really important to our mission here at Brookings.

Other ways that we could sort of engage the civic tech space in terms of being a think tank?

MS. CARROLL: I think you're a great convener, a safe convener in the sense that it's a great place to be able to bring in a public part of it, a discussion around topics that are easy, some that are harder. And so it's a very good place to have a conversation from different perspectives.

MS. SANTOSHAM: I think shining a light on the issues through convening is great. I also think being a source of truth. We live in a world right now where data and facts seem to be a little bit more flexible than we would like. (Laughter)

MS. TURNER-LEE: Right.

MS. SANTOSHAM: And having really good information because, you know, right now for me, on the digital divide issue, if I hear one more person say a 5G small cell is going to solve rural, the rural digital divide issue --

MS. TURNER-LEE: Should have been here yesterday. This is why we

tape.

MS. SANTOSHAM: I mean, it's just simply not true.

MS. TURNER-LEE: Right.

MS. SANTOSHAM: And so being a source of fact and truth is really important.

MS. KOCH: And then I would say going beyond the reports to the hearts and minds. Like how do you actually convince people to change the way that they're thinking with that truth, with the convenings? But are there other things that we need to add to that process to make sure that we're getting through to people, so that there's culture change alongside all of the research?

MS. TURNER-LEE: Yeah, I believe that culture change is so important.

All right, I want to take questions, so raise your hand. I'm going to kind of start this way and then work this way. So let's just kind of start here because it's easier for me to keep track.

HEATHER: Hi, I'm Heather.

MS. TURNER-LEE: Yes, please stand up.

HEATHER: I'm a Google policy fellow this summer with the American Library Association. And so my question is what role can librarians, a women-dominated profession, play in the civic tech space? And how can we be seen as an important, critical part of the digital inclusion conversation and equity, as that's one of our core professional values?

MS. TURNER-LEE: Yeah.

MS. KOCH: So I actually had a really interesting privilege to spend a little bit of time with a group of libraries that were talking about how do they do better at supporting inclusive entrepreneurship. And I was -- I mean, I spoke for like 15 minutes and the rest of the afternoon I got to just listen to their conversations around the topic. And the assets that libraries have to bring the community in are huge.

See, now I feel like I'm just going to be your spokesperson for libraries. (Laughter) But it was fascinating because they had this whole conversation about like how do we engage the community? What are libraries good at? Oh, people come to libraries to access technology. People come to libraries for community. They come to libraries for research. So maybe it's just creating more of a structure around that and less of an organic, ad hoc -- if somebody happens to ask the librarian for support, they're equipped to do that. How do we put some guardrails around it so that people know that libraries are a place for that, that there are ways for them to proactively get that support instead of waiting for people to come and ask?

MS. TURNER-LEE: That's right. They're part of the community infrastructure of the digital economy and so that's really important.

Now, you didn't have your hand up earlier, so you're going to have to be on the second round. (Laughter) We're kind of working our way back.

LESLIE: Hi, my name is Leslie. I'm with IEEE. We're a professional association for engineers, but I'm a sociologist by trade, not an engineer. My question is what can professional associations like ours, where our members are primarily engineers, individuals more so than corporate, but more than companies and stuff, what can we do to help get female engineers interested in civic tech?

MS. TURNER-LEE: Yeah, it's your question, girl.

MS. CARROLL: I guess maybe convening conversations around what are the challenges in civic tech? What are some of the big challenges that governments are facing that could benefit from a solution that you could challenge your members to try to address? Right? And if it's not from a government perspective, from a societal perspective, is there a voice missing to a conversation or is there a problem that we're trying to solve? And challenge your members to try to come up with some of those solutions. I think that would be a great start.

MS. TURNER-LEE: Yeah. An association actually is a good place to

actually have those conversations, as well.

Okay, we'll go here and then go here. We'll get to everybody, I promise.

I see everybody's hands.

SAVALI: My name is Savali. I'm a project manager. I've been a consultant for many years, so I was very lucky to learn the things that I learned. So maybe from the panel what are some of the ways that women can learn IT in kind of a whole basis? Like we have security experts, we have project managers, we have coders, but all the experience that I've received is that if you know a little bit about everything, it's really beneficial.

