NTIA Conference 2015

Second Panel: Why Broadband Matters: Real-World Impacts

Deb Socia: We often recommend folks look at the Google Fiber checklist or any of the get ready checklists that are out there, and if you would like to see that checklist it's actually on the resource page of the Next Century Cities website and we highly recommend folks think about it, because as Jill said it's not so likely that Google is going to solve all our problems, and I do tell folks all the time there is no fairy broadband mother and so we need to be prepared to move forward, and in following the checklist you can have a lot of those get ready things done in advance and it doesn't matter which provider ends up using it or whether you build yourself, it's helpful to have.

It's my pleasure to bring up our next panel moderated by Sharon Gillett, who is the Principal Network Policy Strategist at Microsoft, and was previous Chief of the Wire-Line Competition Bureau at the FCC.

Sharon Gillett: Welcome everybody, while they're taking their seats I will explain that I'm not planning on doing big long intros because you have the bios in the packet. What I would like to do is go down the line starting with Jascha, and have each panelist take just a minute or two to explain what about their experience bears on the topic of our Panel which is why broadband matters, what are the impacts beyond infrastructure, let's call it that.

Jascha Franklin-Hodge: Hi everybody I'm Jascha Franklin-Hodge, Chief Information Officer for the City of Boston. I think for us, my role in the city covers sort of the traditional stuff of a governmental IT department, servers, software systems, all of that but we also take a very active role in broadband and digital equity. The reason for that is fairly straightforward, you heard very eloquently from some of the speakers earlier today but fundamentally broadband is necessary for full participation in society in the 21st century. It's not a luxury; it's not a thing that is what we get to after we solved all our other problems. It's a thing that is critical to economic mobility, to equity, to education, simply access to government and participation in civil society. For us that's the guide-stone starting point for thinking about how we address broadband and digital equity. It comes down to this simple idea that every resident and business in Boston should have access to affordable high speed internet and the tools and skills to make use of it. That's the goal that we're shooting for. We have a lot of work to do and we'll talk a little bit more about that.

Sharon Gillett: Thanks Jascha.

Emy Tseng: My name is Emy Tseng, and I work for NTIA as a Broadband Program Specialist. I work specifically on the technical assistance program of Broadband USA that was mentioned before and I just wanted to go into a little bit more detail what we do in our technical assistance program. We offer assistance to communities, local governments, and stakeholders across the country on different issues around broadband infrastructure and digital inclusion planning, community input processes, implementation of course, and evaluation plans. In addition to our individual work with local communities we also help convene and connect communities that are facing similar issues. Events like these, conference calls, which some people have participated on here, webinars; I'll make a plug for a webinar we are organizing on October 15 on how cities use survey data to help their planning processes. My personal focus has been on cities; I was a program

officer with BTOP and worked with a lot of major cities. I also have another hat, I am an affiliate with the Berkman Center for Internet Society at Harvard, and my research focus there is on inclusive innovation and I'm really looking at how communities cannot only adopt but adapt and shape and create technology in ways that empower them and for their own goals. I have been able to look a little bit more broadly at international examples and examples across different fields like Civic Tech, International Development, Microfinance system.

Pamela Goldberg: I'm Pamela Goldberg from the Massachusetts Technology Collaborative. We're an economic development organization focused on growing technology, innovation across Massachusetts. I was interested to hear how many cities and towns in Connecticut, there are 350 cities and towns in Massachusetts, and most of those are what would be considered largely served but there are a number that are unserved communities or partially served, and so we are part of the BTOP program. We put in 1,000 miles of fiber to connect schools, libraries, public safety facilities in 120 cities and towns, but our work isn't done and so we're looking at both last mile and adoption issues and what we can do to address the needs in the communities that are either underserved or unserved.

Susan Corbett: Good morning, my name is Susan Corbett; I'm the CEO of Axiom Technologies. Axiom is a last mile broadband provider located in Washington County, and we also are an information technology company helping small and medium businesses. We brought an educator on staff in 2006 because we realized as we were connecting people to the internet or businesses to the internet that they needed assistance in learning how to use it. We are also BTOP recipient and we worked with our farming, fishing, and nursing communities and really started to learn what were some of the barriers and some of the best practices to deliver digital literacy classes. About a year or so ago we spun off a nonprofit side of the company called the Axiom Education and Training Center, moved all of our educational services to the nonprofit, including adult education. Over the last few years we have reached about 3,000 adult learners and over 300 businesses in teaching people how to use the computer and different programs on the computer. What we are trying to do is to decrease the barriers to education and so we moved programs around the county. We have been in 43 locations, we are in 17 of the 18 libraries in Washington County and about 25% of the classes have taken place is in those classes. We look for partnerships and ways to decrease the barriers to education and to get the services out to the people.

