

**NWX-DOC-NTIA-OTIA**

**Moderator: Lynn Chadwick  
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1:00 pm CT**

Coordinator: Welcome and thank you for standing by. At this time all participants' lines will remain on a listen-only mode for the duration of today's conference. Today's call is being recorded. If you have any objections, you may disconnect at this time. I would like to turn the call over to (Brian Gibbons). Sir, you may begin.

(Brian Gibbons): Thank you (Sandy) and welcome. Thank you for joining us today for Broadband USA's practical broadband conversation. This is a monthly webinar on Broadband topics of interest, the policy makers, decision makers, practitioners and consumers.

I want to remind folks that Broadband USA the series is a monthly series - the third Wednesday of each month. We won't have a webinar in December but come January they'll continue through September 20th 2017.

Today's presentation is on how does broadband contribute to economic development. We'll be hearing from Dr. (Don Williams) Senior Specialist for Broadband Development at Broadband USA and presenters from Oklahoma

State University, the Utah Broadband Outreach Center and also from connected nation. Now I would like to turn it over to Dr. (Don Williams).

Dr. (Don Williams): Thank you (Brian). I appreciate all the work involved in putting these webinars together - appreciate it.

We have a really good panel with us today. We have (Brian Whitaker) a professor from the Department of Agricultural Economics at Oklahoma State University. We also have (Kelly Cole) the director of Utah Broadband Outreach Center in the governor's office for economic development and we also have (Eric Frederick) Vice President for Community Affairs for Connected Nation. Welcome to you all and thanks for being here and sharing your research and experience with us today. We do appreciate that.

I just want to say briefly what we're doing here at NTIA. As you know, we promoted the deployment of Broadband networks and state Broadband mapping and Broadband adoption through the (VTOV) program and at the moment we've changed from (VTOV) to Broadband USA and Broadband USA provides impartial and expert technical assistance to communities wanting to improve Broadband capacity and use it more effectively.

We also provide publications and toolkits for assessing Broadband adoption, public private partnerships and our new planning Broadband toolkit. Future toolkits are coming out on partnerships, network implementation and sustainability.

And finally we also have a new and exciting community connectivity initiative engaging communities and corporate civic leaders in developing and finalizing a set of connectivity indicators for Broadband and to create a

strategic online self-assessment to expand resources and support local Broadband planning efforts.

Before our panelists' presentations, I just want to say a few brief words concerning Broadband's importance in ongoing future economic development efforts.

Broadband's not a luxury anymore. It's truly a necessity for full participation in our economy and that really doesn't matter where you live but we do have a long way to go and that seems especially true in rural America. According to the FCC, as of 2016 it's estimated that about 39% of rural Americans - that's 23 million people - and 41% of Americans living on tribal lands - that's another 1.6 million people - lack access to high speed Broadband. By contrast it's estimated by the FCC that only about 4% of very urban Americans lack access to Broadband - high Broadband access. Next slide.

Broadband promotes short term, direct and indirect economic impacts whether it's jobs from suppliers or providers and we all know about those kinds of projects and their economic impact. Next slide.

NTIA commissioned an ASR report evaluating the economic impact of our Broadband (VTOV) program and it developed a lot of significant intermediate and long term impacts for economic development. It was estimated that the yearly increase in GDP in areas served by the new (VTOV) Broadband infrastructure should yield between 5.7 and 21 billion in increased economic output annually. Of course that's dependent on the models and assumptions that are used in the economic analysis.

In essence Broadband creates efficiencies leading to productivity gains in all areas from agriculture to health and to manufacturing. The additional

Broadband infrastructure that was provided by (VTOV) could be expected to create 22,000 long term jobs and create more than a billion in additional household income each year. Next slide.

And these impacts apply to all sorts of businesses and size of businesses, not just large data centers but small companies as well as people who are working at home. Last slide.

In essence while all Americans should have access to the robust and affordable Broadband service, how a community gets there is truly unique to each one of the communities. Broadband's global but how you get there and how it's used is truly local in my experience. What type of technology, what kind of funding, what type of organizational structure is going to vary from community to community? But how everyone gets there, it's vital for economic development to include Broadband. And now for our panel.

(Brian Whitaker) is going to be first up. (Brian)'s a professor in the Department of Agricultural Economics at Oklahoma State University. (Brian)'s been exploring the digital divide in internet access between rural and urban areas. (Brian)'s published over 40 peer review journal articles with most of them exploring the relationship between internet access and rural development. (Brian) we're looking forward to your presentation. Take it away.

(Brian Whitaker): Thanks (Don). I appreciate you all having me here today and that was a really nice overview on how Broadband can have an impact on economic development.

As (Don) said, we've got three great panels here today. The other two I think are going to give you guys a little bit more of an on the ground approach to

how economic development is possible. My research is more aggregate in nature and as (Don) said, it's very focused on rural areas and how - if we can find any measurable economic impacts associated with Broadband.