And then the other question I had is, it's not just for me, for people that come up and ask me questions, if you do encounter a good old boys' club, what are some tips and tricks? Because they're there, right, and what are some tips and tricks to deal with that and still succeed?

MS. TURNER-LEE: So generalist versus specialist when it comes to tech, and, Ms. Shireen, you can answer that one.

MS. SANTOSHAM: Sure. You know, I think it depends on your personal inclination. Like I'm more of a generalist, I like learning about lots of different things and playing the translator, and that can be really effective. Other people like to go deep. You know, people talk about in tech a lot now T-shaped skills, so they want folks who have like deep experience in one area, but also have sort of managerial and cross-cutting skills, and that's what's most attractive, I think, in the long term for the pipeline.

In terms of the good old boys' club, I'd say, one, is know your stuff and be confident about it. You know, one of the tactics is to question you more than they would question male colleagues and so, you know, not to sort of back down or get intimidated by that process.

And then the other is just to ignore it. (Laughter)

MS. CARROLL: Yeah, I'd say build your own.

MS. TURNER-LEE: Anybody else want to comment?

MS. KOCH: You know, I would say there's a lot of different ways that different personalities are going to handle a situation like that. And so I'd say find your coping mechanism. Like is it that you want to deflect? Is it that you want to stand up for yourself? Is it that you want to just move on and pretend like you didn't hear them? And maybe practice out a few of those and see what's the most comfortable for you, so you know what to go to, so you're not having to decide in the moment how do I want to handle this situation, and you know what comes more naturally to you, and then you can just move forward through a meeting. But being prepared to know that that's going to happen sometimes and not letting it ruffle you and being able to move forward.

MS. CARROLL: I say use the tools, right? See who in that club you know, a woman you know knows one of those men, and how do you influence that way, right? We've all got these great tools now that we're talking about how to use for civic engagement. Use it for your personal engagement.

MS. TURNER-LEE: That's right. I was going to say for a good old boys' club, it's never a good old boys' club if I'm not at the table. (Laughter) So that is the way I look at it. You know, they're missing out because I'm not there. So I think it's really important to as women -- and this is something that my mother taught me very early on, is to always -- this is something I tell my kids, always consider yourself to be somebody who should have a seat there and start there.

If you run into a situation which is violent or harassment, there are company policies that can actually negotiate with that, but you have a right to be there. And women have to continue to remind themselves that you are as talented and as beautiful and as competent as everybody else at that table. So when you see those clubs, you know, instead of sitting back and trying to figure out how do I get in, just sort of ask yourself, you probably want me involved because you're not probably making great decisions, so let's regroup. (Laughter)

Seriously. And I think every time that I've looked at it that way, it's made it less adversarial and it's given me the opportunity to show who I am as opposed to being defensive.

So I would say we've got the tools, but club? Please. You know, there are no club signs here. As an African-American woman I tell people segregation is over, okay? (Laughter) I'm going in that room.

SPEAKER: Yes, good afternoon. I guess I have a slightly different take on the question. I'm very concerned about women in tech in rural areas, small towns, not in San Jose, but in Bend, Washington [sic], or whatever. And I want to put it to you in an odd context perhaps of women who serve in the military, who often come out with training and tech training. And since they're recruited nationwide, they're not urban, coastal based. They are coming from Colorado or West Virginia or whatever.

So my question is, how do you take that talent pool and integrate it into areas that think of women in tech as secretaries and clerks?

MS. KOCH: So there is a growing movement of people who are really focused on rural entrepreneurship and equipping entrepreneurs who are building things in rural areas with what they need to be successful because it looks differently than what people need in urban areas. You know, the value of a co-working space as a place where you can just encounter other entrepreneurs holds an immensely different value than it does in a place like Washington, D.C., where you can't throw a pebble and not hit three co-working spaces, right? Like people know where to find entrepreneurs here. They don't if you're living in a frontier zone where there are only three people in a square mile, let alone other entrepreneurs who you could possibly learn from.

So the Kauffman Foundation is doing some work in this. The Telluride Foundation in northwestern Colorado is actually doing really cool things around their Telluride Venture Accelerator. And there's this new group called Rural RISE that is starting to look at this, of how do you bring together more rural entrepreneurship work.