Tim Schneider: My name is Tim Schneider, I am the Maine Public Advocate, which means I'm the head of the state agency that's charged with representing utility customers here in Maine, so that's water, electric, gas, a little bit of ferry service, and telecommunications services. I come to my personal interest in broadband because I care about the viability of rural communities which is most of Maine, frankly. Communities that I grew up in and have lived in, in Maine and in other states as a consumer advocate in the regulated utility space. I come by this interest because over the past 35 years in telecommunications we basically have broken many of the business models and regulatory constructs that have ensured universal service in those rural communities throughout the country and particularly in Maine. In doing so we've undercut the potential for having broadband services that ensure the future viability of those communities where you never had to worry whether your auto body shop or your home in small towns in Maine would have telephone service. It's a very real thing right now that those communities would not have broadband service, and as those regulatory constructs for telephone service break down, I view it as the work of our office to insure that

broadband service is there to pick up the slack and we need to figure out what those new models are going to be like. We're having an active conversation in Maine to try and figure out what that looks like.

Sharon Gillett: There's a pretty active conversation in Washington, D.C. about the same issues, so that's great. What we're going to do now I'm going to sort of a lightning round, if you will. Ask each panelist to address a particular issue and hope we might get a little bit of discussion among them, and after we're done with that round we'll open it up to you all for questions.

Jascha, I'll just go down the line, make it simple. Jascha I'll start with you, you mentioned that it's important to have broadband available, useable, affordable, etc, to all the citizens in Boston. Can you speak about how you prioritize it, because some of the gaps are not the same across?

Jascha Franklin-Hodge: Absolutely, it's interesting to be in the audience for this event where many of the issues that are being discussed are focused on rural communities, which have in some ways a fundamentally different set of challenges and different set of different economics in what we see in a city like Boston. In many ways we are very fortunate, the vast majority or residences in the city of Boston, close to 100%, have the ability to purchase broadband service from at least one provider. For 90% of those people it is exactly one provider that they options to purchase broadband service from, not ideal but certainly is an important step. As we try to dig into this we found the pattern really asked the question of where are the gaps and where should we be focusing our efforts. We found some things that were very similar to what Elin Katz in Connecticut talked about earlier. Certainly we view competition and investment in broadband infrastructure broadly as fundamental to the long term economic sustainability for the city. Having one option is not enough, so the starting point for all of this is to say we want to encourage competition and investment.

When we got into conversations within the community and really reaching out what we found was there were a few places, two places in particular, where there was a more fundamental gap that we are trying to prioritize our efforts towards. The first is with smaller business, particularly those businesses located outside of our central business district. If you are a business in the Back Bay or downtown Boston, you have a multitude of options for traditional fiber providers available typically in your building or a few hundred feet out in the street. There's an affordability issue that sometimes comes along with that. We've seen from many of our small business once they grow to that point where they can't get away with the cable modem anymore, suddenly they're faced with this incredible sticker shock where they say "if I want to go from a connection that tops out at a 20MB upstream on a good day to something that's 100 meg symmetric connection, my price tag went from $250 a month to $2500 a month and if I want to go to a gigabyte I'm talking thousands and thousands of dollars a month. That's real money and especially for a growing business, that's often the question of do I get the internet connectivity that I need or do I hire another employee that I need. That's a not a choice that we feel like businesses should have to face in the city.

In neighborhoods outside of the central business districts where often smaller companies are trying to move because of issues with real estate affordability, it's even worse. There's often no other option besides that cable modem, or the option comes with a price tag that's measured in the tens or hundreds of thousands of dollars because the providers want to have the full capital cost of bringing fiber from wherever it exists to that business location, they need to have that paid for.

That's a huge gap for us that is impacting a lot of our small businesses and is particularly acute when we're in this time of increasing real estate prices and the desire on the part of the city to see the benefits of our innovation economy spread broadly into more neighborhoods and more communities.

The other population that I think clearly we need to put emphasis on, you heard others like David Edelman speak about some of the statistics behind this are low income populations, seniors, families, students, the homework gap is a real thing and as we're making incredible strides towards improving the quality of technology in schools the question of what happens at the end of the school day becomes increasingly pressing for us.

We're excited to be partners in the Connect Home initiative; we are continuing to support the program Technology Goes Home, which is an incredibly successful program for closing the access gap. Deb Socia, now with Next Century Cities really built this program into what it was with the help of funding from BTOP. It is a model for how to think about access at home in a way that isn't just saying okay, we just put the fiber in or we build the connectivity and everything's good. But actually saying you need to think about equipment, you need to think about skills training, you need to think about the role that parents play, that teachers play in helping students be successful utilizing broadband infrastructure. We're continuing to support Tech Goes Home as a key piece of our equity strategy and recognizing that this really is fundamentally, you can zoom in and say there's a homework gap, you can say there's a cost burden, but this is fundamentally about inequality and trying to make sure that we're doing what we can to make for a more equal city.