So I really want to talk about three specific papers that I have. You guys can see them out here and you can see the type of data that was used. So the first one here in telecommunications policy - you can see from the title - we tried to make a claim of causal relationship between Broadband and economic growth. The second one there is in the area of regional science. That one deals with a relatively short period of time - 2008 to 2011 - and then the last - and that's focused on jobs and income associated with rural Broadband.

And then the last one there is on civic engagement in rural areas. I know we're talking about economic development but I thought a lot of you - a lot of the people on the line might be interested in whether Broadband has an impact on civic engagement. So we can go ahead and start talking about each of these.

The first one - the telecommunications policy piece - what we did was we looked at non-metro counties across the nation and what we did was we tried to find what we call mirror communities. So we looked at things like population levels, education levels, age, growth - economic growth during the 1990's and we found communities that were very, very similar on all of those things as of about 2001.

And then we did what was called a treatment effect analysis. So we said okay these counties are all very similar. The only difference is one of them did a really good job of adopting Broadband so they had 60 plus percent adoption rates. The other one did not. And so we looked at - it's basically if you think of the medical literature, it's a treatment approach where one group is treated and the other one is not treated so that's essentially what we did here.

We found very similar communities except the only difference is one of them adopted Broadband at a very high rate. And what we found was in those communities that highly adopted Broadband, they grew faster in terms of the median household income. You can see that on the left. And they grew slower in terms of unemployment. These were the 2001 through 2010 growth rates so of course that hit the middle of the great recession so everyone had higher unemployment but those rural communities with high levels of Broadband adoption had slower rates of unemployment growth. So that's the main findings we had there.

If you go to the next slide, we also looked at counties that did not - rural counties that did not do a good job adopting Broadband so they had less than 40% adoption as of 2010. And what we can see there - again the left hand slide - those firms that had low Broadband adoption lost more firms and then on the right hand side they lost more jobs. So those are the kind of takeaways of this statistical approach and again we did try to make a call and a case for a causal relationship between the two.

The next study that I want to talk about - this was a - you can go to the next slide - the area of regional science study. There we go. And again we focused on nonmetropolitan counties so rural counties and we looked at the ones that increased their Broadband adoption over a relatively short period of time - 2008 to 2011 - and again we used this because it was kind of the earliest adoption data available from the FCC.

And so we said okay, let's look at these nonmetropolitan counties that did a good job increasing their adoption rates. And what we saw was even over a short period of time if they did a good job increasing adoption then they saw

positive impacts on things like median household income and total employment. So again positive changes.

Again to me this was particularly impressive because it focused on a relatively short period of time and it's very adoption oriented. I should say in both this study and the previous study - the telecommunications policy study - when we looked at changes in Broadband availability - just the infrastructure portion - we did not see these impacts, okay.

So again my main focus over the past probably five, ten years that I've been doing this research is hey, we really need to make a push for adoption. Obviously the infrastructure component is important but really it's about getting people to actively adopt it and use it so that's kind of my policy push.

Okay, we can go to the next one and this one is the piece about civic engagement. And what we did here - these are state level numbers for the nonmetropolitan counties in those states. And so you can see there if you look at the horizontal access, there are some states with only, you know, 25% adoption rates in their non-metro counties. Some states were over 80% adoption.

And we looked at the relationship between how connected those rural parts of the state were and their likelihood in engaging in a bunch of different civic measures. And so one of them that you see here is the likelihood of contacting a public official was much higher for the communities that had high Broadband adoption rates. Another one that had a very positive relationship was the likelihood of discussing politics with family.

I should say we did see some - there was about 19 measures that we looked at. There were some that were actually negative and I can just quickly tell you

one of those was the likelihood of talking with neighbors so that was interesting. We saw that they might actually have some negative impacts on some civic engagement measures.

And the last thing I want to wrap up with was a relatively recent study here that a graduate student did. We've got all of these nice positive impacts of Broadband. We found in this particular paper that there may actually be some negative ones.

We were interested in if Broadband was going to attract entrepreneurs and creative class employees. These are things that, you know, most rural areas want to try to attract because they've shown to improve income levels and improve migration rates and things like that and what we found was there actually may be a negative relationship between Broadband adoption and entrepreneurs and creative class employees.

We hypothesize that that might be because when you have high levels of Broadband adoption, maybe that's actually decreasing what we call necessity entrepreneurs. So if you think of the person who lost their job at the manufacturing plant or the mine and have decided to kind of go into business themselves with a second hand store or something of that nature, we think there may be some other opportunities out there they can find online. Or we also say maybe this is encouraging out migration from those non-metro areas for people to go to more metropolitan areas in nature.

So that's the basis of my research and I'll turn it back over to (Don).

Dr. (Don Williams): Thank you (Brian) for that very interesting research. We appreciate it. Now we're going to hear from (Kelly Cole) Director of the Utah Broadband Outreach Center. (Kelly) leads an effort to work with Broadband providers



and other stakeholders across the state developing strategies to help increase internet access for all Utah's.

She was also the principal author in the state's first Broadband plan and works with communities statewide to improve services. We really look forward to your presentation concerning the mobile Broadband project in Utah (Kelly). Take it away.

