2021 Opportunity4All Essay Competition
Expanding Broadband in Rural Communities
Sponsored by – Charter Communications
Coordinated by – UF/IFAS Extension, 4-H Youth Development

Essay Topic: Opportunity4All - Expanding Broadband in Rural Communities

COVID-19 has widened the opportunity gap between kids who have access to learning resources and mentors and those who do not. National 4-H's Opportunity4All campaign aims to close the opportunity gap by providing opportunity for all kids. Now. According to the National 4-H Council's report, Beyond the Gap (2020), one inequity that highlights the growing opportunity gap is the many children in America without access to technology and broadband – particularly those of color and those who live in rural areas. However, this access is critical to academic development as distance learning is a reality.

Please discuss the impact that technology and broadband issues are having on Florida's rural and agricultural communities and what could be done to address these issues in relation to innovation, jobs, education and staying connected.

This contest had a total of 42 entries from 27 counties across Florida. The research and writing that these 4-H members took on within two weeks is astounding. While you will be hearing the top three during the Real Rural Tech Talk, we wanted to make sure all the work for this competition was recognized. By clicking on the names below, you will be taken to that essay within this document.

Opportunity4All- Expanding Broadband in Rural Communities Essay

By Alex Joseph

Did you know in America; the internet is not available in many areas for more than a century. There have not been a lot of technology as good as the internet which has really change the way we work, live, play, and learn. It has made us to turn over in the mind and reflect upon commerce and change how we do our jobs. It also keeps us together. It keeps family connected to their loved ones for instance, if you are overseas and want to get in contact with your love ones, the internet gives you the resources to do that. The internet also gives you the knowledge for students to complete their homework and it also give students the power to do virtual school since the pandemic has occurred. Social media has helped a lot of young people connect for instance, through Instagram, Myspace, Facebook, Snap Chat, and Kik for students to get help from almost anywhere in the world. We can thank the cable industry for providing 290 billion Americans a nationwide infrastructure of robust high-speed broadband network that the internet now reaches about 95% of American homes. Even though with all of these benefits that the internet brings, it underscores the need to connect those communities without access to broadband commonly referred to us as closing the digital divide.

Nearly 10% of Americans, mostly in rural communities are still not connected to the internet. At a time when 81% of people report being online daily it can be hard to fathom a life without internet connectivity at all. Studies stated that the cable industry was founded as service that used wires to connect rural communities to broadcast TV signals which couldn't travel far enough through the air. Those same cable providers have deployed broadband networks in rural communities, working side-by-side with community members and policy leaders to help shrink the digital divide. The United States have more than a few rural development committees. For

instance, Alabama authorizes the placement construction, installation, operation, and use of broadband and other advance communication capabilities within electric easements by electric providers. It authorizes electric to engage in providing broadband services through advanced communications capabilities within electric easement. Also, in California, broadband legislation authorizes an electric utility to install and maintain above ground broadband internet service infrastructure for internet use for external use in providing broadband internet service or for the lease of any excess capacity to a broadband internet service provider. Just know that there is so much more involved with the U.S. States with broadband legislation. Florida can copy what other states have and is doing to help bridge the gap of proving broadband internet services to its rural communities.

Did you know that 53% of US districts are rural? It is true that fifty-three percent of US districts are rural. However, studies states that rural education faces unique challenges such as limited resources, a constrained on tax based and demographic shifts. The rural population is decreasing, aging, and migrating, and as a result, these communities present unique challenges in providing quality education with limited resources. This lack of access means rural residents are more likely to have lower educational attainment. National education challenges, such as broadband access and shortages are further amplified in rural communities. The NCSL report expanding broadband access for all learner's access in the classroom, outlines state policy actions and summarizes that policy consideration. The NCSL legislation tackling teachers and principal shortage in rural areas discusses the workforce recruitment and retention challenges facing rural schools and how state policy makers can address these issues.

Another issues of the residents in rural counties is the difficult access to health care services. Those living in rural counties are more likely to be uninsured and live within a health

professional shortage area and experience a local hospital closure. In addition to the scarcity of primary care providers and services in rural areas, the people who live there often lack access to mental health and other behavioral health services, long-term care options for seniors, emergency medical services, and other essential services. To reduce insufficient ways and to improve services for rural residents, state legislature seeks innovative ways to address health workforce shortage and to better coordinate care. The NCLS has provided a solution to ensure rural residents a way to receive critical health services by offering telehealth services that will improve access to care for patients. However, internet services and providers are needed in the rural communities in order for this to happen.

The agriculture, including food fiber fuel and other bio based products has been an important economic and social driver in rural communities. Producers distributors, processors and retailers all play a role in the food system to get agricultural products from farm to tables in both domestic and international markets. State law makers consider policy issues related to farmland preservation, food safety, and labeling and innovative crop that regulate the use or pesticides and natural resources and support the next generation of farmers.

However, if there are no funds available these things cannot happen. Therefore, communities are call to action to help prove an effective method of expanding broadband access to rural areas so that school, healthcare, and agricultures can have internet services that will help the community. In Florida, communities can come together to assess and identify their needs from home and household connection to business that could benefit from broadband access. By doing this with everyone in mind, rather than advocating as an individual. The community can prove the needed volume of subscribers exist to make a strong business cause the encouragement

for companies to invest in connecting in the area to provide these services. When we all work together, we can make changes that can provide services to all of the people in Florida.

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Bridging the Digital Divide in Florida's Rural Communities

By: Alex Pisacane

Access to technology and broadband greatly impact Florida's rural and agricultural communities in relation to digital equity, innovation, jobs, education and staying connected. Over 20 million Americans do not have broadband or high speed internet access and most of them live in rural communities. Many children in America don't have access to technology and broadband. This access is critical to academics and development as distance learning is a reality now and into the future. This is causing a digital divide between people living in cities and people living in rural areas.

Increased broadband access to rural areas in Florida can help by providing enriched educational opportunities, job and social opportunities. Due to Covid-19 the need for digital equity and connectivity across Florida in all geographic locations and across all walks of life is now more important than ever. Many meetings take place on Zoom, children have the need to have computers and to be online for educational classes, adults need it for work, and everyone needs it for social interaction between friends and family. Those in rural and agricultural communities that have poor connectivity or no connectivity are at a disadvantage and have less opportunities, which is causing academic and financial hardships. They also

have less communication with the outside world. These are all great reasons why it's so important to get good broadband or satellite WiFi in all areas of Florida. This is especially meaningful to me because my family homeschools, so I've seen first-hand how not having a computer or access to internet could impact kids and family even before COVID-19. My family has had to share computers and up until recently we only had a Verizon jet pack hot spot for all of our internet needs. This was hard at times because only a few devices could be connected at one time, it was slower speed, and some plans had limitations on streaming and data so it limited what we could do online and when we could do it.

I interviewed my mom, who is a small business owner and a home educator. She needs internet access to build and maintain her website, for marketing and social media, and for communication with customers and business contacts. I asked her how limited internet access would affect her business. She has a traveling boutique that she takes to farmers markets in rural areas. She said that she needs internet connection in order to process credit card payments from customers. There have been times where she didn't have internet connection or the connection was spotty and she could only accept cash. If her customers didn't have cash, she lost sales.

There are also many farmers in agricultural areas in Florida that are affected. Not having high-speed internet hurts innovation and growth in agriculture and farming. 60% of U.S. farmers say they do not have enough connectivity to run their businesses. There is a lot of new technology in the farming industry that requires WiFi access. There are computers in the new tractors and there is even an app that counts the grain in the combine tank. Farmers can't use this new technology to help grow their business and help meet agricultural needs without WiFi for the computers in new farming equipment.

Internet has become a basic, necessary right in today's digital world. I think that satellite internet is the way of the future. I read an article about Elon Musk's new SpaceX satellite internet pilot program where he is providing satellite internet in areas such as rural and agricultural that may not have access to broadband. SpaceX's Starlink is now available on beta testing and already has over 10,000 users. This could help people in rural communities in Florida because they can get this service and use it for many things like education, jobs, agriculture and staying connected.

The digital divide is a big problem and I don't think there is one simple solution. I think it will be a hybrid solution of several different things that can be done to help those gain

affordable, high speed internet in rural and agricultural areas. That includes innovative satellite internet, grants from the government and partnerships and sponsorships from existing broadband companies such as Spectrum, Verizon or even Xfinity. Florida state senate created a grant to help get broadband in rural areas, but it may take a decade to roll out. How can we help speed up the proecess? I think it will be a good idea to contact Florida legislators as part of a 4-H outreach project and let them know that people in agricultural areas can't wait that long. People in rural Florida need affordable and fast internet for education, jobs, to run small businesses, to pay bills, stay connected to friends and family, and also for healthcare since telemedicine is now a big focus since COVID. We can also write to the broadband companies to see if we can get sponsorships and partnership programs to help reduce costs to rural residents and contact Elon Musk's Starlink satellite mission to see if they can pilot a program in Florida rural areas.

A great example of a successful grassroots internet program is a city in Florida named Wilmauma that started a hotspot project. A local mom in that town contacted a local WiFi company. They put a tower at Reddick Elementary School, Wilmauma Church of God and Bethune Park. If our 4-H youth groups across

Florida could partner with a company such as Spectrum, Verizon and Xfinity, I think we could successfully create more broadband connectivity and WiFi hotspots while also trying to get grants, sponsorships and fundraising to help create digital equity, innovation, jobs, education and to stay connected. We need to help enrich the lives of those in rural areas in need of digital equality for a better quality of life.

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Technology in Rural Communities by Anastasia Stefanko

Today. I'm writing an informative essay. In this essay, I will talk to you about how technology is slow in rural areas, the lack of internet access in rural areas, and broadband issues.

First, technology is slow in rural areas. According to the Why is Rural Internet So Bad article, it states "'Rural internet life problems: Speed was slowed down by satellite service because we hit data cap. New billing cycle started today to bring back speed. It's pouring rain and messing with the service. Currently, toggling between phone tethering and satellite when rain slows.' -Elizabeth Stephens (@lizziec22) March 19, 2020" (paragraph 7). When people hit the data cap, the internet slows down and takes forever to upload stuff. When you usually send a message and it says "Message Failed to Send", you ask yourself "Why won't my message send?". If you are calling your friends or family and you are suddenly not able to hear them anymore because the satellite service is down and not working anymore and you ask "Hello? Why isn't anything working?". Well, people that have satellite service down are feeling the same way.

Next, technology is slow in rural areas. According to the Eighth Broadband Progress Report article, it states "In rural areas, nearly one-fourth of the population-14.5 million people-lack access to this service. In tribal areas, nearly one- third of the population lacks access. Even in areas where broadband is available, approximately 100 million Americans still do not subscribe." (paragraph 5). When you have no access to service, you can't really do anything at all. People without access service might be saying "I wish I had access to service so I can text and call people easier.". According to the Why is Rural Internet So Bad article, it states "There aren't enough potential customers in rural areas to entice Internet Service Providers (ISPs) to invest in building those networks. Even when rural customers do reach out to ISPs. they offer them cellular options such as LTE Sticks and MiFi, which usually means limited data at higher prices." (paragraph 14). If items were at a higher price, we would be like "No, I'm not paying for this. This is too much money". If we don't have customers for the Internet Service Providers (ISPs), next thing you know, all the businesses go out of business and we won't have anything to get. We won't be able to buy fruits, vegetables, cotton, tree nuts, drinks (water,

gatorade, ect.), kitchen supplies, new bed sheets, new clothes, ect. The only thing that you have is local and school libraries.

  Finally, broadband issues. According to the Understanding the Rural Broadband article, it states " Internet usage is common at college, where campus and departmental news and information, calendars, classwork, grades, etc. are all online, and emailing professors is just as common as office hours. Kindergarten through 12 grade education is likewise increasingly online, from online classwork and assignments to correspondence with teachers and grades. Since jobs are increasingly high tech, an understanding of computers and the Internet as well as coding are fundamental and should be required for students to learn before graduating from high school." (page 5). Students need to do education in person and interact with other students. Plus, how do you know that the students are paying attention? Is it because they can't go to school to talk to friends? Probably. According to the Understanding the Rural Broadband Problem article, it also states "Challenges also exist when consumers attempt to access healthcare services in rural areas. In urban areas, physical access to quality healthcare is taken for granted as urgent care clinics, doctors' offices, and hospitals are numerous and transportation options such as walking, public transits, taxis, and Uber around. Specialists, likewise, are more commonly available in urban areas. In comparison to rural areas, clinics and hospitals can be an hour or more away with primary care doctors and specialists many hours away. Not only is lack of healthcare access life-threatening in emergency situations, but it can also be dangerous for normally treatable conditions."(page 6). Patients who need to see a doctor in person have to see them on screen because they can't see them in person. If people need to go to a therapist to get over their fear of an animal, how are they supposed to do that if they are seeing each other on a screen? Exactly, they can't because it's probably impossible to get over the fear of an animal over a screen.

  In conclusion, these are all of my reasons for how technology is slow in rural areas, there is the lack of internet access in rural areas, and many broadband issues can impact Florida's rural and agricultural communities.

Tech of the Times

By Andrew Mashack

The introduction of the World Wide Web in 1992 changed the world. People could use the internet for many different purposes, including classes, videos and even politics. Prior to the internet people had to communicate with each other via postal letter, fax or wired phones. When the internet first came out, it was very slow. People had to use dial up, the first kind of internet, which used a telephone line. These methods are much slower and less versatile. High-speed broadband internet is speedy and flexible and can be utilized in many different ways.

Broadband is the electronic transmission of high-speed internet data. The amount of data that is transmitted electronically is called bandwidth. Everybody uses broadband technology including farmers, businesses, and students. It is used for all kinds of things; some of them include crop monitoring, communication, work, and research. This technology is used on all kinds of hardware including phones, computers, tablets and even tractors.

Broadband technology has many issues and barriers. For example, sometimes the connection is not available, especially in rural areas. Many customers in rural areas are underserved because internet service providers (ISP) don't think there are enough customers in those areas to be profitable. Sometimes costs can be prohibitive. The purchases of hardware and software, as well as technology upgrades prevent many people from accessing the internet and keeping the technology current.

I spoke to my Grandmother, Julie Armbrust, regarding the importance of broadband technology to local farmers. As a former employee of the U.S. Chamber of Commerce,

Washington, D.C. she had a lot of contact with farmers. She said, "They depended heavily on the internet to determine which crops to plant each season based on the commodity prices. They also use broadband technology for drone use to monitor the crop conditions across thousands of acres. This resulted in considerable cost savings in fuel and labor." Farmers utilize broadband when communicating with customers and to monitor commodity markets and other markets. They can also use it to find new markets.

I interviewed Mrs. Musser, a farmer and teacher in the rural Central School District of Milton, Florida. She said in her farm business that she utilized the internet for ordering supplies, contacting customers, and advertising. As a teacher, she uses technology to teach students and other teachers, record grades, and write lesson plans. She said, "The weather makes satellite internet connections sporadic and unable to use unlimited data, while fiber optic would improve reliability and bandwidth". She mentioned that if a student has Covid-19 they are required to quarantine for 10-15 days. Some students do not have internet connection and therefore fall behind on their studies. During the past school year, technology has proven to be more vital than ever before.

I also interviewed Ms. Mary Galarza, an employee at the Milton, Florida library. She indicated that everyone should have access to the internet, and while access at the local library was good, in nearby rural areas there was limited connectivity. She thought more providers and towers would improve the access in these areas. Ms. Galarza also informed me that storms were a frequent problem that caused many outages.

In a recent article "Rural Disconnect" from the Pensacola News Journal, Ryan Jenkins, who co-owns Jenkins Farms in the Jay area of Santa Rosa County, said he sometimes has to

drive thirty miles to get an internet connection so he can reprogram his tractor. He said in the area where he lives tech-savvy operations are not supported and he is unable to implement new farming technologies.

The article went on to describe technology issues in the rural school districts. The Summer Payne family who live in a rural part of Escambia County have problems staying connecting to the internet. Because of Covid-19 their children need to access the internet to attend online classes, however they are limited to 100 gigabytes of data per month, which is used up in approximately ten days. They said, "After a day or two of trying to do school at home, it's just horrible and we have to hotspot from our phones." Santa Rosa county School district Superintendent, Karen Barber said, "We need access to high-quality educational opportunities for all of our students and we need to make sure that students in our rural areas have access to the same opportunities as all other students do." The Covid-19 pandemic has highlighted many technology challenges. Research studies are being conducted which indicated that fifty- percent of the land areas in Escambia County do not have broadband connections. Tom Ingram, IT department head of the Escambia County School District, estimated that seven-thousand students in the district are remotely working from home. The district is helping students without connectivity by providing district-provided hotspots. According to the article, officials in both Escambia and Santa Rosa counties are considering the possibility of providing their own bandwidth networks to their rural communities and are commissioning studies to determine the feasibility.

There are approximately 22.2 million people in Florida and it is the fourteenth most connected state. Florida has 33 providers with an average download speed of 12 mbps per device. Areas with more dense population, like cities, usually have a greater number of high-

speed internet providers and/or options available. Higher speed connections are costly, especially in rural locations. Bandwidth might be limited by the area you live in and how much you can afford to pay for faster connections. Cost-sharing might be a good way for rural towns and communities to access the internet at an affordable cost. Cost-sharing is where a geographically close community of people can purchase an antenna and install it and then internet connections can be linked to the antenna without any additional costs to the townspeople.

This year the Covid-19 Pandemic highlighted how important the internet is for online businesses, shopping, remote learning, and working from home. Without the internet these things would be nearly impossible. While those in rural areas, like Ryan Jenkins and the Payne family, have had limited access to broadband technology for many years communities are beginning to work together to help get broadband internet in rural areas.

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Broadband and Technology in Florida's Rural and Agricultural Areas
By: Aubrey Cook

In today's digital society, broadband and technology have become key components to success. Many people in Florida's rural and agricultural areas are lacking many of the opportunities technology and broadband have to offer. It is the responsibility of Florida's technology and broadband-filled communities to help these struggling rural and agricultural areas to obtain the items they need to flourish.

Technology and broadband are very important to Florida's economy. This state's economy revolves around tourism, its biggest industry. Florida's tourism starts at it's beaches, but as people move deeper they can see that this industry revolves around technology. Florida's major cities and tourist attractions are lucky enough to have an overwhelming supply of broadband services and technology, but a lot of Florida's citizens in it's rural and agricultural areas have run out of this luck.

Technology and broadband are not just a source of entertainment, but also a way to do school and work. Having technology, and the broadband to support it, would help improve Florida's agricultural industry. Florida's agricultural industry already has simple technology like milking machines, tractors, and the simple computer, but what about all the work needed to pick fruit and vegetables by hand? Leveraging technology can help improve efficiency and help the hard workers in the agricultural communities. Also, people living in the rural areas of Florida are lacking in technology or the broadband to support its community. These people are lacking in the benefits of doing work and school at home, which can lead to unsafe conditions during the Covid-19 pandemic. In today's world it is hard to imagine not having a computer, or the broadband to keep you

connected on a zoom call, but these are the problems that people in Florida's rural and agricultural areas face every day.

Florida's agricultural and rural areas are missing out on the opportunities broadband and technology have to offer. This is due to the fact that these things are scarce or non-existent in those communities. Statistics have shown that many of these areas are underserved (10-24.99 Megabytes per second) or unserved (1-9.99 Megabytes per second) in broadband and are lacking in the technology necessary for success in things like online business and schooling. More than 56% of people in rural and agricultural areas have no broadband access. Transmission speeds for broadband services tend to be slower in rural areas, making it harder to work with technology. The agricultural industry can be greatly affected by the lack of technology because it will not be able to keep up or work with other industries. In all of Florida, more than 10% of people go without broadband and technology, most of which include rural and agricultural areas. Florida's rural and agricultural areas are faced with these broadband and technology challenges on a daily basis, and we must find ways to overcome these obstacles.

Florida can be proud of what its people have done to help close the digital divide and provide equal broadband and technology services to people in rural and agricultural areas. Small services have been provided to help spread awareness of the broadband and technology issues that face Florida's population today. The Florida Office of Broadband has held workshops to communicate these issues. This allows citizens to help solve the challenges that people in rural and agricultural areas face every day. The Federal Communications Commission made it their priority, through the Rural Digital

Opportunity Fund (RDOF), to help raise money in order to provide technology to those in need. In addition, Donate Computer Florida has asked citizens to donate computers to those in rural and agricultural areas. These initiatives have helped improve the digital life of many people living in Florida's rural and agricultural areas.