The other piece that we're doing when it comes to that issue of low income as well as broadly small businesses and economic development; we are expanding our city wireless network. I will put a big asterisk on this because the history promise for municipal Wi-Fi has been, it's a checkered past and we're trying to be very realistic about what it can and can't do. Tim, one of my fellow panelists many years ago, almost a decade ago now worked on a project in Boston that had this ambitious goal of covering the city with a public private partnership city wide Wi-Fi network that would work in everyone's house. Well it's still not there, still not working and nobody has succeeded at that, but we do think that public Wi-Fi plays an important role as a backstop for families that may struggle with the affordability of home broadband or may have a mobile solution through a prepaid carrier that they may not be able to pay for every month. Is there a place where the kid can go with a Chromebook or a tablet and get online? There's the public library but can we create places or find places that are closer to home whether it's inside a public housing or in some other community center in another city facility that can become that backstop where people don't have that home access.

We also think about it as an amenity that helps our Main Street commercial districts. You get free Wi-Fi at the mall, why don't you get Wi-Fi in your Main Street? We're looking at targeted deployments that focus on these areas where we think it can have an equity benefit and an economic development benefit being very mindful that there are severe limitations to the technology but it can be a piece of this larger puzzle.

Sharon Gillett: Thank you very much Jascha, and I think your discussion about public housing might be a really good transition to our next question here. Before I ask Emy her question I have to play a little bit of game of secret facts, things you may not know about some of the people on the Panel. I find it a little bit ironic that I'm about to ask Emy to talk about, Build it and you will come or are there other things you have to do to make broadband products successful. What about the

demand side, the adoption side, the education side and so on, that's my question for her. But the irony is that some time ago before I was in government I was a research academic at MIT and my topic of research was mostly about broadband policy. One of my brighter students, there were many bright students at MIT, but one of them was a young lady named Emy Tseng, who wrote her thesis which I supervised on Municipal Fiber to the home in Grant County, Washington, if I recall correctly. I guess we have all discovered that building it is not enough, there needs to more. Would you tell us more about that?

Emy Tseng: Thank you. She was a great advisor. As you know BTOP actually made a huge investment, or at least a very large investment in not only infrastructure but also public access and outreach and training to increase adoption and to build digital skills especially in underserved and vulnerable populations that Jascha referred to. A couple lessons that we are actually integrating into our technical assistance is really the importance of investing time and resources into that, in my research I call Social Infrastructure, so that network of local leaders, organizations and partnerships that really understand the local community and what their needs are and what their goals are and can tailor them. That's really where you get the discussion beyond "the network" or what device is best. It's really what are your goals, what is your vision for your community and how does that fit into this.

The earlier panel referred to this, but this is a really important part. Also the importance of training and outreach, for example in Chicago, the Smart Communities program provided intensive training and outreach in nine predominantly low income neighborhoods, including neighborhoods with a lot of public housing and they had this whole outreach program based on hiring local people as technology organizers. Karen Mossberger from Arizona State University did a pretty comprehensive evaluation study over five years. Three surveys over five years, and they found that in the communities where this intensive outreach and training occurred, internet adoption increased by 15% compared to 6% for the other Chicago neighborhoods, that's controlled for demographics. And also what's interesting in that case is they didn't offer a special subsidy in these neighborhoods for computers or for access, maybe the numbers would have been higher, but that 9% difference came from training and outreach. That again shows the importance of these types of programs.

Another point I want to make is that the digital divide, per se, is becoming increasingly a skills gap so really even when you have a higher level of adoption you still have this skills gap, and this inequality people's ability to take advantage of all the benefits that broadband would bring, like remote education opportunities, all these things need professional developments amongst teachers and medical professionals to take advantage. We can see how the jobs are demanding higher and higher skills. Another example is a rural county in Cook County, Oregon, their predominant economy was based on the lumber industry but they actually had Facebook and Apple locate their data centers there. They knew of course that would bring a lot of economic benefits, but they wanted to make sure that local people could benefit from this, so they build a community college, a training center, as well as a mobile lab and started with basic digital literacy but also to build the skills so that local people could actually take advantage. They started offering server technician certification, again really trying to bring people to a level where they could take advantage of the high tech industry that was coming to their community.

Sharon Gillett: Thanks. This is a nice pivot the way that you have chosen to seat yourselves, because Jascha and Emy primarily focus on the larger urban communities, Susan and Tim

are primarily focused on Maine and rural parts of Maine. Well you have the whole state I guess, but the rural parts are a big, big issue. And Pamela works for an agency that has both mass broadband which is focused more on the western part as well as the John Adams Information Institute that focuses more on economic development efforts. I was hoping you could bring together those threads and talk to us about the economic impact and what are some examples you see of that.