And then I also think, you know, your question about it's not just about the entrepreneur themselves, but about the people who are equipped to do technology, is figuring out how to plug them into some of the startups that are a little bit more friendly to remote workers, which is happening more and more, and taking advantage of those skills in the context of wherever they live.

But we also see just absolutely phenomenal women technologists who are coming out of the military and doing amazing things. If you go to FacesOfFounders.org -- see, plug number two.

MS. TURNER-LEE: No, that's okay. That's okay.

MS. KOCH: Particularly the story of the women who founded Trumbull Unmanned, which is whatever the correct word is for drone, automated -- see, autonomous vehicle something, but drones. She started a drone company because she was a drone pilot in the military and is now doing ocean surveying and improving the efficiency in the energy sector because she can get drones to places that you wouldn't otherwise be able to get surveyors. And so she's directly using those technology skills in an entrepreneurship pathway. Her name is Dyan Gibbens at Trumbull Unmanned, and it's just really cool.

MS. TURNER-LEE: I was just going to actually echo. So for my research I've gone to Staunton, Virginia, and I think Sarah's exactly right, there's this fabulous lady that I met. We'll be publishing a photo journal here at Brookings on that trip. She started a co-working space in Staunton. She's like women are -- I went to school, I've helped women entrepreneurs, I'm doing this co-working space in the small town of Staunton and I'm doing it because we need a place to actually talk about our concerns and issues. They want to see more of that because, again, for people in rural communities, they are more attentive to what those needs are.

I also want to go back and sort of relate your question back to this question, generalists versus specialists. I think with the military, what I have found, I've

been mentored by a lot of women who were military technologists. They have a clear, deep understanding of like cybersecurity and drones and some of the hardcore technologies that many of us are just starting to get introduced to because the military's the first adopter.

So I think you're completely right. I think you've got to break through the systemic discrimination that happens with women in some of these institutions, but there's a lot of value. I mean, here at Brookings we have fellows that are former military veterans who are women, who just do amazing stuff when it comes to cybersecurity that some of us couldn't do as generalists. So I think we'll see some more of that, particularly as emerging technologies makes it more complicated.

You're going to need more specialists when it comes to data security, safety analytics, cyber. You know, data science is a new word. It's a new dirty word now and there are very few women that actually understand that, and that's driving most of the digital economy right now.

Okay, go back here. We'll take a few here and then we'll go here and then we'll start to wrap it up. We've got 15 minutes for questions. That's great.

REGINE: Hi, my name is Regine. I am product management intern at the U.S. Census Bureau and I'm also, shameless plug, I'm a 2018 journalism fellow for Wogrammer. It's also a media platform where women can break stereotypes with their stories in technology.

So as you can see, we definitely have a lot of platforms for women to find resources, like through organizations like Anita Borg medium. I just kind of want to ask the panel what are your other resources that you guys recommend if we want to dive deeper into civic tech?

MS. SANTOSHAM: You know, I think the foundations are playing a really important role in this space, so the Bloomberg What Works Cities group is a group of over 100 cities funded by Bloomberg Philanthropies that has immense resources on

everything from open data, data analytics, to behavioral insights, to performance management. And so I think the nuts and bolts are there.

There are a few professors that I think do really great writing on the topic. Stephen Goldsmith at the Harvard Kennedy School is another one who's doing a lot of work. And emerging, also, is the Knight Foundation working on smart cities in the smart city space. And then, of course, the Case Foundation.

MS. KOCH: Yeah, we've got a nice list of people.

MS. CARROLL: From a business perspective, if you're interested in seeing what some of the companies are doing, like the tools that they're producing for government, if you just look at any of the companies and do a /Public-sector, you'll find demos of what they've done with local governments, state governments, federal government, by agency, by topic. And so if that's of interest a lot of the companies have that, too.

MS. TURNER-LEE: So we're going to do like a popcorn round so I can at least get to a few questions before we end.

So, Karen, you got this because I can't see far without my glasses on.

MS. MUNG: Hi, my name is Wah Mung and I'm an intern at National LGBT Chamber of Commerce. So my question is how can civic tech or broader technology make the society more inclusive for the LGBT community? Thank you.