Florida has done many good things to protect the interest of broadband and technology for those living in rural and agricultural areas, but we can still do more. Signs advertising the need for books, pencils, and other supplies are seen all over Florida, but the need for technology and broadband services are just as important to people in rural and agricultural communities. Workshops can be held to raise awareness of the lack of technology and broadband in these communities. This can be done through signs, commercials, and advertisements. According to NCTA- Internet & TV, broadband services can be brought to rural areas in 4 easy ways. "Public to private partnerships", the first way, will help make the process of gaining broadband more of a one-on-one experience, where the attention is focused on one customer instead of many. The second way, "Community Calls to Action" suggests that as a community people living in the rural areas of Florida can get more done together, assessing their broadband needs collectively instead of handling it individually. Another one of the four points is "Fixed Wireless", which addresses the problem of having technology with no broadband service. Without broadband service technology is useless, so the improvement of wireless technology will help fix this problem. The final point "Improved Broadband Mapping" tells readers that without knowing where the problem of lack of broadband is, then there is no way to fix it. This point suggests that we need to improve our broadband mapping, so we can identify the rural and agricultural communities that have

been provided with broadband services and those who still need it. Those ideas could help Florida to provide equal technology and broadband services to those who need it in rural and agricultural areas.

Broadband and technology are key components in Florida's society. It is disturbing to know that those living in rural and agricultural areas are lacking in broadband and technology. Florida's people should be very proud of all the wonderful work they have done to support these people who have minimal or no broadband and technology. There is definitely more to be done, that Florida's citizens can and will accomplish in the future. Hopefully one day broadband services and technology will be available to all people in Florida.

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Opportunity For All - Equitable Broadband Internet Access
By: Breighton Reed

This year, as 4-H focuses on an opportunity for all and equitable distribution of 4-H

programming, members are recognizing that not all youth and communities have equitable

access to educational and support networks. Social distancing from COVID-19 has forced a

higher dependence on fast, reliable, affordable internet access for large swatches of daily life

including online education, healthcare, vaccine appointments, and just staying in touch with

friends and family. Wide spread online learning at the K-12 level wasn't the norm a year ago

and its success is predicated on access to broadband internet. However, rural and lower-income

communities often lack these technologies. This immediately puts rural, struggling communities

at a major disadvantage in youth education as well as access to the digital tools vital for not just

the present, but the future. It is critical to understand why this gap exists, understand those

groups impacted, and propose solutions that can help close this gap of broadband access in rural

and lower-income communities.

The gap generally arises from corporate profit and loss concerns, community economic

limitations, or resulting customer affordability. Many internet companies cannot provide

profitable service to rural areas, as the price of making broadband internet available exceeds

potential revenue. "Federal grants are really the only way small rural phone companies can run

the fiber cables in rural areas for broadband and expect a return on their investment. Without

federal support, these companies are not likely to invest in these improvements" (Quinn, 2020).

The Federal Communications Commission recently awarded a grant for "$191 million to Florida

internet providers to expand their infrastructure to pockets of rural Florida" (Wilson, 2020). This

will eventually help bridge the gap slightly. If private corporations cannot provide profitable

service, an alternative would be to consider a publicly funded option. Teach for America indicated that, "The costs of laying down cable and fiber in the expansive and often rugged terrain of many rural regions are often too prohibitive for communities struggling with economic hardship" (Fregni, 2020). Many rural communities cannot afford the cost of higher speed internet due to these installation costs, leaving a gap in availability of high-speed internet. Lastly, the monthly recurring cost can be a factor - regardless of geographic locality. "High monthly costs are a limiting factor to broadband subscriptions, followed by the cost of a digital device. … Low-income Americans participate in a cycle of 'un-adoption,' in which they adopt broadband connectivity at home, and then drop it for financial or other reasons, only to re-subscribe again when conditions warrant" (Reddick, et al., 2020). At a nationwide level, a study by Michigan State University found "only 47% of students who live in rural areas have high-speed Internet access at home compared to 77% of those in suburban areas." ("Poor internet", 2020). Florida does seem to be better positioned according to BroadbandNow who rank Florida as the 5th best state for broadband access with broadband service meeting FCC's definition of 25Mbps download and 3Mbps upload speeds offered to 96.8% of Floridians. However, only 59.8% of Floridians live someplace offering broadband for less than $60/month ("Internet access", 2021). While slightly dated, the Florida Legislature Office of Economic and Demographic Research indicated 24.1% of children are living in poverty in Florida ("Florida's Families", 2016). It is reasonable to assume, lacking other evidence, that many of those families would be unable to afford $60/month broadband access, let alone costs for the technologies that use broadband, and combined with corporate viability concerns and lack of community funding a gap exists in broadband internet access.

The lack of affordable rural broadband internet impacts many groups, including students, educators, and workers. Students suffer as they must resort to creative means "mobile hotspots, the Wi-Fi at Subway, or visiting friends who live on the edges of the county and receive fast cable internet access - all in order to do homework" (Fregni, 2020). Educators without broadband are unable to do their job. Online 4-H extension programs require use of MS Teams or Zoom and without broadband, effective participation is a challenge to both students and volunteers. Workers may not be able to work-from-home without broadband. From a population health perspective, rural locations typically suffer from limited health care resources - something telemedicine can promise to fix - yet without broadband telemedicine is of limited functionality.

This issue has viable solutions. The simplest and quickest is to offer free wireless internet at locations such as libraries, houses of worship, community centers, or local restaurants, much like Spectrum did with offering youth impacted by COVID-19 free wifi in early 2020 ("Spectrum", 2020). This solution offers additional benefits as many of the users may purchase products, increasing the economy, or become more active members of the social or religious community. Another solution is working with internet companies to develop equitable incentives for better coverage in rural and underserved areas. Failing sufficient results, grants can be given for the hardest to reach areas. A very unique, although complicated and potentially costly approach, is creating a broadband internet provider for a town as done when Galen Manners started a wireless network in the town of Parsons, Kansas to provide his community fast internet (Reardon, 2018).

In order to equitably reach the goal of opportunity for all, it is critical that efforts are made to close existing gaps in access to broadband internet for rural and underserved communities

without loosing sight that "availability of broadband" is just one aspect of the overarching problem and a comprehensive solution must address availability of the end-point computers. Internet providers need to work with government agencies and local communities to remediate these access gaps. By offering equal access for all, at reasonable costs, internet providers are investing in the future of our communities by ensuring that all youth have a chance to excel in our fast paced digital world, especially during a pandemic that is pushing people to rely on broadband.

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Opportunity4All Essay

"Expanding Broadband in Rural Communities"

By: Carol Dougherty

In this day and age, technology is one of the most essential parts of our daily life. Whether it be in the form of buying groceries, keeping in touch with our distant family, or even furthering our education, it is hard to function without the aid of the internet. The need for fast-speed internet has skyrocketed in the past 20 years and without some form of internet, it would be impossible to be a functioning member of society. Although most of the United States has access to the internet, many of Florida's rural areas do not have the resources to gain this access. Rural communities in Florida often lie out of bounds in the broadband spectrum. Internet providers typically cater to the needs of population-dense areas and without proper internet access, rural communities are often left out of the modernization that urban communities see. There are many drawbacks to lacking the internet and there are valid options that can be implemented to address this need.

Oftentimes in Florida's rural communities, it's common to find large family farms with multiple generations living there. The older generations are typically out-of-the-loop when it comes to modern technology, creating a sense of digital inequality. This can be due to a lack of broadband access resulting from internet providers' terms of service. According to a paper written by the C Spire Rural Broadband Consortium (2017), "The cost to serve each customer increases as customer density decreases.". So, if a household from a less densely populated area were to ask for internet services in their area, it would cost much more than if it was a higher density area. The reason behind this price difference is the cost to set up the internet. For example, say that an urban neighborhood of 50 households was to be served the internet; The

return on investment for the internet provider would be relatively high since there are many households in a smaller area. The cost to set up internet lines, receivers, poles, etc. is low since it is confined within a smaller area. In comparison, if a rural community of about 10 households asks for service, the cost will differ greatly. Since the rural community is spanned across a larger amount of land, it will require a great deal of resources to make it possible for the company to provide them with the services. Ultimately, yes, the rural community can receive internet from the company, but it will be so much more expensive than the urban community. C Spire says that rural communities may pay as much as 10 times more than urban communities. It is not as if the companies wish to do this to the rural communities explicitly, but the cost to bring it to them is so much more costly and labor-intensive than for urban communities.

Some of the most vital functions of human life rely on the modern internet; however, many people in rural environments are from older generations. As pointed out earlier, these generations are often left out of the broadband range. According to the American Farm Bureau Federation, "Current and future generations of rural Americans will be left behind their fellow citizens if they are without affordable high-speed broadband service that enables them to tap into health care and educational services, government agencies, and new business opportunities.". Without the necessary broadband, people of rural communities will be left behind and not be able to reap the benefits of our modern civilization. Things such as applying for jobs have largely been moved to online formatting. Without proper broadband connections, Florida's rural communities with ever growing populations will be left out of touch with a lack of new jobs for this population. Digital technologies also pave the way to the new innovations that carry our society on. Many of the urban environments are enriched in the digital technology field and create astounding innovations. However, in the rural communities, the citizens lack access to

proper internet, and this causes them to be isolated from creating and utilizing new technologies and innovations. There are some farming businesses that have implemented new modernized techniques to their cultivation of produce, this is called precision agriculture. In this new way of farming, farmers have the ability to record their yields, test their soil, monitor their crops, and a variety of other amazing revolutions. Unfortunately, many of the farmers need accessibility of broadband to adhere to the demands of precision agriculture.

There are few solutions that have appeared over the years to try and solve this issue but the ones that have appeared seem very solid. One of the most practical and impactful is making a public-private partnership as pointed out in an article by the Broadband Infrastructure Office of NCDIT (North Carolina Department of Information Technology). Instead of having individual people pay for the internet services, the people of the rural community can explain their needs and petitions to the county or district. Since people of the rural community are vital to the infrastructure in a multitude of ways, usually the county/district will recognize their needs as necessary. Once these needs are recognized, the county/district can ask for a partnership with a broadband service and in exchange for the broadband service, the county can offer them the resources that the rural communities, county, or district have to offer. This way, both sides of the partnership are benefitting in this mutual relationship. As a result of the Public-Private Partnership, the rural and agricultural communities in Florida can benefit from the new high-speed broadband that the private company has offered. In this, the utilization of modern technologies can lead to new techniques of precision agriculture to accommodate the ever-growing population of the state of Florida. Therefore, it is vital to continue to keep expanding our broadband limits, to keep moving forward in our march to future modernization.

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Broadband is Essential for Rural Florida
By Carolyn Wolking

Lack of technology and broadband in rural and agricultural areas affects everyone, especially children in those communities. The "digital divide" refers to the difference between people with and those without technology and broadband capabilities. A staggering 44% of Americans do not have at-home broadband services and 46% do not own computers. Especially since COVID-19 forced children to do online school, the "achievement gap" has become an "opportunity gap" in which students in rural areas are disadvantaged because poor broadband makes connection and participation challenging.

The opportunity gap created by the digital divide might be called a "connectivity gap" instead. It is, in part, tied to one's race, ethnicity, socio-economic status, and zip code. According to the Pew Research Center, "As of 2017, 75% of urban homes had broadband access compared to just 63% of rural homes, and 70% of Whites had access compared to 66% of Blacks and 61% of Hispanics." The greatest disparity in these statistics is between urban and rural homes and it seems clear that rural and agricultural community members will continue to fall behind their urban counterparts without similar access to technology and broadband. This has a huge impact on the financial well-being of rural families. Children struggling to use the internet at home, even if simply trying to complete homework after the pandemic is over, will be less competitive than those with easy access to reliable broadband.

Young people need to feel safe, not just physically safe, but also emotionally and psychologically safe. Dr. Derald Wing Sue and others have written about what happens when safety is lacking for students, "[they] invoke defense mechanisms that monopolize the students'

cognitive energy. Thus, they spend much of their energy coping rather than learning." Everyone who lives in a rural community has experienced missing something on a Zoom or Microsoft Teams meeting since the pandemic began. It's anxiety-producing, like being consistently late to class and missing the teacher's instructions. When this happens day after day in rural communities, students aren't able to focus their cognitive energy and thus don't have the opportunity to do well in school. This means that they might not earn the grades needed to go college, or may go to a college that won't give them the earning potential that they would have at a better school. This will result in a widening gap between youth with the advantages of reliable broadband and youth without, affecting family dynamics and even the health of family members.

What can be done to address this disparate impact? Any solution should seek to provide everyone the opportunity to realize the promises in our Declaration of Independence, that "all men are created equal, that they are endowed by their Creator with certain unalienable Rights, that among these are Life, Liberty and the pursuit of Happiness." A three-pronged approach is proposed here, which includes: 1. high-speed access for everyone; 2. investment; and 3. private-government innovation partnership.

High-speed access means universal 50 mbps (megabits per second) download and 10 mbps upload speeds for both urban and rural communities. But since broadband infrastructure projects are vastly different, depending on whether you're in the Silicon Valley or in Okeechobee County, a one-size-fits-all approach won't work. In addition, infrastructure must be affordable and must meet the needs of different users. A variety of technologies such as low-orbit satellites and fixed wireless should be explored, taking into account both current needs and preparing for the future.

Investment in universal connectivity is critical. Creating a Broadband Capital Fund to support broadband projects in rural and agricultural areas will encourage innovation and exploration of existing and new technologies. Infrastructure in rural areas is not easy since traditional laying of cable or fiber isn't realistic. Whether by satellite or cell tower, exploring creative options for innovation is vital, as is the effective investment in these projects. Open-access, where citizens with creative ideas can participate in coming up with solutions, makes sense, much like was done after the Macondo oil spill where stake-holders from all along the Gulf Coast participated in efforts to mitigate damage and prevent future damage to our coast.

Addressing the connectivity gap will require innovative partnerships between internet service providers, government leaders at local and state levels, private enterprise and other stakeholders. Working together to engage the private sector, non-profit organizations, and government will help to support investment in attaining reliable broadband for all.

It will take a coordinated and strategic effort to ensure that rural and agricultural areas are as connected as urban communities, but leveraging tools and funding in this endeavor will ensure full participation in the global economy and society, especially for young people in rural areas. Those who live in these areas and work in agriculture have shown time and time again that they are resilient. Creating reliable broadband will honor that resilience and make us stronger together.

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ESSAY BY: CHARLES-ANTHONY MITCHELL

You most likely heard of a thing called internet. Most people do not really use it except to browse Facebook and watch YouTube, but thanks to the coronavirus, we need it more than ever. Now kids need it to go to school and small businesses need it to grow bigger. However, access to the internet is not equal in all areas, especially in rural and agricultural communities, due to lack of infrastructure and affordable options. These people are at a high risk of being left behind regarding education, jobs, innovation, and staying connected.

It is a reality that students today are learning more and more outside of the regular classroom. What if those students do not have the money to afford internet or a computer? "The impact that technology and broadband can have on rural and agricultural communities is huge," says Dion Link, owner of Link's Family Farm. "Some kids and adults in rural areas don't have the proper internet service nor access to participate or enroll on classes to further their education. (Link, 2021)" I have been affected by this myself multiple times in the last year. At the beginning of the school year, my parents did not allow me to attend school in person. I worked with my teacher online using Zoom and Schoology. It was a big adjustment for everyone. Many of my classmates had issues with their computers, and it affected our ability to stay focused. Maybe some of my classmates lived in more rural areas.

When I grow up, I want to be a computer engineer. That would be impossible without access to technology and the internet. For state and local politicians, widespread technology adoption in all areas is a top priority. Florida State Representative Melony Bell says, "Adequate broadband increases economic growth and educational opportunities. Inadequate broadband is a disadvantage to agricultural communities, without new funding streams and increased subsidies to states, rural communities face extremely high barriers. (Bell, 2021)" We all want our future communities to thrive and equip the students of today for the opportunities of tomorrow. Sometimes I imagine what my future life would be if I had no access to technology. Maybe my only option would be to work a manual labor type job. I discussed the future possibility of this for many kids with Jonathan White, owner of White's Family Orchards. "For children growing up in this environment, it creates an educational disparity due to the lack of opportunities available to them. Most of the jobs in the next 30 to 40 years require skills outside of the traditional blue-collar jobs usually employing rural workers. And many of the blue-collar jobs will be vastly different as the rate of technology advancement increases. The

students who do not have a digital skill set will be left behind or completely alienated in the future economy. (White, 2021)"

In many countries – even among some of the world's largest economies – there is a gap in Internet adoption between rural and urban areas. Restricting internet away from rural areas stops the ability for innovative ideas to start. The reason we ever needed internet was to connect with each other better. "Good broadband technology has become as important in the rural farms as in the cities. High tech has become normal for farmers to run their tractors and irrigation among other things, says Robert Bell, owner of Bell Apiaries. "They spend money on equipment that has this technology and are unable to use them because of poor broadband reception. This technology is just as important in rural America. (Bell R. , 2021)" Imagine if a future farmer creates an app that dramatically improved their industry. There are so many possibilities when you give someone the tools to thrive in a digital world.

Some kids in still need to go to online school due to the pandemic. Kids and their families require internet and technology access no matter where they live. For example, I could not complete this project without a computer and broadband internet provided by my parents. It is not fair that people who live in rural areas may not get to connect with each other.

A lot of positive things happen when rural and agricultural communities have access to the internet. Oftentimes hospitals and colleges are not located in rural areas, and access to these resources close to home is valuable. Community centers and libraries are popular for rural areas because there is high speed internet and access to resources. Rural businesses can grow their local customer base to a national or international market. Farmers gain access to information such as crop prices or weather forecasts, and marketing opportunities through high-speed networks (Speed Matters, n.d.).

The internet is especially important, because it can get us to do things that we could only dream of years before. We have talked about the challenges and issues, but how can we improve things moving forward? It is a challenge that is already being addressed across the country at the state and local level. Valencia Gunder, a community activist in

International Agricultural Business agrees… "The best solution I could think of is to get the local government to collaborate working together to ensure rural areas have the internet tools it needs." She continues. "Expanding broad band internet is critical to agricultural communities. Recognizing the need to do more, local, state and federal legislators are aware of the need to increase funding to expand broadband services due to students not having access in rural communities. (Gunder, 2021)" Based on the experts I spoke with, it will take a team effort for sure.

The people in rural communities are strong and persistent. Once the programs are put in place, I am confident that once they are educated on the opportunities, they will come together and make it happen. I am excited to live in a world where all rural and agriculture citizens have reasonable access to the Internet, such as local libraries or in-home options.

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Broadband is Necessary in Rural Areas
By: Colton Sklarek

"Florida, the sunshine state, is the warmest of all American states with an average daily temperature of 70.7°F" (Weather Atlas, n.d.). The conditions of Florida's climate allow rural areas and agriculture to thrive. In Florida there is a lot of rural land. There are many families, farmers, and ranchers that lack internet accessibility. Developing ways to deliver high-speed broadband to rural agriculture areas is important because it increases opportunities. Expanding broadband in rural communities will help them to be competitive in society.

Having digital equity in Florida rural and agricultural communities is essential. Digital equity is where everyone has equal access to information on the internet. "Internet in rural areas can be obtained by satellite, antenna or cell phone hot spot, but dependability and cost of these options are major issues" (Quinn, 2020). Kids in rural areas deserve to have the same opportunities to learn using the internet as those who live in areas with developed broadband. Businesses that have broadband can set up websites, advertise, keep track of orders or requests, and connect with the world at any time of day. Ultimately, having equal digital access for everyone should be required in a modern-day society because it can change lives.

High-speed internet has evolved from the world's first computer but there is still much more to improve on. In Florida, one obstacle has been to figure out how to get a cost-efficient high-speed internet into hard-to-reach rural areas.   A strategy used to expand access to broadband is mapping. Mapping is a way to see the areas that have broadband and what areas are lacking services. "When we are able to deploy broadband ubiquitously, think of all the things we will be able to design, harvest, and develop" (Perdue, 2019).

Technology is a tool that helps the modern-day farmer to compete in our economy. Having a stable internet connection can help them save money. "Being better able to manage water and crop inputs through smart data collection will enable farmers to waste less water and use only the necessary amounts of pesticides, creating positive environmental impacts" ("How broadband can change the agriculture industry," 2021). Using technology can also help them save their livestock. For example, if a free-range chicken farmer has access to the internet they can learn about the weather and weather patterns. The farmers will know when they might need to put their chickens in the coop to keep them safe from storms.