(Kelly Cole): Well thank you so much. So my presentation is going to be more about a specific community that we worked with to get a cell tower in their community and so I want to talk a little bit about the impacts of mobile Broadband access.

So the community I want to talk about is Grass Creek, Utah, population 125. If you look on a map, you can see here's Grass Creek. It's a very small community and then you can also see if you zoom out and then you zoom out again, you can see that there's not a lot around Grass Creek.

In fact if you're trying to travel to Grass Creek if you're trying to go to the grocery store or get any major services, you have to go to either Park Valley, Utah or to Oakley, Idaho and both of those communities are about 45 minutes or so away from Grass Creek.

So we hit the road recently to go out to Grass Creek and the route that we took - as you can see - you have to exit either and go into Idaho or go through Nevada and this is the - this is the road that we took to go to Grass Creek. So it's pretty remote and you're not going to see a lot on the way to Grass Creek.

If you're a high school student in Grass Creek, typically the students have had to actually leave the community to go to high school. They go to Brigham

City, Utah which is a 2 1/2 hour drive for them. There's obviously some impacts that they have to - that they have to drive out there. So the cell coverage is important to public safety as they're driving to high school.

The community has fiber to the home which is fascinating that they didn't have cell service but they have fiber to the home. And so students had started to take some online classes but a lot of them are still driving out to Brigham City, Utah.

We spoke to the community about a year and a half ago and we're trying to identify some partners to work on this project. We had talked to several different parties to see what would work. There was already fiber infrastructure through Bee Hive Broadband and so we had talked to a few providers. We ended up talking to CommNet and they do some wholesale work with other providers so they can roam onto CommNet's network and they were not aware of Grass Creek.

And once we started talking to them, it seemed to fit with their business model to serve the area and so they stepped in as the partner. So currently there's a cell tower that has a microwave connection to Bee Hive Cyber and CommNet is working with BLM right now to get cyber to the tower but they already have 3G in the community. And so we went to speak to the local residents to find out how it's going.

So we went and talked to (Heather War) who is an entrepreneur in the area. She owns a company called Standard Branchers. They sell western wear and they sell in an online store and also in Oakley, Utah or Oakley, Idaho which was that 45 minute drive away from the community. She said that one of the problems that they are having - they were having was that she'd give them the cellphone number and the land line number and it was just so confusing which

number they were supposed to call and so having the cellphone has been a really big deal for her.

And one of the big issues is that a lot of the vendors that have products that she sells will drive through town and they would call her and say hey, I'm going to be in Oakley, you know, in an hour or two and she wouldn't get those messages until a day or two later sometimes. She'd get the messages the next time she drove into Oakley.

And so it's been a really big deal for her to be able to use the cellphone to conduct business. The other issue that has come up that I didn't really think about was there was a big banking issue that when they were using their business bank accounts if they had to do any kind of verification of the account like you often have to do, a lot of businesses and banks will only have you verify on your cellphone and so they'd be locked out of bank accounts and couldn't get into them until they went into Oakley where they could use their phone and then they could unlock their bank accounts. So it's been a really big deal to have the cell tower.

We also spoke with her husband (Kelly War) who is a local rancher in the area and he runs about 500 cattle in Grass Creek. And we talked to him about how having the cellphone coverage - the cellphone coverage came up at the beginning of the year and so we talked to him about how it's changed how he does business.

And one of the interesting things that he talked about was that he used to have to - if he had any problems with the animals, he would have to transport them to the veterinarian but now with being able to use his cellphone, he can kind of do his own form of tele-health with the cows and he can send text messages

to the veterinarian and determine whether or not the animals need to be transported which has been a huge timesaving for him.

The other thing that it's come in really handy with is that he's been able to use it more in the actual gathering of the herd so they can call each other as they go across this beautiful landscape in Utah. It's made everything a lot more convenient for them.

The other issue that he's had is that it's been a bit of a public safety issue for him. This is (Kelly) and then (Kendal Rescindi) who is in my office is in the ATV with him. One of the issues that he's had recently is getting a flat tire and not being able to call anybody and having to walk literally miles to get - to get to somebody that can help him or to be able to drive back and fix the tire.

A more serious situation that he encountered was that he was trapped in a snowstorm at one point and wasn't able to call anybody and had to, you know, walk and try and find help. And so from both a business and a public safety aspect it's been a game changer for his business.

We talked to another rancher in town and his name is (Jay) and (Jay) has had - his family has been in the ranching business for about 140 years so they're long timers to this community and so we talked to him about how having mobile coverage has impacted his business.

And so he has a ranch called Box C Ranch and the ranch that he has, he runs cattle and then he also has a lot of land and there's a lot of people that want to come out and access his land for hunting. And so he has - he will give out permits for them to come and hunt on the land. And being able to

communicate with these people that are wandering his land with the cell coverage has also been very important to him.

And the other thing that they rely upon sometimes is they'll also rent out some of their cabins and being able to take business calls when he's out on his ranch without having to come back to his house. He can connect with people. They can sign up to come and use his facilities without any problems.