Pam Goldberg: Thank you Sharon. I think it's a complex question with many answers, and I think that because the charge of mass tech collaborative is economic development, because we're looking at technology innovation, the fact that we're looking at the startup community, we're looking at new innovations in technology and partnership with universities. We are in addition to our Broadband Institute and our Innovation Institute that Sharon mentioned, we also have a Health Technology Institute, and so some of the threads that have been talked about today are with regard to TeleHealth. In fact one of the communities that was completely unserved, the town of Leverett, who you'll be hearing from later, decided that they would build out their network themselves and just go ahead and do it once we had built out the middle mile. In talking to them about why did you do that, why didn't you wait for the state to jump in and help you with it? I said is it really about economic development, is it really about bringing more jobs to your community? The response was, as we heard earlier on a Panel about the different motivations for different folks and the motivation for Leverett was about TeleHealth.

The importance of TeleHealth to the people in the community currently. One of the things that we look at in response to that is twofold, one of those is what do you mean by TeleHealth? TeleHealth means different things to different people. If you ask the president of a hospital what TeleHealth means they're going to be talking about healthcare support between physicians or among physicians. But I think for the community of Leverett it was patient access to physicians and remote monitoring which is a very different definition of TeleHealth. I think another advantage for a community like Leverett, and many other communities is the opportunity for increased property values. We received a grant from MTIA a few years ago that gave us the opportunity to promote adoption, and so we worked with some community development corporations to bring businesses to the table to help them access the internet and use internet in their businesses. What we discovered is that more than half of the businesses that came to the table had never used the internet for anything regarding their businesses. They didn't have a website, they weren't filing their taxes on the internet the way they need to. Just that adoption piece of bringing people up the learning curve and helping businesses be part of the new millennium in terms of being connected.

We had a wonderful story of a small bakery in the Berkshires that had decided now that there is internet access I will build a website and put my business online, and within two months she had a $10,000 order from a Boston company for her baked goods, and that couldn't have happened if she hadn't had the web presence.

It's an array of different pieces of the equation that we're looking at. Obviously it was said before, adoption is a critical piece, we've focused a lot of our energy in the early days of just putting the pipes out there and trying to get folks connected. But it's applicable in urban areas, it's applicable in rural areas.

Sharon Gillett: Thanks Pamela. Susan, you and Tim can I hope speak to rural areas and what works. What are models that work, and I think one model that works is Susan, which we're very

fortunate to have her on this panel. Could you say more, I know you had a BTOP grant and I imagine that's finished now, and you mentioned you have a nonprofit. Perhaps you could talk to us more about who the stakeholders are that help make a nonprofit successful in a rural community, and how you make that sustainable?

Susan Corbett: It's not easy.

Sharon Gillett: No, it's not that's why I asked you the question.

Susan Corbett: The BTOP is really what pushed us forward. We had about 100 farmers, fishermen, their crews and their family participate in the program. During the two year time period they reached about 13,000 learning hours which is really some high numbers. One of the reasons that worked is that we moved the classes throughout the counties, so Washington County is 2500 square miles, they were at different locations and when we would get to the time of the year when the farmers and fishermen were really gearing up into the late spring, summer, and early fall, we held classes when it was raining really hard or really windy. It was really all about them and not about us and what was convenient for them. When we reached the end of the BTOP grant period we got the attention of a private foundation who said we really like the work you're doing, we'd like you to apply for funding, and nobody ever does that so we were really excited about it. We are funded for two years to do classes throughout Washington County.

Again, this was not for the convenience of the staff and for us, it was how are we going to get the classes to the people, and so holding classes throughout the county at multiple locations, libraries were a real big draw, but then there were both the University of Maine at Machias, Washington County Community College, the career centers, community buildings, and then businesses. That was the other really big push here, we had businesses and employers and employees that needed to have training. They needed to know how to use the internet, how to use the software programs, how to even turn on a computer and so classes were held in business locations.

What we wanted to do was to ensure the success and make it as accessible as possible to our residents. What we found is it really is a public private partnership, when we went into the adult Ed world there are some public funds that come in. We are doing these programs throughout the state. A real big thanks to the Unity Foundation and UniTel for doing the project down there, to prove a concept. If you are able to provide digital literacy, will it increase take rate which is a good thing because then that means more revenue for the providers to continue to build out network.

It's a lot of moving parts, and we keep trying new things. I think the most important message though from our Director of Educational Services, Jane Blackwood, is how we teach is more important than what we're teaching. Having classes in a very relaxed, non-threatening atmosphere is really what has insured the success of the program.

Sharon Gillett: That's great, thanks so much. Tim, I begin this again with a little bit of background which is that when I was studying this topic of community or municipal broadband as an academic. Academics always have to define their terms so I had to figure out what the difference was between community and municipal broadband. As soon as you say municipal broadband you're presuming the existence of a municipality which is not always true in a rural area. As soon as you say community broadband you're assuming a sort of density community which may or may not be true in

rural areas. Could you reflect to us on sort of the community/municipal broadband models and how they play in rural parts of your state?