Reliable internet is necessary for kids to do well in school. Lack of Internet connection and connections that are unstable in rural areas can cause kids to fall behind in school (Bauer et al., 2020). Kids might struggle with their assignments and homework because their broadband signal is weak. With a strong internet connection, they will be able to search the world wide web for research, homework, and watching educational videos. Overall, a good internet signal and broadband speed will help kids to learn more and complete schoolwork on time.

High-speed internet or broadband internet is especially important when it comes to keeping in touch with family members and friends. You may be asking why this is important. It is important because you can stay connected with family members over the phone or on a video chat. To stay connected one might use a device like a computer, tablet, or smart phone. Broadband enables people living in different cities, states, or countries to talk and see each other. Friends can connect by texting and playing online games together. "It may be difficult to stay separated from those we hold closest to our hearts, but we need to work together to keep as many people as possible safe from this virus. Technology is an excellent tool that can

be used by all of us to keep us from feeling disconnected, but don't forget the simpler ways to keep in touch with friends and family" (Pendarvis, 2020).

There is a great digital divide between the suburbs, cities, and rural areas. Digital equity is important to rural areas because it gives the opportunity for all to have equal access to the world wide web. Innovation is needed in modern day society in order to get broadband into rural areas. Broadband is key for farmers and ranchers to run a successful business, to provide opportunities to work, and to keep in touch with customers. Students in some rural areas in Florida struggle with online school because they cannot get a strong broadband or internet signal. Staying connected is a must if you are running a business or just trying to keep in touch with family. Broadband is needed for all these things and it is vital for folks who live and work in rural areas.

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Opportunity4All- Expanding Broadband in Rural Communities Essay
By: Dylan Tyson

Do you think it is a good idea to bring broadband to rural communities? I say, "Yes" it is a good idea that will help a lot of people in many different ways. In this essay, I am going to talk about challenges that are facing rural communities and different ways to bring broadband to rural communities. I will also talk about different ways to help improve and solve the problem that Florida's rural communities can use to bring internet to its people.

Broadband is considered by many to be a fundamental vehicle of new services and applications such as telemedicine, telecommuting, and online education that requires high-speed internet connection. State legislative involvement in broadband has been an important factor for the successful implementation of broadband in the state. Rural areas have 39% more residents without broadband access than their counterparts. There are a lot of people who are apart of rural communities.

Did you know in the last 100 years, there has been no technology as transformative as the internet? Thus, which has dramatically changed the way we live, work, learn, and play. All of these benefits that the internet brings underscores the need to connect these communities without access to broadband. This is commonly referred to as closing the digital divide. Nearly 100% of Americans, mostly in rural communities are still not connected to the internet. One way to bring broadband to rural communities is by having a public-private partnership. This helps because making broadband available to rural communities often requires collaboration. With a supportive government partner much more can be done by both the local entities and the service providers to make broadband accessible. When you have a public-private partnership it shifts the burden from the government to the local provide. This helps transform opportunities which are available

to a rural community allowing residents to open home-businesses and take advantage of telecommuting options.

Another way is by something called community call to action. This has proven to be an effective method of expanding broadband access 40 rural areas. These initiatives often require community members to first come together to assess and identify their needs from homes and household connection to businesses that could benefit from broadband access. By doing this with everyone in mind rather than advocating as individual's communities can prove that the need and volume of subscribers exist to make a strong business case that encourages ISPS to invest in connecting the area.

A third way to bring broadband to rural communities is by having fixed wireless. This helps more of the agricultural communities because the terrain surrounding remote communities can pose an issue of connectivity. Where miles of wilderness and farmland separate neighbors, the challenges to deploying a fiber network are often prohibitive. Instead of laying miles and miles of fiber to connect a signal home, people deploy fixed wireless technologies to cover every last mile with fixed wireless data travels over a preexisting hard wired network to a backhaul tower where it then travels over the air up to five miles away. The data can be relayed from tower to tower similar to how a cell network operates.

A final way to bring broadband to rural communities is by improving broadband mapping. This requires an accurate broadband map and data set so that resources can be dedicated to those unserved communities where the need is greater. It is important to note that the starting point for effective rural broadband programs is knowing where service is available and where it is not. More accurate broadband maps will lead to better targeting of federal resources.

The impact of technology and broadband issues are also effecting education. Fifty-three percent of U. S. school districts are rural. Rural education graces unique challenges such as limited resources like technology and broadband. This present unique challenges for communities to provide quality education with limited resources. This lack of access means rural residents are more likely to have lower education attainment. Broadband access and teacher shortages re further amplified in rural communities. There are a lot of people who report to expanding broadband access in the classrooms all in Florida.

In conclusion, I have address the challenges of the lack of internet and technology issues in Florida rural areas. I have also discussed the different opportunities that can be taken to resolve these issues which are public-private partnerships, community calls to action, fixed wireless and improved broadband mapping. I encourage you to take in the different ways to help bring broadband to rural communities and play a part in it the best you can. I also encourage you to spread the knowledge you have to others to help show them the impact that technology and broadband issues are having on Florida's rural and agricultural communities and show them the ways to resolve the problem to create success.

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Essay by: Eleanor Barber

Broadband and technology are an issue in rural and agricultural communities. Some of the ways poor broadband affects rural communities is difficulties with online schooling, making and receiving phone calls or text messages, and even contacting emergency services. It can also be harder for people to do business from home.

Secure broadband is important for everyday life. This is especially true for students who need WIFI at home to be able to do school work online. A lot of schooling has now become virtual due to the COVID-19 pandemic. If a student does not have a good secure broadband connection, they can't do school work and run the risk of falling behind. Students that need Zoom, Microsoft teams, and ClassLink need secure and reliable WIFI. Students that live in rural areas need to be able to contact classmates for projects and teachers for help. My sister (Bailey Barber), who is a college student, has a lot of problems with the connectivity issues. She said, "I have difficulties with school because of our WIFI. There are often lags during my online classes. This makes presenting things and asking or answering questions hard. Different programs that I use for homework don't work very well. Exams and quizzes take a long time to complete because of the difficulty loading." Teachers that live in rural areas may also have the same problems with connecting to students, which would affect their ability to teach. Students or teachers that live in rural areas and have to stay home for school because of COVID-19 have issues with broadband connection because it is hard to motivate companies to expand their services to areas that don't have a lot of people.

With many businesses moving their employees home to work during the COVID-19 pandemic, there are more people dealing with broadband issues. My mother has experienced this first-hand. She runs a business from home with her smart phone and computer. She has to do a lot of Zoom meetings which can be an issue because many times they will not load. She also

misses phone calls and text messages due to the poor connection where we live. When asked about the struggle she said (Tracy McVeigh), "It's hard for me to work my business because when I do online Zoom events it's difficult for guest to see me and sometimes my video won't load at all. I have online virtual trainings and most of the time I can't even join them. I usually can't even download the recording because of the poor connection. When I have to make phone calls, those I am doing business with can't hear me or there is such a big lag on the line they hang up." We live in a very rural area and do not have access to most all WIFI companies, so I know first-hand about the issues and struggles of not having a good broadband connection. When we have phone calls, we have to step outside to answer them. This can affect the jobs of people who live in areas like mine and they may lose money because they can't get online due to poor connectivity.

Broadband issues also affect communication in an emergency situation. My grandma has a hard time contacting my mother when she needs us in an emergency. My grandpa, who has had a stroke, sometimes falls and cannot get up without help. There have been times when my grandma has tried contacting us for help but has not been able to get a call to go through. This issue is because of our community's poor connectivity and cell service. If there is an emergency at my house, we may have problems calling 911 or other emergency services because it is almost impossible to make a call from inside.

Another issue with rural areas and the lack of secure broadband is that the internet companies that do offer services to rural areas, offer very poor broadband at very expensive prices. If people living in rural areas don't have much money, they may not be able to purchase internet services at all. There are not may options for secure internet services in rural areas and this may cause lower income households to fall behind in work or school.

A solution for broadband issues is to have more infrastructure in rural communities (Microsoft). This would call for cities, counties, and states to add funding for this issue in rural areas. One way to get more funding for rural infrastructure to fix issues with broadband would be to advocate to local and state policy makers. The issue will not be fixed if no one who has the power to fix it, knows about it. I can personally help solve this issue by raising awareness about rural broadband and the lack of secure internet in rural communities.

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Tracy McVeigh – Mother

Bailey Barber - Sister

Slow Internet in Florida's Rural Areas
is Affecting How Country Youth Learn
By: Ethan Gruner

The lack of broadband in rural communities has been an ongoing problem, but since the coronavirus turned the eyes of students to their screens it has become a more critical issue. With the implementation of online learning it is now more important than ever to make broadband available to all youth in rural areas. "The counties with the highest unemployment also have the lowest broadband usage (and broadband access)."

Since the time that Alexander Graham Bell started the first phone company in 1877, (DiPirro) and Thomas Edison brought the city of Manhattan the electric lightbulb in 1882, technology has gradually moved from the big cities toward country areas. "In 1882 Edison helped form the Edison Electric Illuminating Company of New York, which brought electric light to parts of Manhattan. But progress was slow. Most Americans still lit their homes with gas light and candles for another fifty years. Only in 1925 did half of all homes in the U.S. have electric power(Electric)." The internet was started by the military in the 1960s, it was called ARPANET. It wasn't until the 1980s that the internet was brought to universities by a grant by the U.S. National Science Foundation, a federal agency (Murphy). Until the creation of the world wide web in 1993 high speed internet wasn't a necessity. Finally, when web design became more detailed in 2004 broadband access exceeded that of dial-up. Federal funds have not been the only support of broadband growth. Once the potential to make money became apparent private companies started springing up all over.

"In March (2020), Microsoft released its latest analysis of broadband data in the U.S. and concluded that 157.3 million people — nearly half of the U.S. population — aren't getting

minimum broadband speeds, defined as 25 Mbps download and 3 Mbps upload. This sits in stark contrast to the 21.3 million the FCC reported earlier this year (Supan)." Although the Microsoft study reported families that choose to not pay for broadband another study showed that students test scores rose by 30% after receiving a smartphone. According to the report by Microsoft "the counties with the highest unemployment also have the lowest broadband usage (and broadband access) (Supan)."

The Office of Telecommunications and Information Applications has provided a grant for Florida's rural areas. As stated in their webpage "Large portions of the northwestern and south-central regions of Florida have been designated by the Governor as Rural Areas of Critical Economic Concern (RACECs) due to a disparity in income and access to education and healthcare services. Community anchor institutions in these RACECs often lack the necessary broadband infrastructure to thrive in the modern economy. The Florida Rural Broadband Alliance's Florida Rural Middle Mile Networks project proposes to deploy an 1,800-mile microwave-based middle-mile network across two of Florida's three RACECs to support and improve healthcare, educational opportunities, library services, economic development, and public safety services. The Florida Rural Broadband Alliance brings together multiple local and tribal governments, economic development agencies, and commercial partners in a collaborative effort to address the unmet broadband needs of this area of the state (Florida)."

As of 2015, 78% of people who live in rural areas are users of the internet. Compare that to the 85% of people in urban areas (Jansen). According to Mr. Andrew Marter, a Manager in Data Warehouse/Business Intelligence at Little Caesar's corporate office in Detroit, Michigan, who manages a team of people that work with computers, about half of his team comes from the city and half from the country. He grew up in rural Wisconsin in the 80's and 90's when the internet was just starting. The slow internet didn't bother him because he didn't know any

better and computers couldn't do as much then as they can now. He did not let the slow speeds hinder him from following a career in computers. When the Lake County Board of County Commissioners office was asked for comment, Mr. Vincent Leon from the IT department of Lake County FL government offices responded. Leon was extremely informative because he used to work for the Lake County School Board. He revealed that Lake county schools use fiber optic dark fibre that runs at a 10g speed. He said that most citizens of Lake County have a variety of options for high-speed internet, but for some, Centurylink DSL is their best option, and according to Leon that is one the worst options for broadband. He said that unfortunately, Lake County government isn't currently acting on the situation because it is the companies like Centurylink and Spectrum that can do something to help.

Some large companies are expanding their coverage to include these rural areas. Charter communications is launching a new initiative to expand broadband to over 1 million new customer locations according to an article (Jansen). Initiatives like this will dramatically increase the number of people with access to high-speed internet. If local or state governments were to partner with companies such as Spectrum or Centurylink even more people could be reached.

 One seemingly simple solution other than installing new towers is the usage of satellite internet. Satellite internet covers a broad area without having to install a large number of towers. Although satellite might seem like the best solution there is a major problem. Satellite internet is unreliable due to interruption from storms. Elon Musk, the innovator behind Tesla and SpaceX, and Jeff Bezos with Amazon are in a race to launch brand new lower orbiting satellites that will reduce the problem of storms interfering with the connection. SpaceX started testing their Starlink program in the UK with a whopping 1,015 satellites launched into orbit (Sheetz).

Overall, it may be said that the lack of broadband in rural areas and agricultural communities affects the way that country youth learn. If governments and large companies worked together they could bring reliable and fast internet to areas without it to improve the learning and work experience for country people.

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Harley R Cross

Bing Broadband to the Country

Broadband is described as *a high-capacity transmission technique using a wide range of frequencies, which enables a large number of messages to be communicated simultaneously.* In other words, a lot of information at amazing speeds! It's the year 2021. We are making vaccines in record time. We have cars that don't require gasoline to run. So, why do we still have slow internet in rural areas?

There are several answers as to why broadband hasn't made its way to our rural communities yet. Many internet companies do not offer high speed broadband services to rural areas because they feel there aren't enough customers to make it worth their time and money. It is also very expensive to lay the fiber optic lines needed for broadband. Both of these reasons cause the price of broadband to increase for the people in rural communities that have access to the service. To me, it seems that internet companies are a bit selfish and lazy. They are using a good business tactic; saving their own money and not going out on a limb for a few farmer's and ranchers, but I don't feel they are seeing the bigger picture. The success of agriculture affects everyone. If these companies would make some type of sacrifice and get better internet and communication to areas without it, they would see big changes that involve growth and even more money in their pockets once more people move into these areas and start using their services.

Apparently, these internet companies do not realize the importance of and how much the world depends upon agricultural related businesses. Agriculture provides most of the world's food, fabrics, as well as wood for construction and paper products. Agriculture also provides jobs

for many people and without jobs, our entire economy suffers. Communication is key to the success of any business and it is no different in the agriculture industry. Having broadband internet would make it possible for farmers and ranchers to market their products, utilize soil mapping, manage water and crop inputs, manage herds of livestock more efficiently and track agricultural trends. Farmers and ranchers can use this broadband to follow commodity markets, communicate with customers, and access new markets around the world. We are nothing without communication.

Currently, the lack of broadband in the agricultural industry has caused crops and livestock to suffer. Smart Farming consists of programs that collect data and allow the farmer or rancher to input it from the field. This process can help crops and livestock grow healthier and more plentiful. Without access to technology, it is impossible to utilize these programs.

With regards to digital equity, members of the rural communities and agricultural industries desperately need access to broadband internet. This is a must to share and access information related to the care, production and distribution of agricultural products. Broadband internet needs to be viewed as just as much a necessity as utilities such as power and water. If this concept was brought to the attention of lawmakers and companies were urged to make broadband available to all, the agricultural industry would grow and prosper. Legislature should be passed that the lines and equipment necessary to bring broadband to rural areas be placed in those areas by a certain time. Federal funds could be used because keeping our agricultural community thriving is important to everyone's survival and livelihood.

If laws were passed regarding the instillation of broadband equipment, more jobs would be created because there would need to be people tasked with installing the lines and hardware

for broadband. If broadband came to more rural and agricultural communities, it would make advertising easier with higher internet speeds, and this would create even more jobs in the industry. If broadband came to rural communities, education would be at our fingertips and much faster. During the COVID-19 pandemic, more students were online, and this caused speeds to run slower. Slow speeds would be less of a problem with broadband. Adults would also have faster access to educational materials because of the faster service.

All in all, broadband in rural and agricultural communities would allow people of all ages to stay connected easier and connect faster. With the internet, anything you want is at your fingertips. Who would have ever thought a rancher or farmer could manage their crops or their herd using a digital internet-based program? Agriculture has worked for years without advanced technology, but it works so much better with it. Bring broadband to the country and let us show you how we can better the agriculture industry and better the world.

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<u>Broadband and Internet Access in Florida</u>

By: Heather Owen

"Learning by Doing", This is the 4H motto. When 4H was started, in the early 1900's, it was to improve life in the rural areas by introducing new farming methods. Now 100 years later, we are also trying to improve life in rural areas. But this time with Broadband.

In this essay I'm going to cover the impact of technology and the Broadband issues in the rural and agricultural communities of Florida. To find the impact of Broadband issues though first I need to define the definition of Broadband. According to www.dictionary.com Broadband means "relating to, or responsive to a continuous, wide range of frequencies." So in a shorter way of explaining it. Broadband is Internet. There are multiple ways that technology and broadband can impact rural and agricultural communities.

One question we have to ask when we assess the situation is, Are farmers actually complaining about digital equity? Is there a negative or positive technology impact? And are there Broadband issues? The answers to these questions are; Yes, digital equity is something that farmers want and need. I interviewed 3 farmers and they each agreed that technology positively impacts farming. Mrs. Mary Graham, the owner of Graham's U-pick Peaches in Umatilla said that some tractors run off of the Internet. They need the Internet for their marketing. Having good Internet is extremely helpful when she needs to identify a pest or a disease in the peach trees, she can very easily pull out her phone and look it up. If she needs to look up information about a product she's using she could also quickly find out what she needs to know. Mr. Ryan Atwood

from Atwood Family Farms said that for him technology has always been very helpful when he is working with his blueberries. He uses his phone to check weather conditions, temperature, and wind speed. He told me that technology makes it easier to know ahead of time what he needed to do with his blueberries so they didn't get damaged. Mr. Sonny Scott from Long & Scott Farms told me that the Internet makes it easy for them to collect data from their tractor without having to take anything off of the tractor. Technology also helps them run water pumps, field mapping, and GPS. Then I talked to former Senator Alan Hayes. He said that technology is extremely efficient and can help with biological resources, and growing crops. Finally I spoke to Dr. Sandra Thompson from FAMU and she explained to me that overall technology and Internet access has a positive impact on farming but it's dependent on whether or not the farmers can use and understand the technology. Technology and Broadband can reduce costs in farming, help people stay informed, and help them stay connected and supported. What is also nice for farmers is they can access online training classes such as tractor operator, animal husbandry, poultry production, and sustainable land management. The only way Internet access and technology can help farmers though is if they have the devices to access it and if they know how to use it or not. Most farmers are between the ages of 50-60. If they don't know how to use the technology given too them then it would be good if there was a younger person able to show them how to use it. When I asked if there were any disadvantages to Internet access when farming, the only person who thought of a disadvantage was Mr. Atwood. He said that it can be hard to navigate sometimes and hard to find correct information if someone wrote something incorrectly. These interviews lead into the next question; Are there

issues with providing Broadband access? YES, One very good thing is that in Central Florida or really anywhere near a bustling city most of the farmers have pretty good Internet. But there are multiple counties like, De Soto, Hardee, Highlands, Glades, and many others that all need better Internet access.

To bring Broadband to the places that need it, first you should look at how other people brought Broadband to other places. Since 2017 people have been testing using fixed wireless towers to get Internet to rural areas. The way that fixed wireless towers work is similar to the way a cellphone network works in the way that the data is carried through the air from one tower to another. The fixed wireless data can even go up to 50 miles to another tower or to a house with a special receiver. The communities that need broadband could also make petitions that once signed will help them to achieve their needs. We also need to identify the households/areas that do and don't have Internet in the counties that lack a lot of Internet. Once we've done that we can start working on getting the broadband to them. Amazon is also getting involved in spreading broadband by using 3,000 different satellites so that no matter where someone is they will be able to access the Internet. Amazon got approved by the FCC last year and they invested $10 billion into the project. A company called Starlink has already developed satellite Internet that specifically targets people in rural areas. They're able to bring high speed Broadband Internet to rural or remote locations where Internet was virtually non existent.

It's good to see that this issue with Broadband Internet access is now coming to the public's attention. People are resourceful and just as they have solved other problems they are solving this one as well.

In this paper I have discussed staying connected, technology and farming, and bringing Broadband Internet to rural communities. Just as the learning methods of farming in the early days were one of maximizing the family farming techniques, todays goals are very much the same. We in 4H want to utilize all the techniques available to the rural communities through the advancement of technology in 2021.