And so we asked him what's the worst thing that's happened. What is the worst thing that you have missed out on not being able to have cellphone coverage? And he is on a national conservation board and one day he got a call that he missed that he really regrets and it was from Secret Service. And so they had called him because President Obama had come into town and wanted to meet with their group. He didn't get the call until several hours later and he actually missed out on the opportunity to meet the president of the United States.

And so the stakes are high even in a small community like Grass Creek, Utah. They are doing great things out there and this project that CommNet and Bee Hive Broadband stepped in on has been a huge game changer for that community.

Dr. (Don Williams): Thank you (Kelly). Those were great photos and a very interesting project. I just want to also say - I mean I doing technical assistance here at NTIA - I work with some, you know, major urban cities and some suburbs and some rural areas but, you know, there's rural and then there's rural. And, you know, sometimes in a rural area you're actually, you know, counting up, you know, density in terms of homes per mile. I'm working in areas where you're really counting up how many people are in a square mile so I appreciate your presentation.

(Kelly Cole): Thanks.

Dr. (Don Williams): Now we're going to hear from (Eric Frederick) who serves as vice president for community affairs for Connected Nation. (Eric)'s responsible for managing the development and implementation of Connected Community Engagement Program across the United States and (Eric) also develops and maintains connected partner relationships in support of Connected Nations' mission and (Eric) also provides primary management, oversight and support for Connect Michigan's state strategy. It's all yours (Eric).

(Eric Frederick): Alright, thank you (Don). Can everybody hear me okay?

Dr. (Don Williams): Yes.

Man: You're coming in loud and clear.

(Eric Frederick): Perfect. Well thank you again for having me this afternoon. I'm exciting to share some of the research that we've come up with and it's great to hear from (Brian) and (Kelly) as well. So if you want to go onto the next slide, we'll get started.

Alright, just to provide a little bit of context for everybody on the call, I am the VP of community affairs for Connected Nation and we're a nonprofit that's dedicated to expanding Broadband access adoption and use to improve quality of life and community and economic development.

We do a number of things. What I'm going to focus on today is our community engagement and how do we take this understanding that we have that Broadband technology impact economic development and how do we

translate that into actions to help communities like Grass Creek get a new tower or to help in any other way to improve economic development in a community?

You'll hear me use the phrase access adoption and use quite a bit. That's the way that we look at Broadband technology comprehensively across everything that we do. So we - like (Brian) said, you know, there's a difference between infrastructure and the adoption and use of that infrastructure. So we want to make sure we're looking at things comprehensively to better understand how Broadband impacts our community and economic development. So the next slide please (Brandon).

So we believe that Broadband and technology provide new means of education, economic activity, healthcare, government service delivery and workforce development and that through a strategic assessment, planning, investment and improvements in technology, access, adoption and use in those areas can lead to local human capital development, family and youth retention and help transform and sustain and grow communities.

And I underlined the word assessment in the blue box on here because that's what I want to look at today in helping better understand where communities lie so that they know what gaps they need to fill when it comes to leveraging that technology for community and economic development. So ago ahead and go onto the next slide (Brian). Go onto the next one. Thanks.

So we recently undertook a study in Spartanburg County, South Carolina. It's a fairly populous county - approximately 290,000 people - located in the northwestern part of South Carolina there and one thing we wanted to help the community do was to really figure out okay, if Broadband is important for economic development, where do we stand and what do we need to do. So this

slide here represents some of the metrics that we looked at for Spartanburg County, South Carolina.

We looked at, you know, the number of businesses that have a 25 megabyte per second connection or faster. We looked at how many small businesses have a website. We looked at how many of them currently use or have or are planning to implement a telework policy for their employees. We looked at the percent of employees in the community that have moderate or advanced technology skills.

We also look at how businesses feel about technology training. We all know that tech is changing and that the skills related to technology in the workplace are also going to evolve quite rapidly. So how are employers making sure that their employees are keeping up with the latest trends in technology?

We also look at businesses and their use of social media to expand their marketplace. So we can start to define a baseline from which to plan and implement projects and programs that can help this community again leverage technology for improved community and economic development. Go ahead onto the next one (Brandon).

So when we start digging into some of those stats a little bit deeper, we find some startling trends. And again this is just for a single community there in Spartanburg County, South Carolina where we found that businesses with revenue over 250,000 tended to have faster connections. There were a greater percentage of them that had a connection faster than 25 megabytes per second compared to businesses with smaller revenues.

We also found not as drastic of a relationship between hiring practices and connection speed but we did find that among businesses that state that they're



hiring in the last six months or in the next six months that they tended to have faster connections than those that were not hiring.

But I think more staggeringly we found that businesses with a website - 76% of them state that they will hire in the next six months or that they hired in the last six months compared to only 35% of those without a website. So we're trying to figure out and identify what are the ways that businesses can adopt and use Broadband technology and what is that impact in the community and here we see the revenue and hiring are definitely impacted by those two aspects. Next slide, please.

We also took a look at more advanced technology applications among businesses. And so you can see that the red bars on this chart represent businesses with more than \$250,000 in annual revenue and the percentage of those that use these particular applications and the blue is for businesses that earn less than 250K annually. So you can see that and it's probably expected that businesses with higher revenues are going to be more able to implement advanced uses of technology in various applications.