Tim Schneider: I think there's been a lot of energy nationally and even in Maine about using a municipal model or a community based model. In Maine often those efforts have been led by people whose full time job it is to care about the economic development of their community or to the city planner who just sort of gets it. I think a lot of the energy at that national level has focused on, you've got staff and the ability to obtain capital through bonding mechanisms. There's a lot of energy right there and that has made municipalities a credible party to come to play in the broadband conversation.

I like the community based model for a slightly different reason, and the communities we work at in Maine don't often have the robust internal infrastructure. They don't have someone whose full time job is to go out and do the work on economic development, whose job is a full time city planner. This is true for many communities throughout the state. I think there's a lot of potential for that model because when you start having a conversation at the community level you get that commitment to universal service. We already have a broadband model that works for a downtown core, it's called a cable company, they do it really well. In a lot of very rural communities in Maine where you have dense service in the inside of the donut but you don't have universal service in that community because the business model doesn't play behind that relatively dense urban quota, which isn't really that dense by most people's standards.

I think that individual communities, when they are choosing to invest their time and energy to solve the broadband problems, we'll make sure they go beyond that downtown, we'll make sure they reach the next level out. You see this in some of the models with small telephone companies in Maine, places where you have a choice between one super rural community or another super rural community, it's not do I provide service in the largest city in the state or a rural community where you're not competing for investment dollars. You're starting to see those companies, they have a limited footprint in which to invest their funds and they go bring it there.

I think its similar potential for rural communities in Maine, but frankly there is not that kind of infrastructure, there is no small town in Maine that has a CIO who's going to look out and care about these issues on a day to day basis.

Sharon Gillett: Jascha, he has a job for you.

Tim Schneider: We can't pay you. It's great to see so many members of the Utilities Committee in Maine here today, I would like to give them all shout outs. One of the works that Representative Higgins did and that committee did last session was working on passing legislation around, on a model on how to do this in rural communities in Maine. It doesn't rely on an existing city infrastructure, it revolves on creating local champions, providing a framework for what it looks like to get your community ready for broadband, to then provide state matching funds through the Connect ME authority to help them do the kind of broadband planning that Briana described earlier, where what do you have in the community now, what do you want to achieve, and how do we get there. Do that from the ground up, a conversation that's bias in nature needs to involve incumbents because many of them are the people who are there in the community now and for them it's just a slight incremental spend. How do we make those numbers work.

I think we laid a good foundation there, but the premise of that is if you provide support, we provide some matching funds, and you provide a process to develop local champions that you can bring communities that don't have full time staff along. I don't know if that's true, frankly that's an experiment we've embarked on here in Maine over the next two years, I think. There might be communities for whom that works, I think there will likely be communities for whom that doesn't work, and I think if you're committed to universal service you need a solution that works in the places where local champions rise up and they need a place where that capacity doesn't exit.

I think probably the solutions is going to involve some regional collaboration, figuring out through this process models that work and then replicating them in the places where it didn't work the first time.

Sharon Gillett: Thank you, and I can tell that Tim works on universal service because he talked about donuts and I spent three years at the FCC working on universal service and we talked a lot about donuts, there were a lot of pictures of them on my whiteboard. If you're not familiar with what he meant by that, what he's referring to is if you look at a map, if you look at rural areas there will often be the main street, the town where the local stores are then there's the surrounding, usually farms or rural settlement, and so the inside is the hole inside of the donut and then the donut is where all the very dispersed and low square mileage density people are.

I also just want to say as long as we're talking about universal service policy in this context, I'm very encouraged that with the changes at the FCC in terms of how broadband is treated that there is currently pending at the FCC a proceeding to direct adoption funds towards broadband, which is to say the lifeline program which has historically been all about subsidizing telephone service for low income consumers, there's a proposal to extend that to broadband service. My company has comments supportive of that and among the examples that we use to explain why that's a good thing is that we've been involved in a project working with Health Choice Network, TracFone, and MobiMedic's in a mobile health pilot program, which basically involves getting a health app on essentially subsidized broadband service on a phone to a consumer and it reminds them of their appointments, it helps them control their diabetes, their blood sugar. In fact we found with this program that it reduces missed appointments and that saves money for all the community health providers, which is essentially Medicaid government and state funding. There are so many synergies, you Pamela spoke about development. There is one thing that I found in my time at government is people don't realize how much broadband saves, because there's so many efficiencies that come from using it. I think that's also important when making the case for your community, some of that is cost savings which is really, really important nowadays.

Did anyone want to respond to that? The mikes are there and there, and after Pamela speaks we'll open to questions, so please just line up at the mike.