MS. KOCH: I'll provide a resource. There's a group called StartOut that we have recently been talking to and they are focused on supporting LGBTQ entrepreneurs and thinking about how you build a community that can provide those same kind of peer-to-peer connections that we see that other communities is need. SO I've been really encouraged by the number of organizations that are growing up, whether it's supporting women, people of color, LGBTQ community, to make sure that everyone feels like they have role models and connections to be successful.

MS. TURNER-LEE: That's right. In Staunton, Virginia, actually one of

the groups that I actually visited is LGBT Technology Partnership and they're actually working on portals to -- or applications that help homeless LGBT youth that live in rural communities. So we're actually seeing a lot of organizations who are leveraging the civic tech and public interest space to create safe spaces both online and offline.

Next question?

FORR: Hi, my name's Forr. I work for myself.

MS. TURNER-LEE: Put your microphone --

FORR: You want me to use this? Sorry.

MS. TURNER-LEE: Yeah.

FORR: My name's Forr. I work for myself helping companies be more human and I mentor startups and people who want to change careers, teach a general assembly. So two things.

I've lived in rural Northeast for 15 years and I completely disagree with your assessment of rural opportunities. There's no risk capital. There's no market. You go to a co-working space and there's three people. I just leave those places, frankly.

My question is, when we talk about tech do we mean high-growth companies or do we mean using computers? Because those are two very different things and it's not clear to me whether you want to talk about a world in which we use computers more and more or a world in which people start more and more companies. Thank you.

MS. KOCH: The only thing I would say is a clarification. I'm seeing more activity in the rural space. I don't think people have solved it and there are still a lot of concerns, especially as it comes to the low of capital when, you know, there's only 25 percent to spread around states outside of New York -- Massachusetts and New York, and then you think about drilling down to rural communities. That is a huge problem and there's a lot of work to be done.

MS. TURNER-LEE: That's right. So I think on the area of rural

opportunity, so I think that you're right in terms of rural broadband access, but that does not diminish the fact that there's rural broadband activity. So my recent trip to Staunton, I'll just give you a perfect example, which you all will see in this blog, you know, even though mainstream America doesn't a gigabyte coming into the community, they're still using Foursquare cash registers. Right? They're still leveraging ways to take mainstream and globally export.

Those are not necessarily the high-tech industries we want to see, but I'll take you to a recent visit to Lincoln, Nebraska, right, where we're actually seeing smaller tech companies wire up cattle farms. There's a big cattle farms outside of Lincoln, Nebraska, about three hours, where small companies actually bring fiber so companies can actually engage in e-agribusiness, et cetera, to actually help that.

The example I gave yesterday why 5G is particularly important to rural areas, a guy shared from the Farm Bureau a farmer may have a million-dollar John Deere tractor that can actually do all this great stuff in terms of productivity, et cetera. Without broadband access it's just still a tractor.

And so the question becomes we do have to settle the rural debate when it comes to high capital-intensive investments, expediting and accelerating the farming industry. But what's really neat about it, I think this goes back to his original question, we are seeing people start to respond. That co-working space in Staunton, she said even if I get three, I made a different of three women that actually could come in here and start something different and still love living in rural America.

So I completely agree with you and I think the policies are changing. We're actually seeing more investment go to rural America and we'll see. You know, we'll see in a couple of years whether or not that investment from government combined with private sector capital is actually going to change the way that we're actually seeing connectivity come forward. So great questions, but, yeah, there's a lot of activity that I think we're going to start uncovering.

Let me get to this side of the room.

CAMILLE: My name's Camille and I'm a computer scientist. And I think you, like, talked briefly about it, but I was wondering, like getting women into tech is important, but then 70 percent of women who started in tech leave within 10 years. So then like how do we keep women into it or just tech in general?

MS. TURNER-LEE: Shireen, want to --

MS. SANTOSHAM: Yeah. I mean, I think this is where we see that really deep discrimination that happens to women and the challenges that they face. And so making environments more hospitable for women to work there is really important. And I think the conversation finally with the MeToo movement is opening up on a sort of national level that we really need to dig deep and I don't think there's an easy answer right now. It's great to see the companies stepping up and trying to do more, but there's certainly a long way to go.

And I'd just say to you keep at it, you know, we need you. We're really excited to have you in that space.

MS. TURNER-LEE: Two more questions. I'll go on, give some love to this side, and then we'll -- this other gentlemen, let's give some airtime. So we've got two, this gentlemen first.