But how do we then move those smaller businesses - those that are earning less than \$250,000 a year - how can we leverage these technologies as shown by their larger establishment brothers and sisters if you will to move them into that next category and grow and sustain themselves within the community? And again like I said before, we looked at some training practices and here you can see that among businesses that were hiring in the last six months - they tend to have more policies aimed at the technology training of their employees.

For example, 59% of businesses hiring in the last six months offer on the job training compared to 40% for businesses that have not hired in the last six

months and similar patterns for some of the other elements that are in this chart. So it's, you know, it's looking at the impact of technology and workforce and development on businesses in this community. Next slide, please.

We also took a look at the social media use of businesses by revenue. So this chart shows the frequency of social media use by business revenue and you can see that the lower the line on the chart, the more frequent. So you can see that businesses earning between \$150,000 a year and a million dollars annually tend to use social media more frequently.

So is there a way to help businesses that earn less than that use and leverage digital communications tools to again sustain and grow themselves in this community? Next slide, please.

Similarly kind of the inverse of that conversation is how are residents in this community digitally interacting with local businesses or any other institution for that matter - non local businesses - K-12 schools, local government and libraries.

This chart shows the percent of residents by age that say that they digitally interact at least weekly with these various entities. So we can see that if we're looking at the two business lines here that residents age 35 to 64 actually tend to digitally interact with local businesses more frequently than their younger or older counterparts.

So again it gives you an idea and a perspective on how residents are leveraging technology to interact with these businesses. Go onto the next slide, please.

Another thing that we look at is digital literacy so I pulled out a couple of different metrics that we measure in this community in Spartanburg County, South Carolina that relate to economic activity. And the idea here is to try and find groups that are being excluded from a digital economy. So I picked out these four metrics - e-banking, searching for jobs online, taking online classes, staying safe online - those definitely have an impact on participation in a digital economy.

So this is by age so this is the percent of residents that say that they are proficient in each of these things and as it might be expected, proficiency in these tasks tends to drop off with age although there is a slight bump in some of these that are age 55 to 64.

But this gives you an idea that, you know, if a local business wants to undertake any of these things or if they're trying to find good local employees and they post their - let's say they post their job posting online and they're targeting, you know, local folks, you know, there might be some folks that need help in searching for a job online and so this provides insight into that particular activity. Next slide, please.

And I think this is my favorite slide and this is the so what slide. So what do we do with all of this new local information that we gathered in the community? So what you see here is that the darker boxes are a statement from the data that we gathered.

So for example faster connection speeds tend to be associated with businesses with higher revenue and those that have recently hired. So then the question that the community needs to answer then is how do we get faster connections to our businesses so they can all have higher revenue and hire more employees?

So there's lots of questions on here for communities to answer and it's all guided by data that was collected very locally. So for example, 60% of residents 35 and older say they need to learn about staying safe online. So how can we improve cyber safety literacy among older residents in the community? Social media use is highest among businesses with revenues between 150K and \$1 million so can social media help smaller businesses grow and how can we as a community assist them? Next slide, please.

So here's four examples of communities that did just that that took the information that they were able to use and benchmark themselves and turned it into action to help their local economies and businesses grow. So I'll start up in the upper left hand corner with Wright County, Iowa, a traditional agriculture community. They wanted to focus more on growing existing businesses while still trying to attract new technology oriented establishments.

They wanted to improve the internet and technology skillset for local business owners because they mostly had small businesses there and so the Economic Development Corporation took it upon themselves to implement ecommerce training courses for businesses there to use - to implement more of those advanced applications again to sustain and grow local businesses right there in the community.

In Clare County, Michigan it's a very rural again agriculture community with pockets of small towns and some density but the community started working with a small islet there. It was installing gigabyte internet services in these small towns in this rural community. So they developed public private partnerships to accelerate an infrastructure expansion and every year they hold an annual business technology summit to connect businesses with not only Broadband providers like this islet but also web developers and trainers and

others who can help them not only adopt and connect at faster speeds but leverage and use that technology just the same and grow themselves.

In Harbor Springs, Michigan - this is probably my favorite example - it's a rural dispersed and often seasonal population. The tourist community in Northern Michigan - they want to improve the digital literacy of the community's residents and their businesses so they actually launched and developed their own digital literacy training platform called Harbor Active to train groups of all types in the latest technology including social media, device orientation for smartphones and tablets and website development.

Their most popular course is called wine and web where they take a web development class and pair it with a five course wine tasting. It's a very, very popular course. I haven't been able to attend one yet but it's a very unique way to get the community and its businesses involved in learning more about leveraging technology.

And finally the last story here comes from (Ross Comen) in (unintelligible) Michigan which are located in the central part of the state - again rural agriculture. And they needed to expand economic development and activity there. So instead of focusing on attracting new businesses to the community - kind of that traditional model of economic development - they were focused on retaining, growing, sustaining those that were already there.