Pam Goldberg: I think that the cost savings is an important piece. It may not be the core to economic development but as we look at the healthcare challenges across the nation it's amazing that broadband can in fact impact bringing down the cost of healthcare. One of the sites that we connected with our BTOP project was Berkshire Medical Center which is basically the only healthcare facility in the Berkshire Mountains, and their cost after they got the connection, they were able to install and electronic health record system, they were able to create a TeleHealth system and their

expenses went down by $37,000 a month. That's a pretty dramatic drop in expenses which should flow through to their patients, and that's a really powerful change and that's just one example of that.

Sharon Gillett: Okay, Jascha, you might as well respond as well.

Jascha Franklin-Hodge: I think just kind of highlights a really interesting point. One of the challenges we see in the city when we think about broadband and fiber within the city is cost. This question of how do you pay for it all, and I'll be frank we're not living in an environment where there is massive public appetite for spending hundreds of millions or billions of dollars building up broadband networks in major urban areas, at least taxpayer dollars. When you start to think about the savings that could be had through TeleHealth you start to think about the institutional savings that municipalities can see by consolidating some of their connectivity needs. You start to think about, for example this question of we're building out our institutional network within the city, there's kind of a clear economic logic for us to connect all of our schools, all of our buildings, and for us to have a fiber network, but we're asking the question can we do that in a way that brings fiber closer to some of the businesses that we're trying to serve.

When they do out to a private provider and say I need a connection at my store in a neighborhood business district, that instead of the $60,000 to run the fiber down the street and around the block and under the street, it's okay if we can just get to that manhole across the way, we've got something there that we can utilize. I think that notion, and it's really reflected in the Broadband Opportunities Council report of how do we identify all the places where we're spending money today and put some of that to use for broadband and really see that as synergistic savings in investment.

Sharon Gillett: Just to build on that as well, one of the other things I found is so many things you do have a payoff that's ten years down the line, but planning today for the future is going to make it—broadband is going to be with us for a long time and it's going to keep getting faster. We think a gigabyte today, it'll be ten gigabytes before we know it. We need to be putting in place today the ductwork, the access, all the physical infrastructure, the training, the libraries, all the community infrastructure in terms of social capital, if you will, that helps both improvements in the infrastructure and improvements of the use and improvements in the equity use across all of our communities to go forward. Dig once is one example, thinking about libraries as kind of hubs for the community or other types of institutions like Susan was talking about. I think those are all very important to the sustainability of this. One thing, and this is well before your time so I'm not criticizing, but through the conversation you and I had, Boston and federal government spent a lot of money on the big dig which began before we were all having these conversations about broadband, before most of us were having them. Back in that day these rooms were a lot smaller, let's put it that way. Now we all get it, we get how important it is, but the big dig is all concrete now. Now when we're doing big projects like that or even small projects like that we should be looking forward to how are we going to make it possible to get this infrastructure in place, keep it upgraded and keep the community involved.

Jascha Franklin-Hodge: That is absolutely right, and I would just add to that we think about dig once in Boston, it turns out I believe the first city in the country to implement the dig once policy in the late 1980s, but it was done with the expressed intent of keeping people from digging up the pavement too often. Nobody was thinking about broadband as a primary driver for that. What I discovered last year when I joined the city is that we have an unknown number of miles but many miles of conduit that belongs to us underneath the streets of Boston. The location of that conduit is on

paper maps in the basement of City Hall, and if by some miracle you figure out where that conduit is and you come to us and look to rent that conduit we have a rental model that often makes it economical and incentivizes you to dig up the streets again and put in your own conduit rather than rent it from the city. There's these kind of things, so many opportunities to bring these resources together but really thinking about how do we do this in a way that actually makes it work for broadband and for the moment that we're in today and that we'll be in over the next five to ten years. There's a lot of work to do.

Sharon Gillett: It amazing how picky some of these details can be, but how important they are. Alright you've been waiting very patiently, thanks. Please introduce yourself.

Arthur Ware--Question: I am Arthur Ware, and I'm an advocate for all things broadband and certainly high speed networks, and the implementation of them and advocating for education of our public officials in getting them up to speed with moving and doing something toward whatever pathways they want to move. The question that I have, in my organization in 1999 we decided that we were going to move in a direction, at that time sustainability and the whole green movement was just getting started. What I have seen happen with that movement, as I talk to CIO's across our state and New York, from Buffalo to New York City, they're all at different places and I know that Deb Socia was the person that started the broadband office, or was the broadband office chair here or chief here in Boston. I guess the point that I want to make with regard to sustainability now, every organization that has any kind of public purpose or corporate responsibility has a broadband director or broadband office and people there field questions to apply for grants, and so on. I see that as being a key area with regard to the policies behind broadband, and I would just like to throw that out as a question. You really need someplace to go and you need somebody to do it, and the CIO can't always be the person who's doing it because they're putting out fires and dealing with viruses and worms and different things. It really needs to be somebody's job to do it, and in our state we only have two cities that I know of that have broadband office directors and one is Syracuse, the other one is New York City, so go figure.