JOHN: My name's John. I'm a current graduate student. A few of my colleagues at my undergraduate institution created a group called STEM Stands for Women. And all the stats you guys are saying are absolutely correct and it's very new. What we're working on is getting that pipeline going from a very young age so that there's going to be a higher involvement down the road. It includes workshops, what we call STEMinars, like TED Talk series for -- I know, super corny, but TED Talk series for parents on how to help their children become more involved.

We just held a pilot event and worked with nine students. They said they're all going to come back. We're trying to expand. What advice would you have

moving forward with that so that we can make it grow, make it more impactful and productive?

MS. KOCH: I love the term STEMinars. I know you think it's corny, but that totally works.

MS. TURNER-LEE: Yeah, it worked for all of us. We were like oo.
(Laughter)

MS. KOCH: So I think in terms of scaling, this is almost like scaling anything. Figure out how to hone your model and experiment where you are currently. Right? Like play around with a few different things. How do you make it as good as you possibly can there? And feel free to experiment and fail because it's in a safer space. Right? It's where it started.

And then look at where are the first few easy places for you to go. Is that school part of a particular network or conference? Can you access a particular state system so you can take it out to a few of those different places? And the places who have the same values as you, who are part of the same networks, are going to understand what you're trying to do faster and create kind of justification for yourself.

MS. CARROLL: I'd also say look at what partnerships are available once you've found that thing that works really well, who you can partner with to really scale. You know, there are a bunch of groups who try to help young girls be interested in and stay with STEM. And so look at how you can leverage your ideas and partner with somebody who can scale it.

MS. SANTOSHAM: And find a great board of directors.

MS. CARROLL: That's right.

MS. TURNER-LEE: One more question. Okay, so this is what I'm going to do because I like equity. I know, I'm a woman. This is what I'm going to ask you to do. I want you to -- because you've had your hand up for a while. Karen, can we just do this? I want everybody just to give your question, and I want you all to keep your listening ears

on, and you're going to summarize by answering the final three questions in this last lightning round. Okay? All right.

So if you can just say your question, there's one right here. One right here. I'm sorry if you didn't have your hand up. I didn't see it. One right here and then there was one more. Okay, you all are going to have to duke it out. Rock, paper, scissors. (Laughter) All right, we're going to do a fire hose, so let's go there, there, and one, and then we'll answer to wrap up the panel. Go ahead.

SPEAKER: Hi, I'm actually a Ph.D. student in sociology, so (inaudible) sociology.

MS. TURNER-LEE: Oh, my (inaudible) sociology love. I'm loving it.

SPEAKER: You guys mentioned public-private partnerships and procurement, and I was wondering given the sort of public mistrust of use of data, you know, privacy breaches, that kind of thing, what is the path forward for companies and for governments to figure out sort of where social norms and cultural norms are and make sure that we don't get ahead of that when we're using tech in civic use?

MS. TURNER-LEE: I was going to say, just to plug, Melika will be on a panel July 26th we're doing on privacy, so come back and watch her talk about some of that. But privacy is, you know, how do we manage privacy?

Okay, your question.

MS. BEEDUS: Yes, hello. My name is Claudia Beedus. I work at the Inter-American Development Bank. And it's kind of a follow-up on the question that was just asked by the young gentleman over there.

I would like to know, I mean, to me even the topic of this whole conversation sparked an idea in the sense that we usually talk, and not only here in the U.S., but in many regions of the world, about the problem of getting more interest from even young girls into the tech field and STEM field. And it seems to me that showing, as one of you were saying, you know, showing better cases or stories, individual stories of

women that are in this field, but from a different point of view. I mean, there's another passion that's not the technology itself that's bringing them in.

I mean, I think there's so many -- it seems to be that girls tend to be interested in or, I don't know, a little bit more than boys maybe in social good. As you said, it shows up even, you know, in entrepreneurs, what kind of business they invest in. So how to show that this is also space where you can study, I don't know, science or technology and then your career is going to be in how to solve this problem of democracy or how to solve this problem of, you know, public good?

MS. TURNER-LEE: Okay, so this is -- the second part of this question is how do you get more girls to see the social implications, the social good of this?

Okay, last question? Okay. Oh, how did you get the microphone? No, but you're okay. I told you I'm going to negotiate it.

