Chips & Glass: Supply Chain Stumbling Blocks To Biden's Broa...

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Tim Lordan

This particular event, you know, we wanted to kind of cover this, this event. And this topic at a recent conference called see the net conference, which was back in February on February 28. We included a lot of folks from NTIA and FCC and the government at state of the net, including NTIA administrator Alan Davidson, folks, other folks from NTIA and other folks from Treasury to talk about the broadband rollout. And as Alan Davidson said at the time, this this moment in time is is historic, for the opportunity presented by the infrastructure investment and jobs act or the broadband infrastructure plan to the government is spending 10s of billions of dollars to ensure that every American has access to broadband internet, in I've been working in telecommunications and internet policy since I was in law school. In my entire career. I am most excited about this moment in time, where we have the opportunity as a nation to make sure that everybody has access to broadband internet. And the pandemic has really shown us that the internet is extremely important for career for education for everything and things we've been talking about forever. I think the pandemic kind of brought us onto into stark focus about how important the internet is. And it's amazing that we have this opportunity to spend 10s of billions of dollars in the next couple of years to to close this gap and to make sure that every American finally has a broadband internet. However, as I was preparing for state of the net, I read a paper called the Global semiconductor shortage impact on us broadband and recommendations for policymakers, which suggested that supply chain was going to be a major problem in the rollout of the broadband infrastructure plan, or the infrastructure investment and jobs act, or the i j. And that was a little bit depressing. And as I read more about it, I got even more depressed because my entire career I worked in internet policy, and I've never ever had to deal with supply chain issues. As a as an issue for me, I was grateful for that. When you do internet policy, that kind of bits flow around the world and flow into our homes. Usually this there's sometimes there's traffic problems, but generally that thing is bad that the internet has worked great. And through the pandemic, the internet had worked amazing. Not many of us that had any outages when it comes to our internet service. And that has enabled our kids to learn at home, us to work from home, it has been an incredible success story for the pandemic. But physical goods and atoms, not bits have truck problems when it comes to supply chain. And that's what we wanted to talk about today because that those supply chain issues will affect

how we roll out broadband to the places in America that don't have that. And so to the to the issues that we have that are presented to us our chips, which are semiconductor chips, and fiber or glass, so we're calling it at this event chips and glass. So we wanted to kind of talk about the supply chain problems when it comes to those particular types of, of things that go into broadband infrastructure. And we assemble a few folks today, let me just start off by saying this is an all male panel. And normally, we don't do all male panels, and I apologize for that. But we put together this pretty quickly. And that's how it turned out. And I will endeavor to do better in the in the future. So I wanted to acknowledge that upfront. But let me just introduce you to our speakers that we have. It's um, first is delete SriHari from the who's the Senior Policy counselor for access, partnership. And delete was the co author of that that paper that I read the global semiconductor shortage, impact on us broadband, and recommendations for policy maker. And I think we tweeted that out just now. So if you go to the Twitter account at NEC caucus AC, it should be on there and you can download and read it. It's really, really good and delete. We'll be talking about that bit later. We also have Patrick Lozada, who's the Director of Global Policy from the Telecommunications Industry Association, and Gary Bolton who stepped into the last minute for Jordan from Jordan. from it. Gary is the President CEO of the Fiber Broadband Association. So let me just kind of get things going by asking Patrick, who works for Tia, to kind of like talk a little bit more broadly about the challenges for supply chain when it comes to rolling out the broadband infrastructure plan.