Sharon Gillett: Okay, I think I'll translate that question of office of broadband, so what level of government. I know Elin spoke about that on important that's been in Connecticut. In Massachusetts one of the reasons we were able to create the Mass broadband. Mass broadband actually came in through Governor Patrick but it was actually the previous governor, Governor Romney who created this position. I think it was actually motivated by some western Mass legislatures I forget the official title, but the unofficial title was the broadband Czar. The first occupant in that position had a good sense of humor and used to say that I don't know I want to be called a Czar because it didn't end so well for the Romans.

What do the panelists say, would any of you like to reflect on the broadband coordinator role? How it should be built, is it feasible.

Tim Schneider: First of all I think the sustainability connection is an interesting one, particularly for a state like Maine where the state's primary carbon impact comes from transportation and home heating, and broadband is a solution to a transportation problem. In a very real sense one of the things that Maine can do to address the climate change nowadays is promote broadband infrastructure for a very rural state like this.

Maine has good bones in this respect, for at least the last ten years we had the Connect ME Authority which is an independent broadband office whose job it is, is to look out ahead and try to make plans for what the state's broadband needs are, to bring those stakeholders together. Their primary work has been through infrastructure funding grants but they are right now in the process, strategic planning process, to look at the state's broadband challenges, try and figure out how the limited funding we have available and the work of the state agencies can be brought together to promote broadband deployment in the places in Maine where we have challenges, which is pretty much everywhere. I think that really has good bones in that regard. One of the other pieces I think is interesting is there are many businesses in Maine located in very rural places, Jackson's Lab comes to mind involved in paper mills and other ware, they rely on broadband to do their businesses, but then their workers go home. We have the industrial equivalent of the homework gap where we want these workers to be able to processes remotely to be able to do things from where they live, and they're not able to because they don't have high speed access once they step off the mill, once they step out of the lab, that's not a reality for them.

I think it's interesting to watch those large businesses start to think about how broadband outside of their footprint is important for their business' success.

Jascha Franklin-Hodge: I will just say we on Friday posted a job for a broadband and digital equity advocate in the City of Boston and it is specifically recognizing the need to have this be somebody's job. Thinking about convening across the different parts of the city that play a role in broadband so that when we do talk to people thinking about making infrastructure investments that we can speak with one voice, thinking about how we engage with the community to really understand the needs and the challenges, and then thinking about how we can focus our efforts, whether they be around regulatory reform or infrastructure investments that the city is making to get to the broadband future we want to see. We think that's a job, we have it posted now and we hope to have that office in place in the coming months.

Theresa Kelley—Question: Good morning my name is Theresa Kelley, I'm a retired IT person a couple years ago, my last employer was IBM. I can't tell you how delightful it is to be on the outside now and to be watching what a mess it is to consumers around how do they get this going. One thing that I'm working on right now is the food system of Maine and specifically the Farm Bureau of Maine, and the farming system has a good long tradition of cooperatives, meaning that they don't have full time people but they get themselves together to get projects done and over with so they can then go back to farming. As a matter of fact right now there is a new cooperative, the Maine Farm and Sea Cooperative that is being brought together, and technology will be a huge issue for them, but I haven't heard anyone up here yet talk about the cooperative model as being a potential for the way that Maine could move forward. And I have to tell you that every time that those in the Farm Bureau and others hear the use of the word "community broadband and municipal broadband" feel left out by that language because they hear that as being city centric and not really dealing with the externals, when the truth is that our farms are some of our biggest economic drivers for the state, they represent multimillion dollar businesses and yet they are on the end of roads that can't get access. I'm looking at Susan and Tim in particular, but would love to who else has some experience perhaps in Cooperative Broadband development.

Susan Corbett: I think Topeka.net is an excellent example of cooperative broadband. When David and Beverly put their project together to move from a wireless 900 system that maybe got a 1 meg down and they moved to a DSL model it took five providers to make that happen, and do you know what, it worked. Everybody worked very well together, it took a little finessing to do it, but you know what, it was done. And I think that we're seeing more of that, many providers work together. Axiom works with most of the providers around the State of Maine, so the model is there we just need to do more of it. There's no one provider or one solution that's going to fix this, so we absolutely all have to work together.

Sharon Gillett: The only thing I would add to that is there are a number of what used to be called telephone co-ops and the NTCA not to be confused with the NCTA which is the National Cable Association, and NTCA is the National Telephone Cooperative Association, at least that's what it used to stand for, they may have changed what the letters stand for. There's three or four hundred of them nationwide that receive quite a bit of funding actually from the universal service fund, the portion that funds deployments, but I don't happen to know, are there some in Maine?

Tim Schneider: There are some.

Sharon Gillett: They don't cover all the rural areas in Maine.

Tim Schneider: No they don't. Cooperatives are rural electrification happens, the Rural Electrification Administration was about providing technical assistance and low interest loans to farmer cooperatives, and that model of the grassroots basis of people coming together, this is the problem stringing telephone service or electricity along barbed wire fences. This has worked in the past. The cooperatives in New York ended up running oil refineries, so they can do great things when they come together.