CAT: I'm Cat and I'm a software engineer by training and trade and I work in civic tech. And my main question is, after you come up with these solutions how you communicate to people that you've got this thing and how do you communicate and get to the constituency that you've made this tool for? What solutions have you found in, like, I don't know how to talk to people is my question? (Laughter)

MS. TURNER-LEE: All right, so I've given you all a hard task in this last couple of minutes to wrap up this panel. There are three questions. Pick one, pick all three, just keep it nice a brief.

The first question is, you know, what's the path forward to ensure that there are privacy wraparounds or privacy guardrails as we look at the expansion of civic tech? The second question is, how do you convince more girls to actually do this for the social good and not necessarily for the skillset, right? And the third question is how do you get technologists to actually speak to people or speak the language that people actually understand and not the high-tech stuff? Okay?

So, Shireen, we'll start with you.

MS. SANTOSHAM: Okay, I'll try all three.

MS. TURNER-LEE: Okay.

MS. SANTOSHAM: So on the first one, you know, this conversation on privacy and data, I mean, we've had a data explosion in just the last five years, the amount of data that's available has just gone through the roof and will continue to go that way. And so the conversation between what data should be private and commercial use and what should be in the public realm right now is very bifurcated. And over time I think those will actually evolve because cities need private data for planning purposes, for public good, and private companies can benefit from a lot of the data that cities have. So I think there'll be a natural evolution there and the privacy conversation will come with that.

The second point of girls getting interested in tech for good, I'll sort of flip that a little bit, which is to say that the jobs of tomorrow are almost all going to require some level of knowledge of tech. So pick your passion and then make sure that you have enough of a baseline for technology that you can be successful in those fields.

And then the third question about how do you get the word out, we personally do it through a number of channels, and one is Nextdoor. So Nextdoor is really easy to put out there. I mean, we use all sorts of social media. And then we use community groups as partners, as well.

MS. TURNER-LEE: Okay. Melika?

MS. CARROLL: Sure. So on the privacy conversation, I agree with him, there's got to continue to be a conversation between the private sector, between the public, and government around privacy. And right now there's sort of a government data conversation and a consumer data conversation and those have to merge at some point or the conversation has to be comprehensive.

I think the most important thing to give everybody some level of comfort and trust is for all of us to improve understanding of technology and what it does and

doesn't do. I think there's a lot of debate, intense debate right now that kind of creates farther around what is a real conversation around privacy because there's a lack of understanding about what is collected, what is used, what is sold, what is shared everywhere, whether it's in the private sector or in government. So I think there's right now a big need for an educational conversation around that.

On the social good, I mean, I think I mentioned it earlier, I think it's really important for people to follow their passion and to see tech as a tool. And I think maybe we need to start talking about that that way because there's been a big conversation about how to get more young women into STEM. And maybe we can convince them better if we say, you know, the STEM is the tool. Whatever it is you want to do passionately is how you're going to get there. Right?

And on, you know, how do you get your great idea out there, we're talking about this in the sense of maybe career opportunities for women who are not engineers, but maybe your opportunities to partner with another cool woman who's great at communications.

MS. TURNER-LEE: Sarah?

MS. KOCH: So I will leave it just at the third question for the sake of time and because you guys already answered basically all of the important things to say. But I think, you know, you are exactly right, find the people who need to be on your team to be great communicators. I'd also look at who is your audience? Like who do you actually want to be using the tool and who do they listen to? Right? Because if you can find the right partners who will help to get the word out for you, then you have people who are supporting you, who are alongside you, and who are helping you to do the work. And so the more that you can build that team, whether it's actually employees or partner organizations who help you to be successful, they can fill in some of those gaps for you.

MS. TURNER-LEE: So I wanted to say thank you to the panel for actually participating. Let's give them a round of applause. (Applause)

I want to thank all of you for actually taking your time to stick it out with us until the last hour or the last minute of the hour. I want to thank our Brookings networks that put this event together and the collaboration that went into that. I want to acknowledge our colleague who will be leaving -- raise your hand -- who actually had this idea. (Applause)

Thank you all for being here and we hope that you continue to follow us. Tweet Women in Civic Tech and go to Sourcelist. And thank you very much. Have a good rest of the day.

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