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Expanding Broadband to Rural Communities
By: Helen March

Libby Larsen once said, "The great myth of our times is that technology is communication." More and more businesses are relying on the internet to conduct their business. Wether it be advertising their products, or customer communication, or even to just simply follow the ever changing market, it is essential that broadband issues in rural communities be solved. The issues not only affects the adults in the communities, it also effects the children. Students of all ages are now relying upon digital platforms more to stay in school and to continue their education.

Businesses in rural communities rely upon the internet in the same way they rely upon the highways. Access to the internet is essential in the 21st economy. By setting up funds to help rural communities pay for high speed internet, they can put their money into feeding their families and keeping their businesses alive and not the price for internet. In order for a business to stay in touch with its customers/clients and employees, they have to communicate with them. Just like Larsen said, "...technology is communication." Communication technology is always evolving. Broadband must extended to rural communities in order to keep the rural businesses going.

Students in rural communities are impacted by not having proper internet access. When students are out of school because of some freak storm, they can still get their class work done and won't have to make the school days up by taking out of their breaks. They will still be able to get out of school and start their summer when accepted. Even now with COVID many students are learning from various digital platforms. Teachers that live and teach in rural communities can still teach their students if they get or have to quarantine. According to the World Economic Forum, online learning has been shown to increase retention and take less time.

Kids learning online can take it at their own pace, given that they have access to good internet that doesn't take something all day to load. With online learning taking less time, kids can help out around the farm or store more. They can even take more time to care for their animals that they take to fairs.

Rural families tend to have a harder time staying connected with family members that are farther away. With expanding broadband out to rural communities, families will have an easier time communicating with far away relatives or even ones close by, especially on birthdays, holidays, weddings, or any other ordinary day. It is important to stay connected in hard times. Family is one of the best support systems. Broadband expansion will allow families to spend less money on travel expenses and be able to spend more time talking to family members for hours.

Albert Einstein once said, "The true sign of intelligence is not knowledge but imagination." Innovation leads to many new ideas and inventions. How can a rural community know what is going on in the world around them and share their innovations with the world without expanding broadband access? The World Wide Web was once just a humble thought. Now many people do not see how they could live without it. The internet has lead to the spread of new ideas which has lead to innovations in medicine and other sciences. If broadband is extended to rural communities, then their knowledge can then be easily shared with others. Research done on any species that is found in one community over another, can be shared right from that community with broadband. The researchers do not have to sit and wait for data to load, when they can be out in the field conducting research.

Jobs, they essentially run a community. Without the various jobs in a community, there would not be a community. Expanding broadband to rural communities will help the communities stay a community and in the 21st century. Help wanted adds are not only posted in

the store window, but they are being posted online. Rural businesses will be able to post "help wanted" adds online, which will attract any young person looking for a job. Especially for businesses that need strong young people. Running the broadband service in the community requires people which creates more jobs in the community. More jobs means that a single parent, or just a regular family can feed their families and provide for them.

Families are what make a community a community. Families run businesses. Businesses create jobs. Innovation creates new businesses. All of these different parts that make up a community will function better if broadband is expanded to rural communities. Broadband can be expanded and funds can be brought in to a community to help the members pay for broadband. Without family, there would not be a community.

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Essay by: Isabella Templeton

In this essay I would like to discuss the impact that quarantine and isolation has had on the residents of Florida. Rural and agricultural locations have been affected the hardest. Lack of reliable internet access has adversely affected and hindered their learning, and more importantly their lives.

The first topic I would like to discuss is online and remote learning. The hardest part about remote learning is not everyone has access to the internet so they can't join zoom calls and can only rely on packets and books. Kids learn in all kinds of ways so the teachers only being able to teach through packets can't teach in more than one way. This is hindering education and making it even harder for students to try to remember, and comprehend, which prevents some from doing well in school. According to npr.com 4 out 10 students haven't even tried to do their online class. Others say that the overwhelming amount of schoolwork worries them too much to even try their school work. If more kids had access to the internet they could do online study groups and could help each other out. They could encourage and improve others learning and their own abilities as well.

Another big ordeal about not having access to the internet is jobs. The people who have jobs and can't get internet can't work from home. So then, they either have to go to work at the risk of getting them and their family sick or have to quit because they can't work from home. If they do get the rare chance of going into work they are putting themselves and their family at a high risk for getting covid19. According to BBC News unemployment has went up 5% just in September and October.

I would like to now discuss how this issue has affected farmers. Farmers still have kids who need to learn, but that's not all, if they need health care it would be hard to get in contact over phone or computer without internet. Also, they don't have access to digital advertisement. That means that they can't distribute as many fruits and vegetables as needed or as produced. That also means that if they can't advertise the people won't know where and how to get their food and more food will go to waste. According to the USDA, farmers are undergoing financial distress and poor planting conditions in 2019 and 2020 alone. If they have internet they could not only have digital advertisement but could sell and transport their goods easier. They won't have to wait for service or worry about a call not going through.

Lack of internet also contributes to the growing feeling of isolation that many people are experiencing. We needed it before to communicate, but now in some instances we can't see or come in contact with our loved ones. It is even more crucial to stay in touch, but many people don't have access to reliable internet to do so. It makes it so much more difficult to stay connected, even now when we need it most. Being in strict quarantine and isolation makes it easy to fall into a state of depression. According to Mental Health America.com depression rates have been highest in youth and teens. While this isn't

completely related to internet access, the lack of social contact through school, sports and other activities can lead many to feel withdrawn and isolated. Reliable internet would allow students to interact with each other and try to feel like a normal kid again. More importantly, if teens and youth had more access to the internet they might be able to get help from a trusted friend or even a professional if they need to.

The final topic that I would like to discuss is mental and physical health. There are several different ways to contact a doctor online or over the phone, but without internet they have to either go to a doctor's office or the hospital. This doesn't only require transportation, it also puts you and your family at risk of getting sick. Also with mental health, as previously mentioned, depression and suicidal rates are highest in youth and teens. This may not fully involve the internet , but it highly contributes to the issue at hand.

So these are all the main reasons that having reliable internet access to rural and agricultural communities is so important. Next I would like to discuss how we can contribute to fixing or improving these problems. With ideas such as internet routers, more available internet at more places, and so much more.

My first idea is increased availability of internet routers. If schools handed out internet routers when they handed out textbooks the students could use that internet to join zoom calls. This would allow the teachers to actually teach online instead of students just reading through packets. Maybe some of the students could do online zoom study groups that way the students wouldn't be overwhelmed and could work together. I believe that this would help a lot, especially in Florida's rural and agricultural communities. This is one of the many ways we could help kids without the privilege of internet through this hard and unusual time.

Another idea I had was more available internet I believe we could broadcast our internet to more places making it more available. In larger cities you can find free internet hotspots more easily. If rural communities opened up free hotspots, many people could have access to the internet and have all of its benefits as well. This would be a big help to students doing virtual learning and parents trying to work from home. This would improve their education and their lives.

So, I believe that these things are some ways we could improve education and the lives of people who live in agricultural and rural communities. So yes I believe it would be very beneficial to have internet access to rural and agricultural communities and I hope that you agree with me.

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Technology and Broadband Issues

By: James Kuhlman

Technology and broadband services impact agriculture and rural areas. Either in a good way or in a bad way. How I found out if technology and broadband services impact in a good way or in a bad way is, first I held a survey. I sent it out to "Fight for Florida public schools" Facebook site, "Florida urban homesteading nonprofit" Facebook site, and on "Amanda Kuhlman" personal Facebook site. After collecting my surveys responses from these sites, I compared the responses I received. Then, I found additional resources by researching information that I felt helped me learn more about this topic. After researching all of the information gathered, I was able to formulate my own educated opinion on this subject, to share in this essay.

From my Facebook survey I found out that technology most of the time has a positive impact on agriculture and rural communities and therefor, these communities tend to be more advanced in existence of technology. Stephanie Collins response to my survey is that "there are 3 sites in Hillsborough county that give data such as evapotranspiration" and I also read online at (Purdue University) is that there is "farming tech that can track the weather." I believe that because of reasons like these the agricultural community has found a lot of importance in having the most advanced technology as possible. I was therefor not surprised that all responses received for my survey, except 1, responded that agriculture communities have little issues with existence of technology. This leads me to believe that technology is not the issue.

However, broadband services on the other hand were reported on my survey as having a strong negative impact on agriculture and rural communities, because there is a crazy demand for it. According to Danny Witt on Facebook says that in "rural [areas] many are limited to satellite

internet which has data limits and is too slow to stream effectively." Also, according to (Heather Beaven) "464,000 Floridians are without wired [internet] connection." Which in my mind, that is crazy to know that many people are without any source of internet this day in age. Also, (AgriMarketing) says "60% of U.S. Farmers say they do not have enough connectivity to run their businesses", that "78% of farmers do not have a choice of internet service", "60% of farmers say the internet service they do have is to slow", and "40% of farmers have fixed internet connection." Which those percentages are worrying me that so few farmers have good working internet. According to (Ken Parker) "farmers could generate $18 billion to $23 billion annually if they had high-speed connectivity and adapted the latest technologies."

I discovered that some places, like schools and jobs, have tried to fix this issue. How some schools have attempted to fix this issue is by, handing out hot spots to provide internet. However, without satellite data the hot spot will not work well. Take it from my personal experience. I live in an area that doesn't have good internet and my mother was working from home, due to Covid. Therefore, to ensure I could receive everything for school that I needed, when I was quarantined and had to go digital, I requested a hot spot. However, the hot spot often times did not work very well, because it had to connect to a satellite and I was also concerned about running out of usage capability. Danny Witt also said that what people in his area did is "drive to the store on the interstate to get a WIFI signal to do work" and Stacie Ruyle said she "had to go through 3 different carriers just to get decent cell service [and that the carriers that she found] is effective 75% of the time." These issues proved to me that hot spots did not always work and I can't help but think there has to be a better solution.

Also, (Heather Beaven) states in "2010 Vice President Joe Biden helped [with a] plan [that was] heavily focused on rural connectivity and service quality improvements" and the article

also states, "in 2018, the federal government released phase II funding ($1.49 billion) provide fixed broadband and voice servers to over 700,000 locations in 45 states." So, this shows that even the government was really focused on this issue back then, and that they found it important. Even though the government had plans to fix the issues as (Heather Beaven) implies they still had issues in 2019 and it's shown by (Purdue University).

This all is making me really worried, if they were not able to fix something that they had plans for 9 years ago and they found it important enough back then to even raise funds for it. Yet the problem it still not fixed? Therefore, now I'm wondering when will the federal government ever fix the problem, because it has been 10 years now since they made the plan to fix the broadband services in agriculture and rural communities and it's still obviously an issue. This issue was first found because of the effects on the agricultural business, however now it is an even larger issue because it is now noticeably affecting children.

So basically, to answer my question if technology and broadband services cause issues in agriculture and rural communities. Technology doesn't seem to be an issue, because they have the devices and programs that they need. However, broadband and signal are definitely a large issue in these communities. While the presence of this issue doesn't let them take full advantage of everything which is available to them.

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The Need for Broadband Access in Rural Florida
By: Jared Heady

America has often been called the world's greatest experiment. Many ideas have come

and gone in its short but powerful history, but some founding principles hold true to this day.

Among those are freedom and the idea that a nation should create opportunity rather than hoard

it. As rural communities in Florida and across the country have felt in multiple periods in our

history, the nation is in many ways leaving them behind. Agricultural communities in Florida are

the most culturally, racially, and economically diverse they've ever been, but they're also

severely underserved technologically and economically.

Most concerning is the tremendous and fast-growing opportunity cost felt in rural areas

across the state in virtually every area of everyday life. Walton County Commissioner Danny

Glidewell believes the severe lack of broadband access is a "serious problem", citing that it "cuts

down on opportunities to develop our economy, promote basic and higher level education, and

overall cuts the quality of life."[1] The evidence supports Mr. Glidewell's statement. While many

predicted that with the rise of technology and widespread information, poverty would decrease

significantly, the opposite has occurred. Instead, especially in rural areas, the United States is

experiencing a "digital divide" which is directly affecting growing economic and educational

inequality.[2]

As aforementioned, one of the most harmful effects of a lack of broadband access is the

opportunity cost for growth in important areas that other communities are continuing to thrive in.

This cost reaches farther than education and immediate quality of life. Mr. Glidewell adds that

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[1] Danny Glidewell, interview by Jared Heady, Personal Interview, DeFuniak Springs, February 10, 2021.
[2] Amy Bach, Gwen Shaffer, and Todd Wolfson, "*Digital Human Capital: Developing a Framework for Understanding the Economic Impact of Digital Exclusion in Low-Income Communities*," Journal of Information Policy 3 (2013), 248.

widespread internet access is essential to "diversify industry" and "promote further economic growth in this digital age."[3] While many areas have been enabled to prosper in ways they otherwise couldn't, with increased educational and job opportunities with limited financial cost, additional local services, and quicker access to necessary information, countless rural communities have been left by the wayside.[4] As access continues to expand in urban areas, so does the divide that haunts rural Florida.

While the task is daunting, now is the time to bring the internet to everyone. Access to stable, high-speed broadband is as beneficial as it is necessary. Mr. Glidewell detailed Walton County's multi-million dollar contract to ensure access to low-priced, high speed wireless internet access to every person in the county over a two year period. While this is an excellent first step, many local governments are unable to afford taking these steps anytime soon. The best way to accomplish complete access across the state is through state intervention, including contracts and direct infrastructure spending. Representative from the 5th District and Florida House Energy, Infrastructure, and Energy Subcommittee Chair Brad Drake agrees. According to Drake, "the only way to address the shortage of internet access is to allocate resources that would be used to expand the internet skeleton."[5] He believes that broadband is "as vital to survival as food, air, water, and electricity,"[6] and therefore action is needed soon.

Not only will accessible internet greatly help existing aspects of life in rural communities like virtual education and farming, it will also open doors to markets that were inconceivable to be introduced to remote and rural communities just a few decades ago. If a widespread effort by the state were to come to fruition, numerous markets would immediately benefit.[7] Most obvious

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[3] Glidewell, interview by author, DeFuniak Springs, February 10, 2021.
[4] Bach, Shaffer, and Wolfson, "*Digital Human Capital*," Journal of Information Policy 3 (2013), 251.
[5] Brad Drake, email conversation with Jared Heady, February 10, 2021.
[6] Drake, email conversation with author, February 10, 2021.
[7] Hilal Atasoy, "*The Effects Of Broadband Internet Expansion On Labor Market Outcomes*," ILR Review 66, no. 2 (2013), 318.

is the labor required for construction of the infrastructure, but the long term effects will include a more well-rounded and innovative market for workers, researchers, educators, and leaders from every corner of the state to more wholly and effectively come together on one platform. There are hidden opportunity costs that won't be revealed until the problem of the digital divide is effectively confronted.

In order to confront this issue in a timely manner, a concerted effort by local governments and the state is necessary. While the overall economic growth caused by this effort will undoubtedly be beneficial, the urgency of the situation shouldn't be lost on anyone. In the age of the pandemic, millions of households relied on distance learning to continue education for children. A vast majority of school districts opted for or otherwise would have benefited from virtual learning rather than constant exchanges of paper materials, but a number of poorer rural areas simply weren't able to do so because of a lack of internet access.[8] Many leaders, like Mr. Glidewell, educators, and other experts argue that virtual learning is the future. To at least some degree, the ability for schooling to be taken home in an online format will likely become a staple for American education in the coming years in light of the pandemic.

For the moment, state and local agencies should make temporary, accessible public hotspots available to areas in need in places like government building parking lots, parks, and public indoor locations like community centers. Utilizing existing telephone and cable networks through private companies should be a priority for optimizing reach of internet access, while a greater plan for a widespread broadband network should be drafted immediately in conjunction with private entities and local residents. Some may be hesitant to change, but so many are in

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[8] United States Census Bureau, "*Nearly 93% of Households With School-Age Children Report Some Form of Distance Learning During COVID-19*," Kevin McElrath. Suitland: Census.gov, 2020. Online, https://www.census.gov/library/stories/2020/08/schooling-during-the-covid-19-pandemic.html

desperate need for opportunity. In this day and age, broadband is the greatest beacon of

opportunity.

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Jason Brookins (he/him)

The Issues with Broadband Inequity

By Jason Q. Brookins

The world is constantly changing, usually in the way of upgrading our way of life. Whether it's inventing ways to mass produce products in factories, or finding new ways to send a message across oceans in nano-seconds, humans have an insatiable hunger to upgrade. This hunger is in a lot of ways a positive attribute of our species, however, with the constant changes happening everyday there are some people who live in areas that get those changes late. By the time they have the newest thing it's being replaced by something better. The cycle starts over again.

The overwhelming majority of those people of which I speak, who get the upgrades some two to three decades late, are those who live in more rural areas, whose communities focus on agriculture and other types of farming. The fact is the third industrial revolution that is going on right now, has put these communities at a disadvantage against those who live in major cities when it comes to education, applying for jobs, and staying connected with loved ones. This digital inequity is a major issue, and a growing one. According to an article done by the World Economic Forum (WEF) the already fast moving digital revolution has been accelerated due to

the global pandemic of Covid-19, leaving everyone to rely on technology more than ever before, which makes the problem worse for those in more rural areas just trying to get a basic education.

In Jefferson county, where I live, the County Commission has to make a decision on whether to pursue upgrades in sewage or broadband. The decision is difficult, with a lot of factors, such as the population percentage that lives in the rural areas, who need the broadband help, and those who live in the more urban areas who already have adequate broadband, and would rather have efforts put into bettering the sewer system. The intricacy of this issue lies in what we see when we boil the two decisions to their most basic states: the decision of water or internet access. In this day and age it is impossible to say one is better than the other. Internet access is one of the staples of average livin. It is as important as water and electricity.

One of the reasons we study history is so that we do not repeat it. We can look at the first and second industrial revolution, to accurately predict what might happen during this third one. During the second industrial revolution, masses of people would move to large cities in order to get access to the new innovations in the way of electricity and for all the job opportunities. This led to the people in the farther areas of the United States to suffer from the same inequity people suffer from today, the same inequity that drives this essay now. During that time the government stepped in and mandated the infrastructure be put in place for everyone in the country to have access to electricity. This is the same thing we need right now. As it stands, the companies that operate and work on the broadband infrastructure won't bring such internet access to the same parts of the country that were left out during the second industrial revolution. For the same reason: the cost to do it would be more than the money they would make from those areas. That

is why we need the government to step in and mandate such infrastructure to be put in. Perhaps by giving out grants or loans, these companies can put the infrastructure in place to get quality internet access to the further parts of the country.

The mandate I discussed above is already a topic on the federal level. In the 2020 legislative session, 43 states and Guam addressed the broadband issues in relation to educational institutions and schools, dig once, funding, governance authorities and commissions, infrastructure, municipal-run broadband networks, rural and underserved communities, smart communities and taxes. The idea of any government controlling the internet is a scary one for any society, but that is a topic for another essay. The mandate should be used in a similar fashion to what we did in the second industrial revolution. To bring equal internet access to the whole country.

In order to give everyone a fair chance in job acquisition and education, we need to mandate quality internet access for all peoples, no matter where they live, just as we do with water and electricity. Internet access is as important as water and electricity in this world, and should be thought of as such.

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Expanding Broadband in Rural Communities

Jesse Arnold

Since March of 2020, the lack of broadband internet services in my community has affected almost everyone in my farming family. My younger brothers are in public school and as the pandemic started, at-home learning was the only option given to them. We have no access to the usual broadband services from the well-known internet providers due to our landlocked location and our distance from the main road. This problem continues even as in-school learning has returned because so many of the extra activities, study opportunities and even book access is completely online.

The Federal Communications Commission has estimated that almost 30 million American have limited access or no access to broadband. The majority of these people are in rural areas and are underserved because of a lack of infrastructure and a lack of incentive for companies to serve these areas. Rural areas are also limited by the cost of broadband, which is less reliable and more expensive in areas that are only serviced by satellite internet providers. In my case, there are three companies that offer internet services in my area with only one that is not satellite based.

The lack of broadband in rural areas hurts more than just the children faced with using this technology for homework. Farmers use drones connected by the Internet to monitor crops with precision that allows for more production and less waste. Drones send information to a central computer that allows the farmers to adjust water and fertilizer levels before crops are damaged. These Internet options are not available to many farmers in areas that are underserved or that do not have the funds to create stable broadband services for the areas.