P **Patrick Lozada** 04:36

absolutely happy to talk about that. Thank you, Tim. So my name is Patrick louzada. And I'm Director of Global Policy at the Telecommunications Industry Association. Tia represents the global manufacturers and suppliers of telecommunications equipment and services. So that's you know, from the fiber in the ground, the satellites in orbit, our members, the ones who are really building a lot of the equipment that makes the broadband infrastructure possible Well, and that's why we as an organization are so deeply invested in the success of the IGA broadband provisions. And, you know, the success of America's networks more broadly. But I know we're not alone. You know, as Tim was saying before, we all are keenly aware of how much we rely on our networks over the past year or two, it since COVID. So, you know, maybe just to step back, when we're thinking about the supply chain issues, I just want to acknowledge first, how the pandemic impacted the supply chain overall. First of all, there was a significant impact in terms of the demands from customers and from operators. Looking at the telecommunication space, right. So you saw a significant overall increase in demand, as people relied on their devices to work remotely access digital services, than 10 School remotely. So you saw folks increase their purchases of things like laptops, home network equipment, and other devices. At the same time, you saw deep, significant, unexpected decreases in demand for other progress products, such as enterprise equipment, right, if you're not in the office, your office might not need to be building out a lot of that enterprise side network equipment. And so you know, you see a lot of chaos in terms of what companies had been expected to produce, and then what they needed to pivot and make for for the home. And then on top of that, you have real impacts and crises in some parts of the supply chain, as a combination of COVID. And a number of unforeseen factors impacted the ability of manufacturers to continue to supply key parts of broadband products, you know, Duleep is going to talk about chips later. But chips are a big part of that. There were a range of things, including natural disasters, interruptions and transportation due to COVID workforce issues, and, you know, changes in demand that caused the overall supply of chips and the ability to get them to shrink precipitously. And while we've heard this lot about the auto sector, and I don't mean shrink in terms of overall terms, but relative to the overall demand, right? Although factories are working, you know, 110% of the

time, you saw the demand increased significantly. And while we've heard about this as an auto story, autos is really just a small part of this picture, there are about 7% of overall demand, telecommunications is about 50% of overall demand. And so you can imagine the impact on the availability of telecommunications product is significant. You also saw some impacts on the optical fiber side, as I'm sure he's going to kind of talk about later, you know, groups like us telecom were reporting one to two year product. wait times for for optical fiber. And so as companies were at the same time expanding networks expanding access, there was a period where there was significant delays in the ability to get these products. Now I understand some of this is being addressed. And certainly, we want Congress to do more on on the chips front. But this sort of tsunami of supply and demand, has put a real pinch on the folks who are building the network equipment and our ability to stay connected. So let me let me just build on that. I think you're Patrick, you'd mentioned that

Tim Lordan

the internet had done extremely well during the pandemic. And, you know, we were super hopeful that now that the Broadmoor for the people that had broadband, it performed really, really well. I mean, there's a lot of folks that have done studies on this. And maybe in an upcoming event, we'll talk about how the network had performed during the pandemic, because I think it's a really amazing story. And the idea that for we were going to be able to use the infrastructure bill to get broadband to the people who hadn't had it before. And what a terrible time, you know, this, this happens in the supply chain, when we're on the cusp of actually closing the digital divide, which is something you know, when I first started working in this space, there was a discussion of Larry Irving from NTIA had coined the term, the digital divide. And you know, we've been doing this for like 20, some 25 years. And now now we have this opportunity and what a terrible time. So let me just ask the leap. I mean, what a terrible time. And can you expand more on what Patrick said about chips? And what type of chips are these? I mean, these these are chips that crypto miners are using these like high end gamers, are these these the chips are or what type of chips are they and how do they apply to how do they different from other types of chips.

D Dileep Srihari 09:46

Thanks, Tim. Really appreciate the opportunity to speak again, my name is Dileep Srihari and I'm with Access Partnership, a global tech policy consulting firm and we did the paper as Tim mentioned a few months ago on the impacts of the chip shortage on the broadband sector. And Tim, I think It's a great first question to ask what types of chips aren't nice. So when people think about chips, they often think about, you know, the big fancy digital CPUs that are at the very core of your laptop, or your desktop or your mobile device. You know, these are hundreds of dollars made by leading companies, you know, Intel's Qualcomm's, you know, AMDs of the world, these these digital CPUs. But in reality, most of the chips that devices use, certainly in telecom, but in many other sectors as well, are actually, you know, much smaller, typically, you know, dedicated single purpose or specialty type of chips. For example, if you're building say, a cable modem to install broadband service in someone's home, that yes, there may be a central CPU chip in there. But there's also going to be radiofrequency chips, there's going to be a Wi Fi chip, potentially, there's going to be a chip for the interface with the actual coaxial cable that comes in, there may be a bluetooth chip that goes in there, there's another chip for the ethernet controller on the back of the device. And these are sort of, you know, more specialty,