So in this case the Michigan Works Office which is a workforce development agency and the local economic development corporation started conducting training programs to get more businesses online using social media and website development. And now they're taking those courses to the next level and working on ecommerce and the particular industry specific software for finance and HR and a number of other applications to again using the data

that, you know, they used to benchmark themselves and developing targeted programs to more efficiently solve the access, adoption and use challenges in the community. So at this point I'll turn it back over to (Brian).

(Brian Gibbons): Okay well thank you (Eric). As we come back, we want to remind folks that this is - how does Broadband contribute to economic development? We can take your questions. We've got a question box that you're welcome to submit that. Some of the things so far as whether or not this is being recorded and it is being recorded as we speak and it'll be available some time probably in about seven days - seven days after today. Give us some time to get it loaded up and ready to go.

We're also rolling out a new website so it may delay things a little bit but this will be recorded. There will also be a transcript available and for our presenters, people are also very interested in your slides and that sort of thing so there may be the opportunity for you to get also copies of those. And in the meantime if you do have a question, please feel free to put it in the chat box. We do have some questions already that have occurred. (Don).

Dr. (Don Williams): Great. Well listen, thank you (Eric). Great presentation. Appreciate it. So (Brian) I've got a couple of questions and one of them is I noticed when I go back and look at Broadband and economic development in the academic literature, a lot of the studies earlier on seem to really be associated with Broadband speeds that were done at, you know, 768 kilobytes per second. Do you want to talk about the difference in terms of measuring Broadband's economic impact relative to the increase in speeds that are now expected?

(Brian Gibbons): Sure. So that's a great point because the official - as you all know - the official definition of Broadband has changed over time from - it started out as just 200K in at least one direction and now it's up to 25 megs down and 3 up.

So what we did for our research - we actually did look at whether there was an economic impact associated with high - it would be considered a high Broadband speed which at the time in 2010 we considered to be over 10 megabytes or more.

And so we looked at if there was - again we basically assigned a control group that was - that had access to at least ten megabytes per second or more and we did find one impact of that and it was not anything like income or jobs like we had found in some of the other studies.

The only thing we found there was that we did find a significant increase in the creative class jobs. So I know we had talked in our later report about that potentially being negatively associated with Broadband adoption but at least in this case we found that if you did have access to high download speeds, that could potentially result in more creative class employees in your location.

Dr. (Don Williams): Well great. Thank you. Thank you. (Eric) I also had a question for you I think which I've worked with a lot of city governments throughout a good number of years and one of the things I've always found helpful is if Broadband can be put into a master or comprehensive plan. Could you see - could you tell us if you found that also to be kind of vital working with county and local planning directors to make sure Broadband's in a comprehensive plan?

(Eric Frederick): That's a fantastic question. I am an urban and regional planner by education and previous career so that's right up my alley. So yes, I would agree that I think it's important for communities to include Broadband and further - not only its access but its adoption and use in their master plans and comprehensive plans as well.

In the planning community when master plans are written we include information on water, sewer, roads, storm sewer, natural features - all of the above - but information on Broadband is usually omitted and not included.

So I think it's important for Broadband to be included in local comprehensive and master plans because it at least provides a vehicle for that conversation to happen in the future.

Even if something isn't imminent, the community might not have a specific plan to invest in infrastructure or enter into a public private partnership or what have you but at least the vehicle is there for the community to look at Broadband if an opportunity comes along or if they want to be more proactive about it. They at least have the mention in the master plan to back up their actions that they're taking. So absolutely, I feel that including Broadband and technology in the community master plan is absolutely vital.

Dr. (Don Williams): Well thanks. Alright, we do have questions now coming in from folks - lots of questions actually. We won't be able to get to all of them today but we will try to get you answers even if we don't put it over the air.

The first one is - and I think this would be best - I'll position this to (Eric) first. Do you have any examples for creative ways that these communities have financed expansion of Broadband?

(Eric Frederick): I think that's one of the \$10,000 questions is trying to figure out how to fund efforts like this. I think in looking at creative ways it might not be so much of creating a creative funding mechanism but more along the lines of how it - what else do we have as a community to bring to the table.



Clare County is a good example where a public fiber ring was able to be used - some dark fiber on that fiber ring was able to be used to lease to a private secretary or to expand fixed wireless service in rural areas. There's another county in Michigan that's working on organizing a vertical asset inventory of agriculture assets - grain elevators and silos and so on - in a very coordinated fashion across their community to help spur development in the private sector.

So I think the creativity in expanding infrastructure isn't necessarily funding because I don't have a great answer for examples that I've seen on the purely funding side but I think it's getting creative and thinking about what else - what else can a community bring to the table if we're looking to develop a public private partnership or invest in Broadband infrastructure?

Dr. (Don Williams): Alright, well thank you (Eric). If there wasn't another comment, we have another question here. I'll direct this towards (Kelly). A lot of economic development opportunities seem to be tied to the digital divide. Are there examples of increased economic opportunity without trying to close the digital divide?

(Kelly Cole): Well that's a doozy. Economic development opportunities without closing the digital divide - well I mean I think - I mean I think it's interesting that, you know, the first presenter talked about, you know, how there's some negative impacts I guess of having the internet when you have people that maybe would do entrepreneurial activities if they had the internet but since they don't, they are staying with their company.