Broadband also connects people in ways much more important than gaming and social media. In areas where joblessness is high, there is a direct correlation to the lack of broadband access according to Rural Broadband Consortium. In the recent past, people searching for employment chose a newspaper to check out job listings. Today, these same people need broadband to search for jobs listed on recruiting websites. They also require skills that are acquired by using the Internet. For example, many businesses offer services or products that may only be ordered online. Classes in technology are taken online, and even applications are filled out and submitted online.

Broadband access also plays a role in the health of rural Americans. Even prior to the Covid-19 pandemic, many people chose to use online medical services to purchase their prescriptions or even to see their physician. Telemedicine helps to serve people who are unable to leave their homes due to weather, the lack of transportation or even dangerous health issues. Telemedicine offers people with immune disorders a way to manage their health without exposing themselves to outside people who might be carrying viruses. The lack of easy access to a doctor discourages people who want to maintain their health but are unable to travel to a physical doctor's office. Specialists are most common in urban areas, leaving the rural areas without broadband access underserved by those doctors that are necessary for severe or chronic medical conditions. The lack of broadband makes it impossible to bring telemedicine to rural areas.

While stores and offices were closed due to Covid-19, a large number of people relied on their broadband service to order supplies like household items. Anyone living in rural areas without broadband access is forced to leave their home to buy necessary supplies. Broadband services allow Americans all over the country to sell and ship products easily, making a lack of

access to broadband crippling to rural businesses. If a business cannot maintain an internet presence, shoppers are not able to access their products without visiting the store or business itself. Lacking broadband in a rural area means that rural businesses cannot compete with urban businesses when it comes to advertising and sales across the country.

Fiber-optic cable is the most stable of the broadband service options according to Brookings.edu. Congress has provided millions of dollars to research, repair and provide broadband services to underserved areas through the ReConnect Program. This program along with the Fixed Broadband Deployment Map offers tracking and help to areas of the country that are not able to maintain broadband. Unfortunately, the Federal Communications Commission that oversees much of this money defines broadband access as simply the ability to connect to the Internet at a defined speed. Although many rural areas do have that ability, because of the cost of the services people in rural areas are unable to afford the high pricing. Competition between internet providers is limited due to a lower number of people purchasing the service.

Without major changes to the broadband infrastructure in rural areas, there is no way to offer broadband at urban area speeds. This means that rural Americans and their businesses will continue to fall behind when it comes to basic internet use for things like education and advertising. Government assistance is required to offer rural Americans broadband access quickly, but the government itself seems to move slowly when it comes to offering service to rural areas. Elon Musk, a billionaire with the intention of offering high-speed internet to the entire world has launched hundreds of satellites designed to cover the globe with broadband access. This single man might be the person who brings high-speed broadband to rural areas at a price that is projected to be affordable.

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# An Unequal Opportunity—What's Wrong with the
# Wi-Fi and How to Fix it

By Jessica Morris

"Imagine a world in which every single person on the planet is given free access to the sum of all human knowledge. That's what we're doing with the internet." - Jimmy Wales.

However, getting that information isn't actually free, and certainly not available to every person on the planet. Many places even in America are still without internet, including areas in our home state of Florida. According to BroadbandNow, over 8% of Florida's total population is without functional internet access, and most of the deficient areas are rural. This is especially noticeable while comparing counties that are urban to those that are rural, such as the difference between Miami-Dade County with 98.5% access and Dixie County with only 29.6% access.

Coverage by County in Florida

30% — 100%

Data:
BroadbandNow.com/Florida-Statistics

How does this affect aspects of life for people living in those areas? Curious for the answer myself, I created a survey and posted it to several popular social media sites like Reddit. Marketed towards people in rural areas, I received a total of 230 responses, 103 of them claiming to live in a rural area. In this survey, I asked "What is most affected by internet problems or lack of internet?" I received three major answers: school, social lives, and jobs.

Students in Florida (Millions)

Data: https://www.ruralhealthinfo.org/states/florida
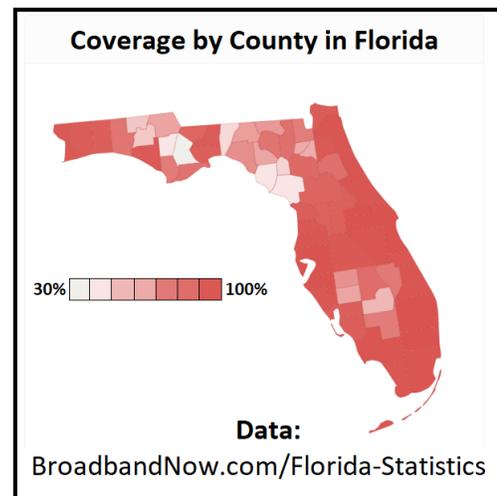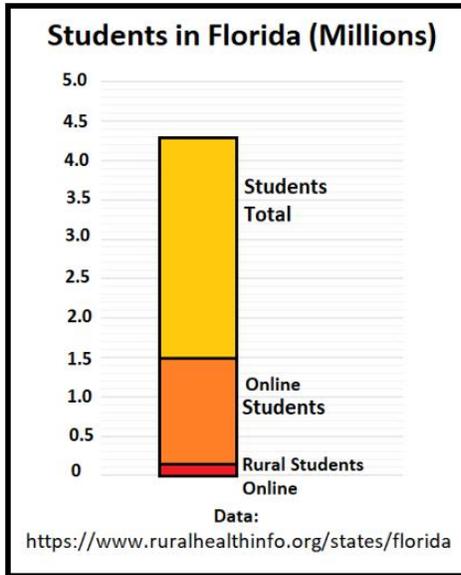
Out of all 4,025,000 minors that are attending public school in Florida, 2% of all the students live in rural areas and are required to do online schooling. While that may not sound like many people, there are still 126,000 students, and several of the answers I was given attested to that. One response included the statement:

"Because my dad has to teach classes, I can't finish my work at home when he's teaching because the Wi-Fi can't run both." – Alex Fisher

Other answers concurred, and the Florida Public Service Commission explains why. While it is true that 92% of Florida has broadband 'access', the amount with at least a speed of 25 Mbps (enough for 2 users to be streaming Zoom well) is actually much lower; a mere 73% coverage across Florida. Despite living quite near the Orlando area, my family and I are actually included in that, with an average speed of only about 20 Mbps. Another complaint about online schooling was that the quality of their education fell because of poor connection and other internet problems they experienced. On that note, a surprisingly high percentage of people on my survey stated that they felt their relationships with friends had also deteriorated in quality because of having to use internet-based communication. This matches the results of a study done

How Has Your Social Life Been Affected? (Number of Responses)
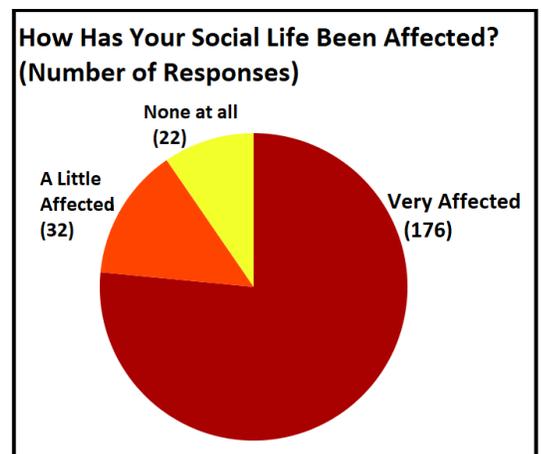
by ScienceNews in which it was found that 85% of college students experienced increased anxiety and mental health challenges during the pandemic when the students were forced to socialize with peers solely through the internet.

While the majority of answers were submitted by students in high school and college, there was still a significant response rate from adults. While reading through the responses, I discovered another large problem with limited broadband that I hadn't previously considered: People who own family businesses such as farms were having quite a bit of trouble transitioning online, and some even stated they couldn't continue their business because their internet wasn't able to support the new format. One statement addressed this:

"My family owns a small farm that is quite rural. I'd always had small interactions on social media, but I was unprepared to completely transition online, and because there was now a much heavier usage to keep a website running, our family's internet bill became much larger." – Jane Eyrler

Problems like these are especially relevant in today's time because of the distancing rules. It's apparent that several areas of life have been affected by the lack of proper internet connection, especially in rural areas. However, fixing this problem is a little more complicated.

To make a decision on how to solve this, we'll first need some information on how broadband works. Essentially, it's an inverted microwave—Instead of using microwaves to heat up food, it sends out radio waves that are read by a phone or computer, which then broadcast their own radio waves back. These waves have a limited distance, which is why there need to

be cell phone towers to boost and ensure the radio waves make it to the phones of people in range.

So what is the best way to spread the broadband access to everyone? There are two options: convince companies to build more service towers, or rely on satellite-based services. However, the process to build cell towers ranges from $100,000-$250,000 and in areas that are sparsely populated, companies consider it not worthwhile to build for few people.

Satellite service, on the other hand, is a relatively new idea which has been brought to popularity by SpaceX's Starlink project. This aims to create a net of satellites around the world to act as space boosters that give access to everyone in the world, even those in rural areas. There are some problems, one of which is because it is a space satellite based service, a satellite dish will be required and those can be damaged by weather, but overall it is the more efficient and eco-friendly method.

In conclusion, access to networks is a huge benefit, and those who do not have it are not being allowed the same opportunities. While there are several ways having unstable internet access is affecting people in rural zones, there are methods to fix these problems. However, they are expensive and require much time to organize and maintain. Cell towers are inefficient and can be problematic in natural areas, while an eco-friendlier solution would be using space satellites because they do not destroy terrain and are able to reach a wider audience at lower cost. Hopefully, once the Starlink project is complete, we *will* have a world in which every single person on the planet is given access to the sum of all human knowledge. Forever.

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Opportunity4All- Expanding Broadband in Rural Communities Essay
By: Joseph Hayman

Have you ever had problems with your internet? Well, that is because you are too far from a satellite. But some people don't have internet because they cannot afford it or they are too many people in the area that does not have a company in their area to provide services. So, you have to get different companies that are available which is usually very expensive to buy. The internet is everything, but the biggest problem due to the internet is that schools are teaching online. But those who need to do online school cannot. Adults and parents do not want to send their children to school because of Covid-19. So online classes are safer for the time being. Even schools have problems. Some schools only have limited resources. That means there is a less chances for others to go to school, but on the internet you don't. All you have to do is type and send. But how do we overcome this though choice of limited resources that are provided to students in the schools? We could see if the government would send more money or lower the taxes. We all know money don't, grow on tree and it's a process.

However, one way we can improve the internet connections to students are for the communities to help fix the problem. For example, Terry Ellis, the Comcast Vice President of Government and Regulatory Affairs, he suggested to match a funding to get networks built in communities. For example, Massachusetts Broadband Institute at MassTech expanded gigabit internet service to remote towns. Another way is that Cox communication worked with Virginia Telecommunication Initiative to expand a fiber optic network in a small northern side of the rural town. Communities can get involved. One community in Kansas, a rural town formed an internet committee and partnered with Eagle communications to form a fiber project that would bring broadband internet to the remote communities. They went around in the community to get signature from residence that justify Eagle's investment to get internet services to their

community. However, this company decided to fund the project by themselves. Another way we can improve internet connections is to fixed the wireless services. If wireless internet services switch from hardwire to fiber backhaul towers, this allows the tower to send internet services through the air up to five miles. This allows the internet connections to move faster and improve the speed data across the board. We will not be able to receive the data because we do not have the right receiver and Midco Edge Out Network provides this receiver.

In my personal community in Florida, we can take some of these ideas to better help the residences. For example, in my community we only have a limited amount of internet services that can be in the area so that lower the percentage of other people to get internet. If we had these companies or partner with these companies, then maybe we could have better internet services to help the students and parents. We can have the wireless connection if we get the Midco Edge Out Network that provides homes with receivers that will have the same download speeds needed to stream games systems and multiple devices and users in the same household.

So we all know that we all have problems with internet services and problems in our community. However, there is a solution. Companies have stated to go from hardwire to wireless. Companies are starting to fix some of these problems because so many people are complaining about the internet in their communities. So the people in Florida should address these problems to the State so that we can try to fix this problem. We can also ask companies like Midco Edge Out Network and Cox Communication to help use provide better internet services to rural areas in Florida.

In conclusion, remember we cannot do this alone. One person will not make a difference, but thousands will. We must convenience policy makers that we need to overcome this problem of not having internet in rural areas in Florida. Students of all ages and adults if they have access

to internet connection, they will be able to complete school or even more, like they can do online work or try to get online jobs or do vocational training. So, lets show how bad we really need the internet because we need to improve the lives of youth and adults. This apply to all states that has these issues. So, Florida, let's work on improving the internet because the sooner we fight the sooner things get done. Let's do what is best for the community.

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Expanding Broadband in Rural Communities
By: Kaitlyn Cockcroft

Have you ever thought about how blessed you are to have the internet? In this essay, you will read about digital inequity and how unfair it is that some agricultural, rural, and colored communities do not have fast broadband or any internet connection at all. You will learn how broadband has helped the education system, and how important jobs are in agricultural, rural, and colored communities, and how some innovation is useful in those communities, and finally staying connected with people you love.

I interviewed many people who are directly impacted by the unjustness of not having a strong internet connection in agricultural areas. After speaking with my local County Commissioners Gary Search and Doug Gilpin, I learned that there are currently no grants available from the state to help connect our local agricultural community to a stronger broadband connection. Farmers are not the only industry that is impacted by the digital inequity in rural and agricultural communities, and students' risk slow internet speeds and falling behind academically, (Michigan State University, 2020).

The need for broadband in 2020 has grown significantly. According to Nichole Turner Lee (2020), the U.S. digital divide has been revealed as schools struggle to substitute in-school resources with online instruction. From my own experience, broadband is slower in rural communities, so it makes it harder to do school with slower connection speeds. In the article Educational Opportunities Spread with Broadband Expansion in Rural America written by Hilda Legg in 2020, about 85% of students have access to the internet at home. As broadband spreads in rural communities, so does education, opportunity, and prosperity. Knowing these facts, there needs to be more initiative to expand broadband for students in rural communities. At the

beginning of the pandemic the students, teachers and even the parents felt the sudden change from classroom learning to online learning. They had to work together figure out a way to make virtual learning work for everyone.

Agricultural jobs are crucial because they provide basic necessities like food, clothes, jobs, and shelter. They must have a steady broadband connection so they can contact their clients for orders and invoicing's, and suppliers for restocking their shelf. When I interviewed Mrs. Darlene from Peanuts Sawmill Bushnell Florida she said, "We don't use broadband much, but when we do it is for billing and taxes." Some people prefer not to use the internet but for a few things like Mrs. Darlene from Peanuts Sawmill.

Innovation is vital to rural and agricultural communities because it brings new ideas, new methods, and new device to farmers, schools, and businesses (Merriam-Webster.com Dictionary, 2021). It is suggested that only big cities make new ideas, and that growth in rural areas is not typically thought of as innovative, (Kristen Devlin, 2020).   The farmers, and business owners would have a difficult time connecting to their clients, and to their suppliers if technology was not expanding all the time.

Staying connected is very important and with a reliable internet connection, farmers can be on the other side of world and still be connected. It would cost the FCC $40 billion to bring broadband access to 98% of the country, (Nicol Turner Lee, 2020). Not having broadband has made people with lower incomes, people of color, the elderly, and foreign-born migrants in rural areas on the wrong side of the digital divide, (Nicol Turner Lee, 2020). Even then there is still a way to stay connected in agricultural communities, even if we don't have the best connection as Mr. Knight owner of Knight's Feed in Bushnell, Florida said, "we are super far back here, we

don't have the best connection, but it's good enough to write a few names and numbers and get on our way."

During research for this project, I realized how blessed I am to have the internet. I am grateful for the library that has free internet for the kids who do not have the best connection at home. I now have a better understanding of how broadband has negative and positive impacts on farmers, schools, colored and agricultural communities throughout the state of Florida. I will always appreciate the internet now. Even in our current technology-driven world, many people do not have access to basic broadband and simple technology just because of where they live. We need to find a way to help our neighbors who live in these unconnected communities. I have learned so much and I am also very thankful for the farmers, ranchers, and business owners that stuck around through hard times and continue to provide for our needs.

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Technology Today by Kaitlyn Stefanko

Today I am doing an informative essay on the impact that technology and broadband issues are having on Florida's rural and agriculture communities. What could be done to address these issues in relation to digital equity, innovation, jobs, education and staying connected. Now I know what you're thinking. How can we do this? Well let's find out.

1.> "Yet, rural communities remain underserved and overlooked when it comes to broadband internet services." It is difficult to get. It is also incredibly expensive. If they do not have enough customers they do not get as much money as they want. It's also logistically difficult in areas that have harsh weather conditions or uneven terrains to put the cables in the ground. **2.>** "And satellite service is slow and unreliable". It is unreliable because if it rains, or if it is cloudy you lose service. **4.>** "1.1 million persons were estimated by the U.S. Census to live in the rural portions of Florida's 37 urban counties."

5.> "Gallup research found that 62% of Americans worked remotely as of March 2020.Seven million people worked from home before Covid-19."

1. "Fixed wireless internet (available in many areas with cell phone reception)

2. Mobile wireless internet (4G LTE home internet)

3. DSL internet (available in areas with landline phone service)

4. Satellite internet (available everywhere)

5. Dial-up (available in areas with landline phone service)" **<3.**

6.> "AT&T* expanded Fixed Wireless Internet to homes and small businesses in rural and underserved locations across 15 new counties".

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6. AT&T expands innovative high-speed internet to Additional Rural and Underserved Communities in Florida

This proves that there are a lot of problems with Florida's rural internet. Because of COVID-19 more adults are working at home. And more children are learning at home. We should try to make this better for the people that live in rural areas.

Broadband Challenges in Rural Communities
By: Kali Kamiya

Broadband is fast speed internet specifically defined by the Florida Public Service Commission as internet with a bandwidth of 200 kilobits per second. Broadband is a wonderful opportunity provider for some, but an opportunity gap exists for others. Technology and broadband issues such as finances and lack of availability and bring specific impacts to rural communities such as digital inequity, lack of jobs or education, and being unable to stay connected to the digital world.

To begin with a financial issue, the expensive cost to bring complete broadband access to rural counties is creating an opportunity gap between urban communities and the more rural and agricultural areas in Florida. Rural counties which are less economically advantaged, such as Dixie, Levy, Holmes, Gilchrist, and Washington currently have less than 40% broadband coverage according to BroadbandNow's "Stats and Figures".   Another issue is not understanding who actually has broadband access. Areas of rural communities are being overlooked because the overall county is statistically considered to be covered with broadband (Cody, 2020). For example, Hillsborough county is reported to be 99.6% covered so it might be assumed that residents do not face an opportunity gap. After a closer look, it is revealed that Wimauma, a rural community within Hillsborough county, has limited in-home access to broadband (Cody, 2020). Additionally, there are infrastructure issues. The various limitations that Florida has put into place including zoning laws and construction permits mean that there are more layers to broadband expansion than just paying for poles and installing them (Nastasi and Davis, 2020).

Secondly, the impact inadequate broadband services have within rural communities creates an opportunity gap between those who have access and those who do not. Students have no way to obtain online learning and adults are not able to be included in online businesses that could offer jobs or training. The normality of online learning and working that came with Covid-19 has begun to "fray the tether between physical location and opportunity" (Nastasi and Davis, 2020). Though this may seem like a solution to some in Florida, it only increases the opportunity gap for rural residents. Lack of broadband in rural communities has created digital inequity that needs to be addressed now. As mentioned above, some residents of Wimauma do not have broadband access and the solution was to set up Wi-Fi hotspots in various public locations (Cody, 2020). Residents requiring internet for work or education must schedule additional drive time and face inconvenience. The solution creates an expectation of rural residents having broadband access; however, this solution puts the burden on the rural residents because of their geographical location (Kaur, 2020). After interviewing a small business owner who recently moved from an urban area to rural Myakka City, Florida, the separation that broadband has caused between urban cities and rural communities became clear. The small business owner stated that in her current home she had to pay more money for a slower internet speed, but she was grateful that the line had already been run out to her house because that would have cost her more (Komis, 2021). The small business owner's innovation is being impacted. The limitation on her access to the digital world impedes creating new business ideas. People in rural communities, small business owners, or otherwise, have limited ability to contribute since they have a harder time staying connected to the online world.