single purpose kind of chips, they're often not necessarily using the cutting edge state of the art, you know, three gigahertz CPU type of technologies, they're usually normally cheaper, you might be able to buy these parts for a couple of bucks on the market. But that is where we're seeing a real impact in terms of supply chain shortage. And so this is why it's, it's not just sort of, you know, when we think of chips, it's not just your, the, the core of your phone or your device. It's all of these sort of industrial automotive applications, but but also, you know, broadband applications, building cable modems, building routers, these kinds of kinds of devices where we've had this impact. And it's not so much necessarily, that the US is not, you know, leading on the technology there. It's just that a lot of the manufacturing of these chips over the past few decades has moved overseas, especially to Asia. So as we think about solving the supply chain crunch, we Yes, it's important to main technological leadership on the cutting edge stuff. But it's also important to solve the broader supply chain issues, especially on these single purpose specialty kinds of chips that are really important to the telecom sector sector in particular. So we'll come back to like, what, what legislation there's a Congress that affects chips and things like that, what the marketplace, we'll get into more of the marketplace later. But let me just go to Gary, to talk about, you know, the holdup when it comes to fiber, and how how the Marketplace is being

G Gary Bolton 12:34

influenced by supply chain shortages, and what that means for broadband rollout in the in the plan on with regard to fiber. Thanks, Tim. I appreciate it. I'm Gary Bolton on President CEO, the Fiber Broadband Association. And for those not familiar with fiber broadband Association, where the largest association dedicated to all fiber optic broadband and, you know, we represent the not about 52% of our members are service providers. So those are from the big service providers down to rural providers, as well as municipalities, Electric Co Ops, and so forth. And then the other half of our membership is on the supply side. So that's from the firearm manufacturers, the electronic manufacturers, the deployment specialists, consulting engineers. So we have the full ecosystem, what's kind of differentiates us from other associations. And so what we're really focused is on digital equity, and we're really excited about the infrastructure, IGA and you know, there's once in a generation opportunity to be able to get this deployed. And we're really zeroing in on the B aspect of that. That's the, as Tim mentioned, and Santee eyes $42.45 billion, infrastructure bill and our infrastructure program. And you know, if you haven't seen our playbook, there's a copy that we put out to all the state broadband offices to really be able to help accelerate the availability of getting fiber to all Americans. And so when I'm looking at it from the entire ecosystem, there's really three components on supply side that we're looking at. And so first is supply chain on fiber. The second is, so we've mentioned chips, and the third is the human component. That's workforce. So let me kind of hit those one by one. So if I started off by just looking at fiber, we're actually in pretty good shape, you know, the actual production of glass. Last year, there was about 72 million miles of demand in the US for fiber, and our domestic suppliers delivered 109 million miles and supply. So we had a 34% surplus, and we actually exported 37 million miles of fiber. So our domestic suppliers can focus that surplus, more domestic use, and so the real key is having consistent See and visibility, because, you know, we've seen as we have this infrastructure money, it's not just infrastructure, but you know, you take cares and arpha and art off and infrastructure, you put all that together, and we're going from a federal subsidy run rate of about $4 billion a year. So next year, we'll be up to about $30 billion. So we're seeing a significant increase in the amount of federal subsidies. And then on top of that, there's a lot of attractive private capital, you're seeing, you know, the cable companies are now putting in more fiber, all the major Ilex are launching a whole lot more fiber. And so you know, there's a, we have a real opportunity to be