And so I think that there are some negatives but I think most of the things that I would say are - I would say that the internet - it helps diversify a community and I think that, you know, in areas where - especially in rural areas - you

have a lot of rural areas in the country that may be pretty focused on one particular industry.

So in Utah for example the (unintelligible) basin area is a big oil and gas area for the state but they also have a really good Broadband provider and, you know, right now they're going through some really hard times with the oil industry and, you know, having the internet there gives me comfort because there is a little bit of a diversification for the economy.

I don't know if I have a great answer to that question. I would say that it really does contribute to - the digital divide would take away from economic development efforts. I don't know how it would - how, you know, you would do that in the absence of being able to adopt and utilize the internet.

Dr. (Don Williams): So in some ways maybe it just maintains status quo?

(Kelly Cole): Well I think it can maintain the status quo but I think also, you know, the discussion earlier of, you know, it can slow down a recession essentially, you know, when we're looking at those economic numbers where the unemployment rate was going down slower in areas where you had internet access. And so I think it - I think it can serve as a cushion in some of those circumstances.

Man: (Don)?

Dr. (Don Williams): Yes, this is (Don). I mean there's some - there's some network projects where the project is really geared towards serving large scale institutions and business enterprise zones or industrial parks and those have been often fairly successful in terms of helping a local business expand and that's been true all across the country.

But those are, you know, also part and parcel of economic development projects involving Broadband, not particularly adoption related but they're adopting to the businesses that need that extra 10 gig service or something.

(Brian Whitaker): Yes, this is (Brian Whitaker). I would agree with what (Don) said. You know, most of my work is geared towards improving the digital divide but if you look at, you know, cyber networks being deployed across the country, you know, the gig network in Kansas City and places like that - they have some great examples of businesses that have started and people that have, you know, been able to improve their businesses from those dramatically high speed connections that are not necessarily focused on reducing the digital divide.

Dr. (Don Williams): Well that's right. I know Mid Atlantic Broadband got IFC International to open up a nice facility in Martinsville, Virginia. That's pretty much due to the high speed - that fiber connection to that particular facility so, yes.

(Brian Gibbons): Here's another question that we have. I'll direct this to (Brian Whitaker). I'm interested if data exists on the impact of Broadband on rural manufacturers involved in the internet of things industry 4.0 for managing their manufacturing processes in the cloud. Anyone.

(Brian Whitaker): That's a very specific question. I would say there's no, you know, existing research that I'm aware of, of someone looking at that, you know, very specific pointed question.

I know there are some people - some of my colleagues are interested in whether or not, you know, manufacturing in particular can benefit from Broadband but I don't know of any existing studies that look, you know,

specifically at internet of things and cloud usage. And again that's a very, you know, you'd almost have to have a direct survey, you know, for those particular businesses and ask them very pointed questions about their type of Broadband use and to my knowledge that just doesn't exist. So sorry but I mean I love the idea but I just don't think it's actually actively being worked on at this point.

Dr. (Don Williams): Yes. I mean I think that's right in terms of the focus of the research has to be very narrow. I do know that there are a number of advanced manufacturing plans going forward. Some of them are cluster oriented, some not and all of those are very, very dependent on super high speed connections, redundancies, zero latency. So that's - that may be some help to the question there.

(Brian Gibbons): We have another question here. This is directed to (Eric). What tools, processes, etcetera did (Eric) use to collect develop the business data sets he referenced?

(Eric Frederick): Yes, that's a great question. So the tools that we use to gather those information are part of our connected community engagement program that we operate with Connected Nation. So we have a full complement of survey instruments that are distributed in the community both online and offline to capture that information from businesses, residents and institutions of all types within the community. It's a rather labor intensive process but that's what the data came from was from on the ground survey work in the community.

(Brian Gibbons): Alright, I have a question here specifically to (Kelly). (Kelly) can you shed some light on how the Utah governor's office of economic development went about building a relationship with Bee Hive Telephone Company? Is it fair to say that success stories like the one you shared is made possible by

community leaders, state leaders and private industry sitting down and working together towards the common goal?

(Kelly Cole): Yes, absolutely. Yes, that's a great question and I would say that in Utah that's probably our core strength. We do a Broadband advisory council every other month where we sit down with industry and with any state groups that are deploying infrastructure and, you know, we do presentations that are important in those meetings but I think a lot of the importance of the meetings is conversations that people have afterwards.

And even surprisingly it's really important that providers speak to each other a lot of times because they - in some - you know, they compete but in some areas it makes sense for them to work together especially in harder to reach areas.

So for example Bee Hive Broadband - they were not deploying mobile services but they could do the wired portion to get the connection to the tower. We've seen a lot of examples where and even in that specific example, that wasn't an area that CommNet was looking at, at all and, you know, we had a rural economic development person in our office that was also shopping the idea around.

He's actually the first person that talked to CommNet but having the local community be speaking to the providers directly and having us kind of connect the dots.