Additionally, broadband has been an issue, without viable solutions, dating back to 1996 and earlier. A solution that was attempted was the Telecommunications Act of 1996 as documented by the Florida Public Services Commission. This act stated that the state of Florida was required to show progress towards allowing broadband access to every resident. This act was not an adequate solution since 1996 was 25 years ago and the goal has not been reached! The solutions seem to be attempting to check a box of trying to help without fully reaching a solution. The Loon Project, proposed by Google, was aiming to launch balloons into the stratosphere to reach rural areas with broadband internet. Unfortunately, this project has been discontinued due to costs and a lack of resources. (Westgarth, 2021). The problem is that solutions being implemented currently stopped short of fully solving the problem and solutions that might fully solve the problem seem so farfetched they're hard to imagine and all solutions seem expensive. In Florida, roads to be built called M-CORES, Multi-use Corridors of Regional Economic Significance, aim to create easy access to connect broadband to rural communities in Florida. Though this project is still being researched, it is a promising solution with achievable goals. The perfect solution has yet been found and it should not be assumed a new solution is not necessary.

In conclusion, broadband in Florida has a long way to go before digital equity is achieved. As mentioned above, many issues such as lack of availability for broadband bring negative impacts to rural communities. Though many solutions have been theorized, only physical action can fix the opportunity divide. Floridian residents living in rural communities without broadband see their opportunity gap widening as fast as the internet speeds they do not have.

Word Count: 858

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Broadband Issues & Population Density

In modern society, most people have technology right at their fingertips. However, internet and broadband access are not readily available for everyone. In rural communities, broadband does not stretch far and the internet does not allow for a fast and stable connection as seen in urban hotspots. With recent events striking the whole globe, workforce changes and student life has been altered to be mostly online. This rapid transition to online platforms has heavily impacted broadband and the internet, resulting in slower internet speeds and the crashing of online platforms. When observing the issues that come along with broadband in rural areas, the source of the problem comes from the population density in these communities.

Understanding the Issue

To understand the problem of limited broadband, people have to consider when broadband is most effective. According to the Federal Communications Division, "broadband is high-speed internet access that is always running" (FCC, 1). This shows that broadband is supposed to be high speed and is always working whenever the consumer needs internet access. In urban areas, broadband is fast since internet companies have a higher number of customers to serve broadband to. This is a true example of the economic principle of supply and demand, with a pinch of the ideals of population density in communities. According to the Census Bureau, "an urban area is represented by a densely developed area, and a rural area is represented by a sparsely developed area". When referring to an urban area (for example New York, New York) the population density is greater. This is due to the stacking of housing and close proximity to other housing developments. On the other hand, when referring to an urban area (such as

Fountain, Florida) the population is spaced apart resulting in a lower population density. The supply and demand issue arises when there are fewer people needing internet access in rural areas. According to the C-spire Rural Broadband Consortium, "It is more expensive for the twenty homes to split the cost of broadband materials than it is for 1,000 homes to pay for the exact same materials" (C-spire, 9). This shows that the internet provider is able to have a cheaper price for internet in urban areas which makes internet in rural areas slow down or even become obsolete. The rural areas would have to pay extra for the fast and reliable internet service given in the urban communities, which creates a gap in internet service availability.

Since broadband in rural areas is difficult to maintain, the ways to fix this issue are going to entail a slight economic and/or population boost to rural areas. Here are some ways to help create a well-expanded network of broadband services to rural communities:

1. Promote Rural Growth

Since the root of this broadband problem is economic, rural areas have a difficult time developing in the ways that urban communities do. This is happening so much that there are more people leaving to move to urban areas for opportunities. According to Dr. Johnson, a demographer, "rural flight has become more prevalent in society because of the development of technology and urban centers" (PRB, 3). This centralization in urban areas results in a long-standing center of growth. In order to fight the ideal of rural flight, centers of urbanization must shift to rural areas. This allows for a hotspot of businesses and jobs for people to work at in order to develop the area's growth. To bring urbanization to rural areas, the promotion of growth

can be achieved by bringing well-known events to the rural community or even seek out governmental grants to help fund the growth of the rural area.

2. Focus on Rural Businesses

Since businesses are interested in internet access, focusing on them will allow service providers to receive the funding necessary to purchase materials to expand into the rural setting efficiently. According to BLiNQ, an internet equipment provider, " Keeping businesses in rural communities as a hub for internet access will allow for the area to flourish" (BLiNQ, 14). When businesses in the area grow, the population will start to reside near them for easy access. Keeping the broadband near a hub in the area will also allow for the internet provider to grow as well. This is due to the customer base that the internet company will create and expand through this process, allowing for an economically inventive way to expand broadband.

Conclusion

To sum up the issue at hand, broadband in rural communities is more expensive and difficult to maintain than in urban areas. This makes equal access to the internet virtually impossible for both rural areas and urban areas. To combat this issue, actions such as promoting rural community events, receiving governmental funding, and focusing on the development of rural businesses should be implemented. This will allow for change where broadband has been difficult to obtain and improve the situation that society faces in this day and age. Especially in today's ever-changing society, equal access to fast and reliable internet should not be limited to the population density.

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Expanding Technology to Students of Rural and Financially Challenged Communities
By: Katilyn Small

"Digital Equity ensures all individuals and communities have the information technology capacity needed for full participation in our society, democracy, and economy" (benton.org 2016). Students across America have been struggling with the predicament of available internet access during this pandemic. Particularly, students of rural areas and whose families are financially challenged have been faced with the reality of not being able to have sufficient access to the internet or a device to complete their schoolwork. This is a possible solution to address this issue in relation to digital inequity, innovation, potential job opportunities, educational experiences, and staying connected to those around us during this atrocious pandemic.

Students across the United States have been forced to turn to distance learning for educational purposes. Sadly, some of these children are also faced with digital inequity, or they do not have ample access to the materials that they need to learn. According to the *Salt Lake Tribune* of Salt Lake City, Utah about thirty-seven percent of students are economically disadvantaged, and thirteen percent do not have internet access in their homes. To address this problem, a school in Utah has installed a WIFI hotspot that is much stronger than your average hotspot; it is equivalent to the quality of technology that is used in police cars. High speed Internet has been able to be accessed amongst a three-square mile area. If more schools could follow Utah's example and install this same quality hotspot, more children in the less fortunate communities would be able to have access to the Internet that they need free of charge. Also, according to USA Today, "Google has been giving out free WIFI and Chromebooks to students of rural school districts..." (usatoday.com 2018). This supplies students of our rural communities with the hardware that they need to complete their educational duties. There is still a limited supply of devices available for use to students, and speaking from first-hand experience, those of rural areas who have devices still have difficulty connecting to the Internet. A perfect example is when I have a telemedicine appointment with a health care professional, I must have my mother drive us at least five miles up the road so that we can have an ample amount of signal to complete the visit. Our government could send a

stimulus package, in the form of a device, to children of rural and lower income communities that Google has not supplied as of now. It could also equip school busses with mobile hotspots so that students can take part in educational activities while commuting to and from school. Students abroad are challenged with digital inequity, with the help of companies and our government, we can reverse this issue.

An innovative class that could be created can be formatted in a video game type application can appeal to students and their families. This class could teach children how to navigate their devices and distance learning material. Fifth Third Bank created a club similar to this called Young Bankers Club. This club was not incredibly demanding, it met both in person and online once a week for eight weeks for approximately half an hour at a time. "Students discover hidden clues, win rewards and badges, unlock avatars, level up to new adventures each week, take weekly trivia to test their knowledge and challenge themselves to be first on the class leaderboard" (businesswire.com 2021). The fun aspects appeal to the playful side of children, making them long to play this game, but what they do not realize is that they are learning valuable life skills. I feel like we could learn from what Fifth Third Bank created and use it to create a game of our own. Children could meet online once or twice a week for half an hour at a time and communicate with each other and learn how to navigate their devices so that they can focus more on learning their school content in the future, not how to work their device. School should not always be like a lecture but should be appealing and even fun. This is a way to combine learning and having fun.

"The U.S. Bureau of Labor Statistics found in 2012 that more than half of jobs required some kind of technology skills. By 2020, that number is forecast to reach 77 percent" (wfccourier.com 2017). As time progresses, more jobs are requiring basic computer skills. Even minimum wage jobs require you to know how to use a computer to complete an online application. Most jobs in today's world require employees to have at least basic computer skills, so technological classes are a necessary aspect of our educational system.

Staying connected to those we care about is crucial to our mental health. Studies show "monthly suicide rates increased by 16% during the second wave (July to October 2020), with a larger increase

among females (37%) and children and adolescents (49%)" (nature.com). Zoom helps us stay connected to those we care about, and those who take care of us, like health care providers. Staying connected is essential to our overall health and should not be neglected.

All in all, students across America, specifically those who reside in rural areas and low-income communities, are faced with the dilemma of not having an ample supply of Internet and devices needed to learn properly. To address this problem, we should make a movement to spread free Internet hotspots and devices to children across the nation and implement a club to teach students how to use these devices. Making sure these children receive the devices that they need is necessary for their education, as well as their overall health.

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Digital Inequity
by Lauren Walters

Do you remember a time when you could have a sleepover with your friends or go out to eat and when you see someone you know give them a hug. It was something all of us knew, it was normal. Well, after a year in a pandemic we now know something totally different. We have to stay six-feet apart and can't have large gatherings like we used to. Schools closed and kids started distance learning, their parents started working from home. If you are getting your income and your eduction online you need high-speed internet. The problem with that is digital inequity. Whether it be Covid-19 or the next great pandemic digital inequity due to physical access or price based access are complicated problems that will require complicated solutions.

Broadband is not available everywhere. While 96.8% of Floridians have broadband There is still nearly half a million people in Florida who don't have broadband. I live in a subdivision and I have access to broadband internet. My best friend Raelin who lives about five minutes away doesn't have access to high speed internet. This same scenario goes on in communities across the state.

Another barrier to high-speed internet has nothing to do with cable itself but, with the cost of cable. Broadband internet is relatively expensive. According to highspeedinternet.com broadband cost around $49.99 a month. The average income a month for a household in Florida is $4,916. After taxes that comes out to be $4,000. Then you have your house payment . The average house payment is 50% of your monthly gross income. So then you have $2,500 thats not including groceries, bills that keep your electricity running, and don't forget about everyones cell phones. After you have to spend on all that there is not a lot left to spend on internet.

One way to help with the high prices of high-speed internet would be to have more providers competing for business. Which would lower prices and make high-speed internet more affordable. Unfortunately there are regulations that won't allow that. Some of the regulations are: Appropriate Framework for Broadband Access to the Internet Over Wireline Facilities, Consumer Protection in the Broadband Era, High-Cost Universal Support; Federal-State Joint Board on Universal Services. That is just a few of the hundreds of regulations. Another way that we could help solve these problems is by creating an environment of capitalism. Capitalism is an economic or political system. It happens when a country's trade is controlled by private owners instead of the state. One big part of a capitalist economic system is the idea of a free market. In a free market there would be few regulatory hurdles barring entry into an industry. In this system, companies could be formed by entrepreneurs quickly and with low costs which would create the competition. Competition is good for customers. Plenty of competition would ensure low prices and wide access to high speed internet. The final piece to help with the two challenges mentioned above involves redistribution of wealth. Sometimes this is accomplished using government action. It is more efficient however if redistribution happens on a more micro level. Having companies or individuals give of their own free will to help subsidize getting access to those who can't physically access high speed internet or lack the money to access them is key. Some taxes are used to redistribute money to the poor but out of every dollar collected only about thirty cents makes it where it is intended. The other seventy cents is used for the cost of running the government. Charities on the other hand are much more efficient. They use about seventy

cents of the money for the cause for which they were meant and the other thirty cents for the cost of keeping the charity open. More people might be able to afford high speed-internet if we were able to use charity instead of taxes.

Broadband is not available in certain rural areas due to regulations. That is one of the reasons for this digital inequity. The other reason is because broadband is expensive. We could solve the problems with what seem like simple solutions, but they really aren't that simple. For instance we could say that it would be easy to solve the problem if we just brought in more competitors to lower the prices. You can't just bring in more competitors though because of the rules and regulations. Covid-19 has presented us with these new challenges, digital inequity due to physical access or price based access, these are not problems that can be solved overnight.

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Rural Communities Deserve Broadband

By Lila Runnels

Access to technology and broadband is necessary for education, jobs, and digital equity. However, in rural areas, not everyone who needs technology and broadband has access to these resources despite their obvious necessity. There is a growing gap in Florida between those who have access to these resources and those who do not, and this gap is felt even more by those living in the rural and agricultural areas of the state.

Online education is becoming more and more prevalent, especially during the COVID-19 pandemic, but many students do not have access to the internet at home to attend classes or even complete assignments. This lack of access impacts not only the students' ability to turn in work, but their ability to learn. As stated by the federal communications committee, "about 80% of the 24 million Americans without reliable internet access live in rural areas." Considering that small, or rural, school districts make up 49 of the 74 districts in Florida, this becomes more of an issue. In some of these rural areas, the access is simply not available, but for some students this lack of internet access isn't because there is no availability; it is because their families simply can't afford the cost. While schools provide Chromebooks and tablets to their students, paid for with grants from the state, they can only provide internet access for those devices inside the school. When students need to do work outside of school, which is a common

occurrence, they often do not have access to an internet connection. According to UF's Lastinger Center for Learning, "access to broadband, high-speed Internet proved to be the *most significant challenge* experienced by administrators, educators, students and families in the transition to distance learning." This lack of access, and therefore impact on education, experienced in rural communities will almost certainly lead to a decrease in educated job opportunities, job opportunities in technology and job opportunities at small businesses.

Job opportunities can be deeply impacted by a lack of broadband access in the community. Small businesses support half of Florida's economy, and employ 41.6% of all private sector employees (3.4 million people). Almost all of those businesses rely on broadband for communication, logistics, internal management, and sales management. According to the Bill Analysis and Fiscal Impact Statement introduced by Senator Albritton in January 2020, "communities that lack broadband access can have difficulty attracting new capital investment because broadband access is so critical to businesses." This statement was true in January 2020, and it is true now, after almost a full year of business and tourism impacted by the COVID-19 pandemic. Access to broadband can positively affect businesses success, especially when online shopping is at an all-time high. A diminishing number of small businesses will decrease digital equity as local economies decline.

Digital equity is defined by the National Digital Inclusion Alliance as, "a condition in which all individuals and communities have the information technology capacity needed

for full participation in our society, democracy and economy." This means that every person in a community has access to technology that allows them to participate in education, business, and society. Digital equity is both an essential part of our nation's advancement and an essential part of each citizen's advancement as an individual. Our nation is built on chasing dreams and achieving them, and in the digital age, technology is necessary to that journey.

We know that education, jobs, and digital equity depend on widespread access to technology and broadband, but what actions are being taken or could be taken to make that necessity a reality? In June 2020, Gov. DeSantis signed House Bill 969, *Broadband Internet Service* that "allows up to $5 million in annual spending from Florida's Turnpike Enterprise to assist in developing broadband infrastructure within or adjacent to multi-use corridors, with priority given to "rural areas of opportunity."" This bill would expand broadband in Florida, focusing on rural areas. Rep. Loranne Ausley, D-Tallahassee, has stated that while this is a small step in the right direction for broadband access, it could be a launching pad for larger bills to build off of. On a more local level, the Levy County Board of County Commissioners passed a resolution that states that "...the Levy County Board of County Commissioners will support the Florida Office of Broadband and participate in the implementation of HB 969 (Chapter 2020-26, Laws of Florida), including providing information, assisting in mapping efforts, and supporting other such efforts that will lead to enhanced access to affordable, reliable high-speed internet services throughout Levy County." This resolution will further advancements within Levy County related to the implementation of broadband availability. Levy County could also

improve our access to broadband by requesting grants from the state to provide broadband at libraries, community centers, and school parking lots. Providing broadband at these places is proven to increase the public's interest and interaction with that place. On a national level, broadband could be improved with "...a new convoy of low-flying satellites could beam broadband to hard-to-reach places across the country later this year [...] a project that actually is a fundraiser for launching humans to Mars." This project is funded by SpaceX founder Elon Musk, and would almost accidentally improve broadband access. Already, the company has started to provide service to customers in Kansas. With these actions, broadband within Florida could reach our rural communities to support education, jobs, and digital equity.

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How A Project To Get Humans To Mars Could Solve The Rural Internet Problem from All Things Considered

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Opportunity4All- Expanding Broadband in Rural Communities Essay
By: Malachi Scott

To my fellow readers, did you know that in multiple areas in our communities there are no internet resources where people stay. Well, you will learn about the rural community and how the lack of sources of internet is provided to people. In the meantime, there is always ways to fix problems like this. While you read this essay, you will realize the struggles and the different ways we as people can help better our communities and the world. I hope you enjoy and learn something new or even more on internet and how we need it in our daily life as we live in Florida's rural and agricultural communities.

The first issue that Florida rural communities have and the key points and key terms explain why broadband is a problem. For starters, broadband in rural areas show their tons of poor internet connections from homes. The poor internet connections can cause a lack of work being done. For example, the low connected speed of the internet does not allow for people to do their work effectively. In fact, Perrin, 2019 stated that the government should help provide internet service to people.

It also is proven that former students are coming to the point at where they are failing in their academics. For example, Covid-19 has kept students from school. Some students aren't provided with internet nor technology for them to attend their school classes online. Graham stated that in Florida there has been a negative impact on youth of color. In fact, one report stated that students without internet connection are less likely to attend college or plan for college. Students who do not have internet impacts on their career opportunities and other things such as college admissions as well. For example, 47% of students who live in rural areas have high-speed internet

These are issues that broadband have but broadband issues can always turn into a problem solve, which can turn everything around and make things better not worst. For instance, Florida can work with partners to get better opportunities to let the communities and residents in the rural area to open home-business by providing internet services. For example, in Virginia, Cox Communications worked with Virginia Telecommunications Initiative to expanded fiber optic network in a small rural county. This shows that the more partnership or investors we have means the more money and resources we save. To be honest, making more broadband available to rural communities most likely requires collaboration. Companies are a big part of why communities are getting more technology and broadband in their setting, with these different types of companies helping in the rural community, it's coming out to be beneficial and it has made a difference. The charter Vice President of Regulatory Affairs includes a company that has been testing their fixed wireless technology in the 3.5 ghz spectrum bands, hoping to find sustainable solutions to help more and more Americans and hopefully this can help Florida in the Rural areas to get internet services.

From my own experience, I know what it feels like to not have broadband or Wi-Fi. From what I can tell from what I have read, not everyone gets a chance at having this type of technology. To me, I didn't have this type of equipment. Sometime, I would go outside and I saw what my friends were doing. They would have the technology that I didn't have. My mother didn't have help and couldn't invest in things that would provide her the money to purchase us a computer or things we needed. My mother did not have any help. For example, Covid-19 kept us youth at home and we didn't have any computers or no electronics to do our school work. However, now she has everything she asked for and her kids have computers and other things because of some of the funds that were giving to families during Covid-19.

To conclude this essay my fellow readers, I hope you have learned something new today. In what you have read, I explained to you the issues that rural communities have struggled with such as the lack of technology and the low resources of their use of the internet and what I have faced with not having a computer at home. I believe that I've explain most of the issues and the problems that can be solve for people to help the rural communities. You need to show Florida more attention, because the more time we spend on something not useful, the less things we get to use in our daily life. Now is the time we get partners to help us benefit for the community so we can experience more and new technology.

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Broadband for the Blue Collars

By: Megan Dempsey

In the United States, it is common to pass large rural areas, but there's also something else that comes. Maybe you'll reach down to take a picture of the rural scenery, and realize you have no phone service. This is an annoyance to you, but as time goes on you reach closer to the suburbs and the service returns to the device, but that area that you passed remains without it. A lot of the farmers that live in those rural areas go with little to no broadband. Expanding broadband to those communities would expand the opportunity for those who feed America to have this type of internet, reach goals, and expand their business.

Broadband is a high-capacity transmission technique using a wide range of frequencies, which enables a large number of messages to be communicated simultaneously, or in more simple words, internet connection to the rest of the world. According to the Case for Rural Broadband by the USDA conducted in April of 2019, "...of the 24 million Americans living in households that do not have access to a fixed terrestrial broadband provider, 80 percent of them live in rural areas…" That is approximately 19.2 million rural living Americans without broadband. Suburban citizens know of the internet from using it daily. People always say, "What would we do without our phones?" We enjoy the luxury of being able to ask Google a question anytime we desire, or to be able to contact our friends and family at the blink of an eye. The common American farmer suffers a lack of internet every day. They can't research their thoughts and questions or contact their loved ones with such ease. It takes them double the time to do something we can do in minutes. Also stated in the same Case of Agricultural Broadband, "High-speed Internet access across America today is characterized by a stark infrastructure gap between rural and urban areas. While urban centers enjoy widespread availability of high-speed internet service, much of rural America has yet to be connected…" Just think of the connection

you have to the world. You can call your loved ones at any given moment or meet new people when we please. But for agriculturalists, it's not quite the same. While they may have the devices, such as a phone or a laptop to try and contact others, they're still missing one key factor: broadband. No matter how many times they try, that message won't through, or if it does, it can take so much longer. It may be a simple pet peeve us, but it is an everyday thing for those blue collared workers. Without these people, we wouldn't be able to live. Agriculturalists provide so much for us every day, and we need to work harder to provide this luxury to them. After all, they do feed America.