able to get this infrastructure out there and be able to do that. So where, where are the constraints, and it's really on the resin side. So you're putting glass, inherently grab some. Sorry about that. I mean, if you take a look at fiber, see if I can pull this out. So I don't know if you guys can see that. But basically, you know, it comes in a jacket, it's armored, and then the actual fibers come into, I don't know if you can all see that. But so there's more than just glass. So there's, you know, so we've had seen resin shortages. And we think that to build cable shouldn't be in the next 16 months. And so we've seen announcements from planning expansions from all our domestic manufacturers, and we feel that we're on a, you know, good position to get ahead of that. Again, it's really about stability, and being able to have visibility to long range forecast. When we think about on the flip side, it's a little bit different in that you think about, you know, everybody likes to talk about can't get a rental car. And you know, I ordered a Ford Bronco a year ago and may never see one. It's it's about geometries. And so like when you look at Taiwan TSMC they're starting to mothballed larger geometries. And so, the good news for the fiber industry is that fiber industry is probably like five to seven years ahead of like cable, for example. And so we use very, very small geometries. And so what that means is that you can have, the more advanced geometries can be via larger yields on the wafer. And so you can be able to get a better yield. The problem is, when you start to prioritize things like automobiles, which are older, larger geometries, then you have to kind of switch our production to the larger geometries. And so that becomes very costly and time consuming. And so that can really be disruptive, as Philippe said, you know, they're big impact to the telecommunications industry. So we have to be very careful that we don't disrupt that now, from a automotive perspective, they have a much longer lead time because of more regulations, like crash tests, and so on and so forth. So those, you know, we're Telecom, you know, we have to protect the network security, so but those are not physical, you know, dealing crash tests and things like that. So that looks pretty good. But to kind of the net all this out, is yes, you know, we are seeing larger, longer lead times on components that have jumped as delete says up to like, you know, a year that where we really can mitigate this issue is to be able to have good long range forecasts, and good stability and forecasts, because really, what we're doing is not really have so much a supply issue, but more of a demand issue. And as people get more concerned about the availability of supply, then they start putting forecasts into multiple spots. And so if you put out your forecast to six different suppliers, then it really becomes confusing over to what's the real demand. And then when people start hoarding, and stockpiling fiber or chips, then again, that makes it kind of like a toilet paper situation. Well, let me let me just go too deep into Patrick and talk about that timeline. Right. Like, I think one of the things that concerns me is that there's a timeline that NTIA and FCC have to get this out. Right. And, you know, normally I wouldn't care about supply chain issues, I just don't care that much about it. Because it's the internet caucus, we don't really care that much. But well, I care about getting broadband out in the statutory period of time that they have to do it. So can you know Patrick, Dileep, can you talk about from your perspective, what what the clock looks like and what are the requirements that may may come into play, including requirements in the the the infrastructure plan to buy America for some of these components?

Sure, I'm happy to start the conversation off there. You know, NTIA, OMB, other executive agencies have a pretty short period of time 180 days from publication from the signature of the IGA, which would be May 15, if we're working on a regular weekday schedule.

Patrick Lozada   30:15

Patrick Lozada 20:15

So, you know, looking at that overall calendar, it's a really short period of time to come out with a really complex set of rules as it pertains to building out our broadband infrastructure. And on top of that, you know, to have to deal with this supply chain crisis and statutory language and the IIJA which has the potential to really make it much more challenging to deploy broadband internet in any sort of reasonable period of time. And I want to talk about that a little more, bit more. And that's the build America by America, Title Nine of the infrastructure investment and jobs act. And what that requires is that all manufactured products, as part of the IIJA have to meet a two part test. And that's number one, they have to be manufactured in the United States, and they have to contain 55% components of us origin. And now, you know, this makes sense. For concrete and steel, it makes sense for roads, there are industries for which it makes sense. It simply doesn't work for broadband. You know, we've talked to our membership extensively, you know, we know the industry well. And we're not hyperbolized by saying there is no combination of products and services that meet the IGA threshold. And if we don't have some sort of waiver from this, zero users will be connected to the Internet and the end by the IJ. Because there's no combination of products that can make this make sense. And there is no way to reassure the supply chain, in as short of a time, as the law asks us to do and connect users to the internet.

Dileep Srihari 22:50

And so we're stuck between a rock and a hard place, it's going to need to happen for us to have some kind of waiver to do anything at all. Dileep, can you talk to Gary Gary sitting there waiting for his Ford Bronco to arrive? But you know, and I really empathize with him, I feel for him. But you know, we're there are people waiting in America waiting for broadband through this plan. Can you kind of maybe elaborate on the timeline and also kind of build off what Patrick said, when it comes to, you know, the shortages? And when it comes to chips and buy American and things like that? Yeah, well, first of all, I agree with everything Patrick said, just to you know, amplify some of these points. I mean, I think the CEO of Cisco was publicly reported as saying their their chip issues were expected to continue into 2023. So you know, of course, and in terms of the yes, it's, it's unfortunate that people are having difficulty getting cars. But as you talked about, at the top 10, the importance of broadband is demonstrated through the pandemic. You know, I would, I would go out there and say that the pandemic proved that for at least for many American families, broadband is at least as important, if not more important, than a new vehicle, just given given everything going on in our economy, even even a Ford Bronco, even a Ford Bronco.