I think one of the weaknesses of that model in Maine is in the hay-day of cooperatives there were a lot more farmers and it was really every member of the community was a farmer, and that is true in some communities in Maine now, but many rural communities in Maine have many fewer farmers than they did a long time ago and figuring where the infrastructure cooperatives come from in the future is an open question, will they step up and can we provide them the support they need, much like electrification.

Sharon Gillett: We have two people at the mike so I'm going to make those the last two questions and then we'll have about 30 seconds for each of you to say anything you haven't had a chance to say yet. Please introduce yourself.

Johan Sabbath--Question: My name is Johan Sabbath and I work at WEX, Inc. we're based just in South Portland, about 2,000 employees spread around the world and most of them are here in Portland and it's really in my company's interest to have a rich knowledge worker ecosystem, in the greater Portland area, broadband is very important to that ecosystem. I am just wondering through your experiences—well two quick questions. One, what's the smallest city that you're aware of who actually has a CIO that does the kind of work that you do, and in general what's the role of the really big companies in Portland who need this rich ecosystem and need this broadband to be here in the greater Portland area. What are some examples of private sector big company collaborations you've seen to support small cities and towns, and what do you think WEX could do with some other companies to aid that in Portland and Maine? Thank you.

Jascha Franklin-Hodge: I don't know the answer to that first question. I'm sort of fortunate enough in Boston that my office is able to encompass some of this broadband work, but as I said we're hiring someone because we do have a lot of things like viruses and other day to day operational things that we deal with as well. I am wondering if Emy or someone else on the Panel might have a sense of where they've seen this kind of investment in broadband in smaller communities, how that gets championed within local government. It's nothing I have much exposure to.

Pam Goldberg: Later you'll hear from my colleague, Eric Nakajima, of the Massachusetts Broadband Institute, and he has been going out community to community and this is less about the cities and more rural areas, but every town has a board of selectmen and it's really remarkable as people learn about the potential for broadband impacts, how they become the internal champions. There may not be a broadband Czar in some of these towns, but we have discovered that whether it's a city or a town they're often champions within that community and we're fortunate in Massachusetts that our Senate President happens to be one of the biggest champions of broadband access and bringing broadband to all, and so he gets that. For Portland I'm not sure.

Tim Schneider: We're having statewide conversation about broadband and how to get involved, step up right. The big employers need to come to play. We had a hearing about broadband legislation in Maine and the farmers sent 20 people and there was no one from Unum, there was no one from WEX. These big employers that have an interest in making sure there's a rich knowledge worker economy that can live in this place that everyone wants to live. That's not happening, I think there's a really great potential role for private employers to step in, particularly because the assumption has always been that it's going to be a government spend to get this work done. It's going to be big federal dollars like another stimulus or it's going to be a big state bonding that will bring broadband everywhere. That number is just too big so we're going to need money from everywhere. We're going to need a little bit of state money, we're going to need some federal money, we're going to need private employers to help step up and nonprofit organizations and we'll call the whole thing together to solve this very difficult problem to make the business model work, but you've got to come to play.

Saul Tannenbaum—Question: Hi, I'm Saul Tannenbaum, I'm a member of not speaking for required disclaimer, the City of Cambridge, broadband task force. We are the People's Republic of Cambridge and there are people in Cambridge who are interested in co-ops, so it's not just a rural thing, though at this point it's a small minority, very small minority. But that's not really my question, I wanted to sort of pull on the threads of digital equity and the digital divide, because Cambridge has become remarkably wealthy over the last decade but we still have a digital divide and we have a high cost of living, so beyond the usual focus on public housing, one of my colleagues is from a housing authority, we have people who struggle to pay for broadband. What mechanisms would any of you suggest to make sure that we can actually provide broadband to everybody regardless of the ability to pay?

Sharon Gillett: I did mention that if the lifeline proposal should go through, it would be very helpful to that. I also think that income is very important. It's important to separate the income from the access from ability to pay, access and affordability are issues. I couldn't tell which one you were asking about.

Saul Tannenbaum—Question: We have both. Access at some level is easier to deal with, it's capital investment and making sure fiber runs to public housing, etc, but affordability.

Sharon Gillett: Affordability, the lifeline reform should they go through will be very helpful with that, but affordability isn't the only issue, it's also all the training and comfort, relevance and stuff like that. People like Susan, and what Deb has done in her past life and so forth, are working on is really, really important.

We are at time, if you have a five second response, do it and then we'll wrap.

Emy Tseng: Just to mention that Cambridge Housing was a BTOP grantee and they've done extraordinary job in training and basically creating some of the demand and really integrating broadband into their education and social programs.

Sharon Gillett: Please join me in thanking this remarkable Panel.

END