I'm going to give another great example. When we did our reading - when we did our regional Broadband planning for our state Broadband initiative, we were holding meetings in another county and we had pulled in some providers. There was a cable plant that wasn't being used and we had a few

providers in the room. We had our Department of Transportation in the room talking about the issue and as a result of that meeting the Department of Transportation talked to Bee Hive actually - Bee Hive Broadband - which they were not serving that area at the time and they said, you know, we have some access in the freeway and conduit.

If you're interested in this plant, we can get you to the community at a pretty grate rate through their exchange program and Bee Hive took up the offer and so they were able to start offering services in Morgan County in Utah.

And so a lot of times we make assumptions that providers know every area that's not served and that they've already made these predetermined decisions not to serve areas and we're finding as we have these conversations that we're able to identify business opportunities that are wins for the provider and for the community.

(Brian Gibbons): Thank you (Kelly).

Dr. (Don Williams): (Kelly) I agree. Public private partnership's a great way to approach economic development generally and certainly for Broadband. You know, finally I just wanted to get a view from each of you. So if a community is going to be working towards an economic development agenda - and most everybody is - sometimes when you talk to folks that are from an economic development agency locally, you now, they want some very fast and firm metrics on what expenditures on Broadband would bring forward in terms of economic development.

And I mean certainly in many cases, you know, you can measure the impact direct, short term but in a lot of cases, you know, Broadband is acting not

really on the economy all by itself in terms of long term but in conjunction with other IT, other components of economic development approaches.

So how would you think of framing discussions with economic development folks about measuring the impact of Broadband going forward as part of an economic development plan?

(Brian Whitaker): Well I guess I'll go first. This is (Brian Whitaker) again. Again most of my research is kind of longer term based and so, you know, we have the benefit of being able to kind of just wait to see what data is available and then setup some metrics that's available from things like census data and stuff like that.

I will say I think what (Eric)'s doing with the Connected Nation approach - they have some really good metrics that they dig in at, at the local level and try to, you know, survey local businesses and local residents and so I think he can probably speak to some of those very well.

You know, from my perspective I'm interested in things like okay, what are the long, you know, kind of long term economic approaches or impacts - things like income and employment and migration and things like that but again those are, you know, long term, you know, five plus years things that you can't really measure quickly.

And so if you're, you know, an economic development agency and you're looking for some quick measures, I think some of the things that (Eric) talked about are going to be more, you know, easy to gather than trying to find this, you know, nice quick economic impact turnaround and so I would go that route and I would say, you know, the income and employment stuff is hopefully going to be there but it's going to take some time to get the actual data and you have to wait for the census to gather it and stuff like that. So I

don't think I wouldn't hang my head on, you know, being able to show a robust analysis in the short term on that.

Dr. (Don Williams): Well yes, I mean I think that's right. I mean a lot of the increases in productivity efficiencies in the supply chain not so easy to measure so quickly.

Well thank you, panelists. I really appreciate all of your effort and information you've provided. Just a couple of concluding thoughts here before we end it.

So we've been talking about economic development plans and ultimately I mean the one that's best addresses the needs of a very local and specific area. As we've found out in (VTOV) as well as Broadband USA, there really isn't a one size fits all solution when it comes to figuring out the exact plan and scale and scope of an economic development package. It's really complex and requires an awful lot of time and energy. It's going to involve state and local policy makers, private and nonprofit makers to determine what the best path forward is for economic development.

I think one thing we've learned from this webinar today is whatever that path forward is, make sure the path includes high speed Broadband. Thanks everybody for participating. I appreciate it.

(Brian Gibbons): Yes, thank you (Don) and also (Brian) (Kelly) and (Eric) for this great webinar today. I appreciate it. Thank you for your questions. We know that some questions weren't answered. We'll get them and see if we can get answers specifically back to you. A reminder that these webinars do happen the third Wednesday of every month. They won't be happening in December but picking up again on January 18th and going through September 20th of 2017.



For each webinar because they are different, registration is required. Also we're always interested in hearing from you if you've got topics, ideas for future webinars, please let us know. You can email your comments to Lynn Chadwick here at NTIA.

Also just a reminder too that Broadband USA who helped put this on and responsible for this webinar also has a website that you have up here and there's lots of great tools and whatever that you can use to further your project along or even contact us with your questions with regards to them - whatever it might be - technical assistance, whether it's on a project, if it's digital inclusion.

We've got various publications on public private partnerships, community planning. You name it. There's also - as (Don) mentioned - community connectivity initiative which is rolling along and you can take advantage of that to help, you know, create a strategy for your community.

And also there's events that we put on whether it's the webinars or other like the community connectivity monthly series. We'll have other series coming shortly too and we do make occasional appearances elsewhere around the country where you can see us in person.

I want to thank the folks who helped put this together today including (Katherine Bates) Lynn Chadwick (Brian Gibbons) whoever he is and also (Don Williams) for there again along with our panelists (Brian Whitaker) (Kelly Cole) and (Eric Frederick).

We'll be back again on January 18th two o'clock Eastern Time, Broadband Opportunity Council Accomplishments and Outlook. Thank you very much for attending this webinar. The webinar is now over. Thank you.

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