We've all been on or seen a ranch, but we must wonder just what goes into running it. Farmers strategically plan their work, hiring specific people for certain jobs, but including broadband in this mix could advance the agriculture industry in ways we couldn't reach before. Giving rural workers a connection to the rest of the world can bring in advances to benefit us as well as themselves. A report on agricultural communications says, "In an era when broadband is essential to innovation, jobs, and global competitiveness, the Report concludes that the FCC – and the nation – must continue to address obstacles impeding universal broadband deployment and availability" (fcc.gov) Having the opportunity to stay connected with others is something we know and enjoy. For agriculturalists, it could mean millions to be able to have that connection with the world, both fellow producers, and consumers. They can collaborate with others of their specialty to come up with advances to better their products and businesses or speak with consumers of their products to receive feedback. Broadband can also provide advancements in production. The broadband case by the USDA says, "Across the agricultural production cycle, farmers and ranchers can implement digital technologies as other modern businesses are doing, enhancing agriculture by driving decision-making based on integrated data, automating

processes to increase operational efficiency, improving productivity with tasks driven by real-time insights, augmenting the role of management in the business of farming, and creating new markets with extended geographic reach." (Page 17) Farmers are now able to follow up with the advances in technology. They can incorporate those advances into their work, and they are able to gain more knowledge thanks to the internet. Farmers aren't the only agriculturalists who benefit from this research on the internet. The youth agriculture programs, such as 4-H and FFA can follow along with daily advances and trends to educate those youth who are the future of the industry. Every day we see these youth applying their knowledge in their projects, and they may even teach the adults a thing or two! Having the relationship between everyone in the world strong and connected is extremely important, especially today. With the forever advancing technology, we should be able to come up with a method to provide rural areas with broadband. It could be something such as a stronger cell tower to reach those large portions of land, or even something similar to a hotspot personally made for each farm. Whatever the case may be, let's get everyone connected! Agriculture is a forever growing industry. There is always something new to learn, which is why it is so important to keep everyone connected.

With the high-tech society we live in today, it is very important to keep everyone connected and provide all with the opportunity to learn and communicate through the internet. America runs on its backbone which is agriculture. Without it, there would be nothing. Providing internet to rural areas can provide advancements to them and prevent them from being lost and unrecognized. The knowledge and advances gained will build the future of agriculture.

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Connecting Our Rural Communities

By: Melina Perdomo

"Maybe this audition will be enough to land me the role!" It was 11:50 PM, and at 99% the file we had been uploading for ten hours was almost complete. I had worked so hard on this audition but now it might not be submitted on time. Precious minutes ticked by. Come on… ERROR. My parents and I frantically tried to figure out what to do. After some quick deliberation, we used a phone to record a video of the video and submitted it by the midnight deadline.

Our modern society is seeing more strides in technology than ever before. Fast internet and easy communication for Americans everywhere is extremely helpful to our lives regarding work, education, and business. However, how does the inability to gain access to fast internet affect rural families? In the above real story of my struggle in getting my audition video submitted to my creative arts school, not having fast data almost cost me the chance for the role. Today we will be addressing and explaining the issues rural areas face and how we can combat these problems to bring better internet to the people who are such important contributors to our society.

First, let's look at the work environment. Men and woman across the nation have switched to working almost completely from home. E-mail, virtual meetings, and phone calls are now the main way to communicate. Gabriel Perdomo, an engineer in a rural community, states that "Even a simple task like loading email is a challenge for me because of the large attachments." Most difficult, for rural workers are the virtual meetings. Dr. Merritt described the difficulty in the video feature to assess patients, as well as the many times the slow connection

lead to the freezing, glitching, and sometimes dropping of meetings altogether. This caused him to miss out on essential information and created stress and frustration from the inability to properly converse with his patients and colleagues.

Another place that rural families encounter problems is in education. With virtual classes, not having the service you need to attend and effectively learn can be very difficult. School takes more time, work becomes incomplete, and students miss out on extra help available on the internet. The upload problems such as I experienced with my audition video are par for the course when submitting assignments for many families. In addition, slow internet affected children's final exams as the pandemic forced them to take them online. At the end of the 2020 school year, I did just that for my AP tests and the unreliable WIFI caused another layer of stress to these exams. In addition, study and review videos were put out by the AP Board every day for each subject from March until the exam to help students be prepared. Streaming three hours of classes a day was not an option thus putting me and other rural students at a disadvantage. Without intervention, this lack of digital equity could be detrimental to rural students.

The final place we are going to look at is the business area. The businesses and farms that many people in rural communities build up and successfully run need the advantages that faster internet could offer. Farmers expressed frustration over issues due to low broadband relating to keeping in touch with consumers via online and on social media. Joy Miller, of Full House Farm, described how having it was essential to be able to give their community a way to see the progress of their farm and to communicate how to buy from them. Field of Faithfulness Farm emphasized the importance of being able to reach out to agricultural leaders and fellow farmers around them who can share valuable information on how to care for certain illnesses, co-op purchasing of food for their animals, as well as experience on how to build a successful

production. Modern technology is an essential component to these farms and their rural communities.

So, what can we do to fix these issues facing so many Americans in rural areas? First, call your community to action! Alert them to the need for faster service in your area, and get together with others to show as a community that you are invested in getting the connections that are needed. Secondly, you and your community can contact government officials in the area, encouraging the government to provide grants or other means to help defer the cost to providers that will be bringing the connections. Universities and businesses also may want to invest as online learning, marketing, and purchases are exponentially increasing. Having a supportive network to provide help and funding can be extremely beneficial.

Lastly and most importantly, advocate for improved broadband mapping and fixed wireless. Since people in remote communities often have miles of land separating them, having an underground fiber network run to each individual home takes a huge amount of these fibers. Although this fiber network is useful and simple for urban neighborhoods, it is not realistic for rural areas. Fixed wireless has the data travel over a pre-existing network to a 'fiber backhaul tower', where it then travels over the air up to five miles away. This data can be relayed from tower to tower, until it reaches the home destination, which will be equipped with the special receiver. This network is a great answer for agricultural communities, as it can quickly and easily provide families with the fast internet necessary for their day-to-day lives.

In conclusion, even though it is currently difficult for rural people to be successful online in the areas of work, education, and business, with a strong determination and a plan we can help our rural communities for the better. In implementing a fixed wireless network by joining together with government, universities, and businesses we are all invested as a bigger community

into our rural communities. Our digital equality increases over all our nation and connects us all

together in a truly amazing and beneficial way.

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Broadband in rural and agricultural areas
By: Mikaila Carte

Many people in rural and agricultural communities are unable to participate in online activities. With Covid-19 or Coronavirus, many parents have had their children moved to online learning. Although this is considered a safe choice, it may not be the best for a student's academic career and responsibilities. There is also the digital divide which is "a gap between those with internet access and those without access that threatens communication access to many across the country." (hirons) With a digital divide life could be different for everyone, not only those who don't have broadband.

There are many problems caused by not having broadband in rural communities such as said by Hirons; "Lack of access to high-speed broadband presents rural communities with both economic and healthcare-related challenges. Digital technology drives today's global economy, creating new jobs and allowing people to telecommute for better opportunities." (hirons) Today's technology gives many opportunities but they have been proven extremely difficult to attempt without the accessibility of the internet. Everything nowadays is done online and without broadband in these communities, there are high difficulty levels in completing everyday tasks. According to alvareztg, "34 million Americans don't have access to broadband." (alvarezgt) With such a large portion of the population not having broadband, there is a large disconnect from surrounding communities and possibly even a disconnect at state level. According to connectednation, "It's estimated that 6.5 million students nationwide don't have the broadband Internet access required to complete their homework assignments. The digital divide further strains families and rural communities by holding back small businesses, limiting opportunity, making it harder for farmers to take advantage of technology and preventing access to

advancements in telemedicine and remote monitoring." (Connected Nation) The digital divide is negatively affecting communities at a large scale and with the separation it could cause a lack of communication and further cause problems in rural and agricultural locations. Also, an inability for students to do their schoolwork could end up holding them back in the future and effecting the rest of society. With the farmers, they are responsible for the crops and livestock the rest of us consume and without technological advances in agricultural and rural communities there could be a very different future we all find ourselves in.

On the other hand, in order to help resolve this problem alvarezgt has said, "To improve access, private and public sectors are joining together to expand broadband into rural areas. Microsoft has pledged its support for the project, and in particular, the company's Rural Airband Initiative seeks to work with telecom companies to bring access to 2 million rural residents by 2022." (alvarezgt), "The Federal Communications Commission (FCC) also has plans to help expand access." (alvarezgt) With large corporations aiding in the spread of broadband, there should be a great increase in productivity from citizens in these improved communities. There could also be a spark in other large organizations who could also assist in resolving this situation. Also, "approved providers committed to delivering broadband at speeds of at least 100/20 Mbps to 99.7% of locations, with more than 85% getting gigabit-speed broadband. The closing of that auction came just two months after the FCC announced rules for distributing up to an additional $9 billion over the next decade to extend next-generation wireline and 5G wireless broadband connectivity to rural areas." (USDA) With large money donations from approved providers, there has been an increase in accessibility to the internet in rural and agricultural communities and it has allowed them to improve their lives whether that be in school or at work. Thanks to donations like these, more students are able to better access their online school work and be more

productive in their lessons. More donations like this across the world is key to fixing this broadband problem. "A total of 82 awards were made impacting 34 states across America. The investment represents $744,303,168 in grant and loan funding for high-speed broadband infrastructure projects. These 82 critical investments will connect approximately 13,000 farms, enabling them to enhance and utilize precision agriculture technologies for specialty crop production." (Middle Market Growth) Thanks to these funds, many farmers are able to connect and improve their work production. Due to this connection, many people including those who don't have this broadband problem are able to thrive now that crops and animal products are now more efficiently reaching the rest of us. Because of farmers' access to technology, they can now better determine how to modify what they are doing to provide more with less income loss.

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Expanding Broadband in Rural Communities
By: Noah Hall

Do you know how technology and broadband issues affect people in rural areas in Florida? Due to the Covid-19 pandemic, people rely on broadband now more than ever. This makes it difficult for people to stay connected: students need to attend virtual classes and workers need to connect remotely. Due to this critical time, innovation and digital equity are crucial for virtual survival. Is there a solution to this problem?

Due to the pandemic, people now spend most of their time at home. As more workers begin to work remotely, staying connected is a top priority. However, issues arise for those in rural areas. According to Prieger (2013), there are typically fewer fixed broadband providers available to rural areas. In addition, mobile broadband availability in rural areas is lower than in urban areas. This can affect students and workers who rely on virtual classes and jobs in rural areas.

Virtual school enrollment has increased significantly in Florida within the past year (Lieberman 2020). With issues such as limited rural broadband availability, it becomes a challenge to attend virtual classes in rural areas. If there is limited broadband availability, it becomes difficult for remote students to get the education they need.

Another significant change in the last year is the number of workers who have made the change to work remotely. This includes those who live in Florida's rural areas. A work cloud investigation analysis found that remote work has had an impact on the creation of new trends (Wrycza, S., & Maślankowski 2017). An example of a new trend would be technical jobs that rely on innovative virtual conditions that create new ways of doing work. Virtual technical jobs lead to new innovation trends, such as video conferencing, which allows workers to speak in real-time all over the world. This is a benefit to many businesses. These trends would not be possible without the adoption of widespread broadband internet in the past few years (Peek,

2020). With limited broadband availability in rural areas, this is yet another reason why broadband is crucial to Floridians.

Although increased broadband may be a solution to these issues, it is not likely that rural areas will receive more broadband options. According to BLINQ Networks, building broadband networks is incredibly expensive and difficult to achieve. Installing fiber, (which is the main contender in the broadband scene), is expensive too. It is also logistically difficult to put the cables in the ground in rural areas that have harsh weather conditions or uneven terrains.

However, digital equity is becoming more essential. All Floridians should have access to broadband, even if they do not live in urban areas. Otherwise, equal access to public services and innovation is limited. Technology is like a tool, not only is it useful, but according to Ionescu, et al., (2021), it is exceedingly necessary for the continuous provision of essential public services. Because of this, Floridians should not be limited to broadband based on where they reside.

But what could be a viable solution to these broadband issues? One possible solution to eliminate sparse broadband availability could be to utilize the local library system. This could be achieved by allowing Florida local libraries to loan library users hotspots to meet broadband demands in rural areas. If rural Floridians have access to hotspots, this provides the opportunity for students to have virtual educational access and for workers to effectively work remotely. In addition, this solution fills the digital equity gap. By offering hotspots to library users, Floridians would be able to connect virtually, regardless if they live in rural or urban areas.

Another possible solution would be to explore satellite internet service options. This could include satellite internet service providers such as Starlink, engineered from SpaceX. According to Kahn (2021), the US government awarded SpaceX an $856 million grant to help deliver broadband access to rural America. Even though satellite internet is still in the beta

testing phase, knowledge of this option is not widespread. Starlink prides itself on beginning accessible to areas around the globe that would otherwise have difficulty connecting successfully. This is a possible option and potential solution to this issue.

In conclusion, broadband availability is more critical than ever. Since there is less broadband availability in rural areas, staying connected is a challenge. Digital equity is essential and needed for those who attend school virtually. Innovation can thrive with new remote work trends. With the help of local Florida libraries and exploring satellite internet service, we can resolve rural broadband issues together.

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<center>Expanding Broadband in Rural Communities
By: Olivia Grace Williamson</center>

The internet is an essential part of our daily lives Using technology daily is a new normal in our society..As more and more information is available on the World Wide Web we as a society have become more and more reliant on its use and in many cases it has become the preferred way to do business. We do our classroom assignments and submit via the internet, doctors' appointments are made using the internet, and working from home requires internet communication.

The estimated population in Polk county is 724, 77 according to the 2010 census. Approximately 70% of households have some kind of broadband internet subscription. Median household income is $ 50,584. Internet services in home come with a monthly fee. With 30% of homes having no access to internet services in lower income household internet access is still a luxury item in 2021.

Some of the Internet services that are offered in our county are Spectrum using cable connections and 940 Mbps, Frontier using fiber optics connections and 940Mpbs,Synergy using cable and DSL and 200 Mpbs, HughesNet using satellite connection 23Mbps. Depending on your service plan subscriptions begin at $45 per month. Services are not guaranteed or offered in rural and farming communities. I spoke with two different families about their current internet provider and the problems that they have encountered living outside of our city limits.

Mrs.Bourn states she has had a difficult time finding a provider for her area that is nine miles east of Fort Meade. She purchased a service plan through one of the top three providers in our

county. She encountered limited services including outages on a regular basis, dropped searches. She was very unhappy with the services she had been provided.

Mrs.Sarlas states she has purchased a monthly service plan however, she experienced many of the same problems as Mrs.Bourn with "spotty service" and outages. Mr.Sarles is located 10 miles east of Bartow. She uses her internet for college courses so poor service has affected her grades.

Low income families inside the city limits have free choices available to them when they need to access the internet and use technology such as computers or tablets that the do not have in their homes. Local libraries have computers with internet access available. You may have limited usage times when choosing the library. Many restaurants' and coffee shops have areas that you may sit and use free Wi-Fi. However you will need your own device and the source may compromise your security on the web.

Our rural communities have fewer choices when searching for a provider with adequate internet service or a place to use Wi-Fi. Availability seems to play a big part in not having access. So how does this affect students and families who live outside of city limits? I spoke with Mrs.Reeves a teacher in a rural community she states that many of her migrant students and low income students have difficulty completeing assignments due to lack of technologhy in their homes. She also state" It's not just low income families. Some students have adequate technology but they are unable to obtain the service because of their remote locations in country setting,"

How can we help bridge the gap in our rural and farming communities? Current cable providers should make accessibility in our rural areas a priority for without the access we cannot move forward in putting in place rural centers or mobile units to service these communities. Once we get the availability with quality connectivity we can use mobile units to visit these sights on a regular schedule proving not only WI-FI but access to computers and tablets. Using community centers or churches for hotspots would be another option. I would like to see a portable air device that could connect a student/parent in the rural areas that have computers/tablets available to them but no access. The device could be checked out and used and returned so as to remain cost affective, Students could plan their study days around availability of such devices. Parents could apply for jobs, make doctors' appointments and stay connected to the outside business world with air devices.

Having cost effective internet could level the playing field for students as well as give adults in rural communities access to jobs online with working from home options.

In conclusion I think the first step to getting the needed technology to those who cannot get or do not have availability of services is for the service providers to extent service areas with the same quality of services we find in major cities and towns. Expanding the horizon of connectivity for all in rural and farming communities.

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www.broadbandnow.com

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Rural resident

Mrs.Tamara Saralas

Rural resident

Mrs. Annetta Reeves

Rural school teacher.

Expanding Broadband in Rural Communities by Paige Griner

Broadband, by definition is a high-capacity transmission that has a high range of frequencies. In short broadband is what allows us to use the internet. Because the use of internet is so widespread in today's modern time, it is hard for the average citizen to imagine going without internet for just a couple of days, not to mention having no connection at all. However, the lack of internet a.k.a. broadband is a significant issue in impoverished rural areas. Rural areas in particular have less accessibly to broadband because rural areas have less people per mile and have less economic potential. Meaning for people in a rural area, most of the time internet providers must run a line to provide the individual with broadband which costs high prices which makes it costly for many families.

In Florida in particular, the lack of accessibility of broadband in rural areas is a large issue. In a news station called 10 Tampa Bay[1] reported that over 10% of Floridians (about 680,000) do not have internet connection in their home. The majority of these 10% are found in rural counties that have high poverty rates. There are over 16 counties in Florida that are considered 'underserved' with access of broadband, one of these being Madison County (a rural and agriculture county) which according to a Gainesville Sun Article[2], 41 percent of

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[1] Tamika, Cody. "Peeling Back the Layers of the Digital Divide in Rural Florida." wtsp.com. 10 Tampa Bay News, August 21, 2020. https://www.wtsp.com/article/news/regional/florida/peeling-back-the-layers-of-the-digital-divide-in-rural-florida/67-65bd936e-2398-4aaa-a753-60b162966544.

[2] Dunkelberger ,Lloyd The News Service of. "Lack of Broadband Hurts Higher Ed in Rural Areas." Gainesville Sun. Accessed February 15, 2021. https://www.gainesville.com/news/20170814/lack-of-broadband-hurts-higher-ed-in-rural-areas.

Madison County residents do not have access to broadband. These numbers really show how many people in the rural parts of Florida do not have access to broadband which many may think is widely available.

The rural areas of Florida that have an inaccessibility to broadband have had limited growth of economy and education, whereas more urban areas have seen large amounts of growth. Due to the inaccessibility of reliable broadband in rural areas it prevents small business owners from branching out and creating online platforms. This stunts the growth of the local economy. Because, if the owners of the small businesses branched out and grew larger it would provide more jobs in rural areas. Another effect of broadband not being assessable to those in rural areas is education. Because of the lack of broadband many residents in rural areas that want to pursue higher education must attend their local community college in person which limits their time to hold a job, which may deter many residents to not seek a higher education. If broadband were more widely accessible, the induvial could seek higher education online where they had a more customizable schedule.

In the wake of the COVID-19 pandemic it has become apparent that there is an even larger rift between rural and urban areas and broadband access. As many rural businesses must shut down due to the pandemic, urban areas had the means to adapt and move their business to online platforms to adapt to the changes of life the pandemic has brought. It has also become an issue with education. With most colleges and some high schools being online, it really shows how big of an issue accessibly to broadband is. Without broadband it is harder for rural individuals to get their schoolwork done and sometimes they must travel or buy a hotspot in order to do their work. During this pandemic, staying connected to family is growing more

important. Because of broadband not being as accessible in rural areas, it may have effects on the mental stability as people with broadband could still feel as if they are close to their loved one through videocalls and other means of communication. Another issue is some larger businesses switched to telework to accommodate the pandemic, this would cause an issue with those in areas where broadband is not widely accessible.

This is a solution that must be fixed to give those in rural communities more opportunities. My solution to this would be the use of internet satellite. With the use of internet satellite, it would allow for highspeed broadband without having any cables or towers needed nearby. All you would need is a dish and internet subscription with a provider. This would allow the residences of rural areas to have access to broadband cheaper and easier than it would be to build more towers or to run lines. However, an issue with this is that there must be a satellite in an orbit close to the area.

The way internet satellites work is a satellite is launched into space in a geostationary orbit, an orbit that is the same as Earths, so it stays in the same spot providing coverage. The dish on earth would send waves to the satellite in space, in which the satellite would process the data and then bounce it off other satellite until it reached its target location. This allows for fast communication and relatively high internet speeds. This idea is not as widespread as the use of towers, however when done successfully can be much cheaper.

For this solution to go into effect there would have to be multiple geostationary satellites in orbit above Florida. Although satellites are very expensive, satellites have long life spans, it will pay off with time, and it will provide rural communities with reliable broadband

which is so important in today's evolving times. This solution is ideal because it reduces the

reliance on cellular phone companies, reduces costs and improves access to broadband for

rural communities.

Word Count without Biography Sources:948

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Essay by: Paisley Lee

Rural areas are being held back now more than ever from high-speed internet such as broadband. These issues are slowing economic growth and rural communities are not being able to capitalize on new ways of technology such as precision agriculture. All of the benefits that the internet brings underscores the need to connect those communities without access to broadband, commonly referred to as closing the digital divide. Nearly 10% of Americans, mostly in rural communities, are still not connected to the internet. At a time when 81% of people report being online daily, it can be hard to fathom a life without internet connectivity at all, according to medium.com. Technology and broadband are needed for agriculture in rural areas.

To start with, broadband helps businesses be more efficient by better collaboration. Different businesses can contact other companies for sponsorship reasons or for other needs, but that's not possible without broadband. Without technology and broadband our economy will start slowing down even more if we don't do something to improve high speed internet connections in rural communities. Broadband also provides better access to labor that we need in order to get jobs and things like that, but rural communities don't have access to these things. Labor is essential to live because by doing labor is how you earn money to buy food, clothes, and basically life essentials. In addition, broadband can help businesses by having file sharing between employees, file sharing is an up-to-date way of productivity which you need technology and high-speed internet for. According to people.eecs.berkeley.edu.com, "Specifically, my main finding was that a 10% increase in broadband penetration is correlated with a 1.35% increase in GDP for developing countries, and a 1.19% increase for developed countries. This suggests that in general, broadband is a valuable investment for spurring economic growth". Broadband is definitely needed in rural communities for these reasons and lots more.

Moving along, broadband issues are holding rural communities back from precision agriculture. This is a new and up to date way of farming. Precision agriculture are high tech tools that enable smarter solutions to growing crops. It can make farming easier on our farmers by identifying variability between fields and it also helps with time management. Some examples of precision agriculture are GPS, mobile devices, robotics, irrigation, sensors, rate seeding, and weather and nitrogen modeling. All of these things are the key to making farming easier, but in order to do so we need broadband! Precision agriculture also offers jobs. A precision agriculture specialist gives technical assistance to farmers who use precision agriculture. To become a precision agriculture specialist, you have to have a bachelor's degree in agricultural engineering. Precision agriculture is steady coming up with new and improved things according to agfundernews.com. "Precision agriculture innovation continues, and more and more farms are adopting available technology and practices. Like any other industry, we need more advocates to drive greater adoption and hence greater efficiency. Growers need support to successfully implement new technologies to ensure success". Precision agriculture gives

farmers an easier way to their everyday life. Without broadband in rural communities, precision agriculture and all the pros to it aren't available to these areas.

Lastly, there are many ways that we can address these issues in rural areas. One being, trying to get grants from the USDA and run fiber optic cables to supply broadband for rural communities. According to medium.com community calls to action help improve broadband for rural communities. Where public funds are not available, community calls to action have proven to be an effective method of expanding broadband access to rural areas. These initiatives often require community members to first come together to assess and identify their needs, from homes and household connections to businesses that could benefit from broadband access. By doing this with everyone in mind, rather than advocating as individuals, communities can prove that the need and volume of subscribers exist to make a strong business case that encourages internet service providers to invest in connecting the area. Another way to get broadband to rural communities is by improved broadband mapping. This more granular data collection will lead to a more accurate broadband map and better targeting of federal resources. Also, we can contact our senators and legislators to let them know the importance of broadband and technology, and how it helps make farming easier by the reasons I have stated.

In conclusion broadband is basically an essential to agriculture. It helps improve economic growth and gives the ability of precision agriculture. To better rural and agricultural communities, help in any way you can to get better broadband in rural communities.

Other resources:
Therobotreport.com
Agexplorer.com
cisco.com

Why We Need Broadband

By: Reagan Elia

Nineteen million Americans living in rural areas, approximately six percent of the country's population, do not have access to broadband service. This means they have absolutely no access to the internet,are unable to utilize social media, emails, online banking or shopping, or surf the web to find useful information, which is a necessity in the twenty-first century. Usage of the internet is vital to farmers and rural land dwellers, whether it be a small family nursery, agro-tourist destination, two thousand head cattle farm, or an average person enjoying a quiet life in the secluded countryside. Technology can be used by farmers to do necessary research and market their products. Broadband also allows future farmers to learn more about farm management through online certification and 4H programs.

In an interview, the owner of Another Bloomin' Nursery of Florida, Michael Elia attested to how fundamental technology and broadband is to his business. "We are so fortunate to have access to broadband internet service where we are located, many nurseries do not have this luxury, hopefully this will change soon." Elia and his employees use the internet daily for research purposes. During the winter months, when temperatures drop below forty degrees fahrenheit, tropical plants must be covered or they will freeze and die, resulting in the loss of hundreds of dollars for the company. Elia uses weather tracking services to know what days tropical plants must be brought inside or covered with frost cloth. Elia's employees, who are tasked with matching customers with the perfect plants for their yards, utilize web browsers to research information on specific plants and varieties. One employee, Luke Boree explains. "We have hundreds, maybe thousands, of different plants here, it's so difficult to remember small details about every plant, and when people ask difficult questions I don't have the answer to, it is so convenient to pull up Google and find an answer." If more nurseries were able to access the

internet, they would be able to better help their customers and grow their business. In addition, farmers can use web browsers to research soil temperatures, compare seeds, and research equipment.

Social Media marketing is another benefit of technology and broadband for farmers. A local crop maze and popular agro-tourism spot conducted a survey the first five years it was open, asking all guests where they heard about the crop maze; over seventy five percent of visitors heard about the crop maze through advertising on Instagram and Facebook. On the other hand, another

agro-tourism spot, a sunflower field with a farm-to-table restaurant had about half the profit margins, which is most likely due to the lack of internet access in the area and the inability to post ads on social media platforms. An additional example can be seen in the seed industry, where marketing on social media platforms, such as Twitter, Facebook, and LinkedIn are instrumental to the growth of the seed industry because it allows seed companies to connect with other companies and consumers and share industry-relevant stories, blog posts, and videos If farmers in the seed, plant, and crop industry do not have access to social media via broadband internet services, they will face major setbacks in their business. Furthermore, in the cattle industry, a leader was constantly encouraged to join Facebook, but he was unable due to lack of internet, but when finally given access to broadband, he started a page, which turned out to be incredibly successful. He wishes he started his page earlier because he believes that his customers are growing younger and no longer look at catalogs but social media posts instead, proving that social media is vital to farming industries to appeal to the younger generation, who's world revolves around technology.

Furthermore, technology and internet service has proved itself to be vital over the past year, with most activities and learning programs going virtual. Personally, this past 4H year has been incredibly difficult for my club and clubs across the country because of the lack of internet in rural areas. With all activities from stock shows to club meetings to clinics going virtual, 4H members, myself included, have not had the same opportunities to participate in events held by 4H. My club has struggled to survive, as we are unable to hold in-person meetings. I have not been able to attend workshops and events such as the public speaking and officer training workshops, area horse shows, and art exhibits at the county fair, and due to lack of internet connection, I was not able to participate virtually. Online certification courses such as the horse genetics online extension course from the University of Florida or Penn State's agribusiness management program, marketed towards young farmers are unavailable to them because they are unable to access the internet.

The insufficiency of technology and broadband in rural areas is proving to be detrimental to agriculture, and the side effects will continue to worsen if this is not fixed soon. A temporary fix could be to use hotspots, but unfortunately, excessive use is inexplicably expensive. Broadband providers should take responsibility for providing internet to far flung areas, because the future is in their hands. If internet providers don't take action soon, the farming industry will take a dive into a pool of uncertainty and failure and farms will go bankrupt or be foreclosed. Responsibility also falls on farmers, rural dwellers, and children in agriculture to present these ideas to broadband companies and participate in conferences, such as A Real Rural Tech Talk Roundtable. The future is technology, and the agriculture industry must adapt to survive.

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Opportunity4All- Expanding Broadband in Rural Communities
By R. Curtis

With today's internet, every business and individual can be known internationally. Knowledge and opportunities are a fingertip away. Because of this, almost everything is expected to be done digitally job applications, purchases, education, and even dating (just to name a few). This can be a safe and extremely effective way to interact with others especially during a health crisis like the latest pandemic. While internet service is getting better as a whole and reaching further corners of the earth, there is still a very large digital gap between rural and urban areas. One of the biggest factors contributing to this are the limits of broadband.

In general terms, broadband refers to high-speed internet access that is faster than traditional dial-up and is always on. This is crucial to safe and dependable communication. On a personal level, have experienced the frustrations on many occasions where I was attempting to submit schoolwork, or needed to look up information for an assignment and had to simply sit and wait while pages were loading. Minutes quickly turn to what seem like wasted hours and for a kid with a learning disability that has little motivation for school in the first place, this is very defeating. If on-line classes were my only option at this time, I truly believe that I would have just given up and stopped attempting out of frustration. I'm sure that's how many kids my age feel, especially those that need assistance and cannot get it. According to the National 4-H Council's report, Beyond the Gap (2020), the opportunity gap in America continues to widen and is affected by the following key elements: socio-economic status, ethnicity, race, and zip code and many youths fall into more than one of those categories. I believe that "adjusting the playing field" begins with asking youth like myself, what they feel is missing. What we feel we need to

help us help ourselves. For us to be a stronger generation than those before us, we all have to be able to utilize the tools that are available to the rest of the world or we will not be able to compete. Without internet access to further education, to market ourselves, and to grow our businesses, we will be limited as individuals.

When most think about businesses being dependent on the internet they think about things like inventory, tracking shipments, payroll, and small businesses needing it to compete with larger ones. What the average person does not realize is that even today's farmers are going digital for everything from soil analysis, temperature and water controls, satellite mapping, GPS steering on tractors, and much more. With more and more regulations being placed on farming for food consumption (plants and animals) it is more important than ever that farmers be able to control as much as possible over waste, productivity, and quality. All of which can be better managed with the help of technology. It is my belief that if more farms could afford to go digital and had strong broadband to support their operations, more families could afford to stay the course and more youth would have an interest in it.

So how do we get dependable internet service and the tools to use it to everyone? Investment. Companies are going to have to invest in the needs of our youth and our nation. As I searched for reasons why so many small towns and rural communities do not have reliable broadband, I realized that in most cases it would only take a company providing towers. Major providers could even work together to supply towers to absorb the cost and could even use that as a marketing tool for their services. Computer companies could also invest in our youth by

creating more affordable tablet options for families or provide a voucher program for schools so that a certain number of tablets may be given to students that qualify by need.

All businesses need to have a return, and for major internet providers, most can afford to look beyond the dollar and invest in future employees/company contributors. The further our youth fall behind in education and skill development the more unqualified for tomorrow's jobs we become. This can cause companies to move, jobs to get outsource, and work to become scarce (especially in rural communities). This will not only affect us as we become old enough for employment, but it affects youth on every level when their parents cannot work. I think any honest person would agree that with today's technology and knowledge, money (or lack of money) should never be an acceptable reason for a child going without. Especially when what you are providing means that you can teach them to be independent, productive, and competitive for the rest of their lives.

So many factors go into why technology is not available to youth. In my case, I live in a rural area, our funds our limited, and my parents did not think it was important to try to provide a computer for me. I had to be exposed to opportunities and tools outside of my home to realize what I needed to better myself and my situation. With that knowledge, I think that no matter what age a person is, our government should invest in free programs to help train people on internet use. Again, some funding and resources for a program like this can come from contributions from the computer and internet companies themselves.

To me, it makes sense on every level for companies and our government to invest in educating our youth and providing them with the necessary technology and service to aid them in becoming educated, skilled adults. When people can be employed, they have money to spend; when they spend money, companies thrive. Our country will be as strong as the youth it develops, and *everyone* should want to be a part of that.

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Bridging the Digital Divide

By: Sienna Riley Barnett

What is high speed internet and why is it important? These are the questions I asked myself when starting this essay. I looked at sources about the "Digital Divide", internet companies, and the average price of internet and how much you get for that price in rural areas, suburban areas, and urban areas. After organizing all the infzzzzzzzzzzzzzzzzzzzzzzzzormation and speaking with my relatives who are located around Florida, I found digital divides among my own family members.

According to Broadbandnow.com [5] 100 megabit-per-second (Mbps) is a good internet speed. Most urban areas have at least this speed, while rural areas only average 25 Mbps. The number of Mbps a home has affects what the people living there can do online. Here is a table I found on Review.org [7] that shows what can be done with various internet speeds.

Internet speed	Number of people	Activities
5–25 Mbps	1–2	Casual web browsing, emails, social media, streaming SD video, streaming music
25–50 Mbps	1–3	Streaming HD and 4K video, streaming music, gaming, light
50–100 Mbps	2–4	Streaming 4K video, gaming, working from home, using home security devices
100–500 Mbps	2–5	Streaming 4K video, gaming, running a home office, using home security and smart home devices
500–1,000 Mbps	3–5+	Running a home office or creative profession, streaming in 4K, gaming, using home security and smart home devices

My family is fortunate to have access to gigabit-speed internet, or 1000 Mbps, in our suburban house in Jacksonville, FL. We pay $80 per month. This works well for my family as both my parents work from home as well as homeschool me and my siblings. Because it is my own experience, I thought this was the average price and speed in Florida. Then I started this essay, and my thinking began to change. My grandfather [3] lives in Myakka City, FL, a rural

area. High speed internet access for him would cost $150 per month for only 100 Mbps. That is nearly twice what we pay in Jacksonville for only a 10th of the speed! He feels this price is too high, so does not have internet. My uncle [2] lives in the Daytona Beach area and he pays $100 a month for 400 Mbps. He lives with his finance, does not have kids, and works from home, so this speed is good for them, but the price per megabit is still higher than what my family pays for one gigabit.

Having high speed internet is important because it is allows students, like me, to take online classes and virtual lessons, such as music and art. It makes it possible for their parents to work from home, something that is especially important during the Covid-19 pandemic. It can also make their homes safer with monitored security systems. However, according to the National Education Association [6,] as many as 25% of students live in houses without access to high-speed internet or computers. This is the digital divide. It is created when one person, or group for people living in a certain area, cannot work or learn at home because they do not have access to high-speed internet or cannot afford it. In the pandemic, this is not only causing some students to fall behind in school, but also increasing the risk to people's health [8].

These two issues, accessibly and affordability, are the primary factors involved in the digital divide. A lot of people have access to the internet, but cannot afford it, like my grandfather. Technically, there is a high-speed internet option in his rural area, but the cost is too high. People like him, if they have a computer, must rely on going to places with free internet access, such as certain restaurants, churches, or libraries. For people without computers, there are libraries that have computers available. But these people are limited by the libraries' hours and computer use rules [4], and this assumes they have a library close enough to easily go to in the first place. Plus, going to the library during the pandemic is a risk to the person, the people who

work there, and any other people who go to pick up books. If I compare someone who must go to the library to use a computer to myself, I see a large digital divide.

Some people think the digital divide is not an issue [4]. These people most likely have never had worry about paying a high-speed internet bill or think it is not a big deal to have to go to someplace like a library to access the internet. Luckily, other people recognize that it is a problem. More and more people are coming up with solutions every day. Elon Musk launched StarLink [1], which is intended to provide affordable high-speed internet around the world, even offering discounts to low-income customers. StarLink is made up of satellite constellations which circle the earth at low orbit. This is one of the many upcoming ideas towards bridging the digital divide.

In Florida, Governor DeSantis signed into law on June 9, 2020 the Broadband Internet Service Law [9]. This law creates the Florida Office of Broadband and allocates $5 million annually to expanding internet service. The priority will be given to rural areas. So maybe my grandfather will have a more affordable internet option soon.

Personally, I think solutions to the digital divide include educating people on technology and banding together to stop the digital divide. I think universal income would also help towards bridging the digital divide. What I mean when I say "universal basic income" is a monthly stipend, for example, of $1000 per household plus $200-300 per person, per month. With a universal income more people would be able to pay for internet as well as afford other basic necessities. No one solution will work, but lots of solutions will. We must work together to bridge the digital divide.

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Internet Issues

by

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The internet is a wonderful tool that we really take for granted, I mean if we look at how much time we really spend on the internet nowadays, for most of us it is about 7-8 hours a day. Whether it be playing the best of the high-end video games or sitting there on a conference call with your boss, you definitely spend a lot of time on the internet. While being on the internet seems like just another thing to do, not everyone has internet. Hello, my name is Spencer Russell, and I am a member of the Celestial Farms Home School 4H Club located in Jacksonville Florida and I am going to give you a look into life without internet and how to give everyone internet.

To start us off, we have to look at why we use the internet. The internet is a tool that we use for communication, entertainment, and for work. The Definition from Oxford Languages says, "a global computer network providing a variety of information and communication facilities, consisting of interconnected networks using standardized communication protocols". The internet puts the world at your fingers.

That is a great reason to use the internet but not everyone can. Look at the small rural settlement of Melrose Florida. It is a very small town in the northeast of Florida that has a population slightly over 5,000. When it comes to the internet, they struggle because it is in the middle of nowhere. It is not cost prohibitive for companies to lay internet cable out there.

You might wonder, why is the internet so important? Let's start with the obvious example of with the coronavirus lockdown, you can't go into a lot of brick-and-mortar businesses. That includes a lot of jobsites. That has caused a lot of people to have to do their jobs or school online for the time being. If you can't connect to the internet, you can't do your job while your job is online. If you can't work, you won't be paid. The business will suffer because there is no one to do the job. The employees will suffer because they aren't making money. The economy will begin to go down because people aren't making money and therefore can't spend money.

Schools were shut down because of the coronavirus. Schools moved to an online platform for their learning. Students that do not have good internet are not able to do the work. Students without internet will fall behind other students. Catching up will be difficult if not impossible.

The other big problem is communication. The world is going online and that includes communication. Schools, work, churches, clubs, and more went online when the coronavirus lockdown started. People's social lives moved to an online platform. Without being able to connect online, people were not be able to communicate, and communication is a very important thing for us sociable beings. Having no communication takes its toll on mental health.

There are several ways we could address this, and I would like to start by talking about satellites. Now I know that satellites aren't anything new, but we only have so many of them up there. The solution is to send hundreds of them at a time in bulk so we can ensure money efficiency. It also helps that several companies such as Amazon or Star link are already working on doing just that.

The next solution we could use is optic fiber cables which come with extra security due to data being transferred via light. They are also very thin which means that they don't need a lot of space to have run. The big downfall with these is digging up people's yard and running them for miles comes with a lot of cost and matenince.

The last way I could recommend is to get rid of internet contracts. Internet contracts are set out by companies to where you rent equipment from them, pay for it for a year or two and then ship it back which is the hard part. Shipping things back and forth is a pain and it cost a lot of money because the provider, no matter where you are is 700 miles away and you have to pay shipping for the old one and the new one meaning while it looks like you are saving money with contracts you really aren't.

The last thing I want to cover is how we can educate people so that we can avoid this problem. I recommend we make speeches like this and host competitions with money because people will do anything for money. We could also speak at public places like the library, parks, churches, and schools to teach about the issues that a

lack of internet causes. We could also use public broadcasting to spread word about the issue.

To conclude, The internet is a tool used for communication, entertainment, and work. Not everyone has access to it just like the small town of Melrose.There are several ways we can address it such as using satellites, optic cables and getting rid of those internet contracts. Educating people about the issues of not having internet is important because education will bring attention to the problem. Ensuring that everyone has internet will put everyone on a more level playing field which will make us all more successful.

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