And so, you know, the chip shortages are continuing, and they're real. I believe, just yesterday, it was publicly reported that the Biden administration held a cloud classified briefing for folks, you know, it's a great concern about where we were on the supply chains. And in terms of, you know, the auto sector. I know, there's a statistic out there, the Secretary of Commerce has mentioned, you know, it takes 1000 chips for a car and 2000 chips for an electric car. I mean, talking to some of the companies that we talked to, for our paper, you know, they pointed out look, to do an end to end broadband connection when you consider all of the routers and upgrades and products that you need to be doing, you know, to serve one single home basically takes the equivalent of 7000 chips, to roll out broadband to a single house. So, you

know, there was talk at some point last year that the administration was going to use the defense production act or something like that and intervene in the marketplace to favor the auto sectors. I think that's

D Dileep Srihari 25:00

they've they've backed away from that now, which I think is a good thing. Because that was, you know, sort of severely caused a lot of disruption. And same time, as Patrick mentioned, you've got the $40 billion in IGA money, you know, feeding into it, which is not, you know, an insignificant increase to what the normal private level of investment would be in any given year. So that's also sort of feeding into the demand side of the curve, at the same time, as the government was considering take, making it harder to access chips for the broadband sector, so you could run into a real crunch. And, you know, we still are hearing that, you know, despite some of the long term supply contracts, you know, companies are now waiting more than a year for access to chips, or they're going on to the spot market to try and buy these, you know, two or $3 components. And because of price gouging, instead of paying $2, for that, for that RF chip, they might have to pay $200 for it, and an auto manufacturer that needs that chip, they can just roll that into the cost of their $30,000 vehicle. But if you're a broadband company looking to deploy, you know, cable modems at 150 bucks a pop, that's just not sustainable. So it's a real problem. And it's a it's still a real crunch here. So we the taxpayers already paid these 10s of billions dollars for the broadband rollout. And you're saying that the chips will if there's price gouging? Or if they the prices rise dramatically, that would just eat away at taxpayer dollars and not actually achieve the goal of broadband rollout? Absolutely. I mean, on the one hand, you've got the government making a historic investment into broadband to try and finally solve, closed the digital digital divide. And on the other hand, there's talk of, you know, favoring the auto sector for access to chips, which is only going to drive up the price, and reduce what you're going to get for that $40 billion. So don't give with one hand while taking away with the with the other hand, I would say, So, Patrick, Dileep, Gary, Is there anything in Congress right now, that's anybody doing anything in Congress right now to maybe help or hurt this particular issue? I know, there's a lot of talk about the chips act, it's not something I work on very much. But is that going to help? Is that gonna hurt and what are the things are going on out there? Before we leave the Buy America thing, I just wanted to kind of separate two things. So you know, Patrick, and delete, talked about chips, but we also need to talk about the fiber side. And, you know, again, since our members represent both the on the fiber side, you know, we definitely have domestic supply, we put in a big effort to, we have a working group on the way and it's called trusted fiber, to protect our critical infrastructure and making sure that you deploy us fiber our from our US allies, because, you know, obviously, we don't want taxpayer spending another $2 billion ripping out, you know, things that are, could cause a national security issues. So the, you know, absolutely, from the fiber industry, by America, you know, easy to, you know, we have those domestic supply really, really easy to implement. On the chip side, as Patrick outlined, it's a little more complex, because there's a lot of moving parts in there. And, two, I always found that, you know, I used to work for our US manufacturer, and I always found that the only people that ever complied with by America were the Koreans or anybody else willing to lie. Because it's, you know, when you start to try to get your content, it's very difficult to figure out, the other impact is on the cost increase and delete, talked about that. So when you do put in on the flip side, a Buy America provision, you're moving things from some offshore areas to Mexico, and other areas that are going to increase

costs between, you know, this is not expedite fees and things that the leafs talking about this is just good, normal, you know, procurement issues is that, you know, that's gonna be for the fiber industry, for our electronics, about eight to 10% impact for other industries that have larger geometries, it's gonna be about a 12 to 15% impact cost. And then when you have, you know, the other issues we have just supply chain overall is just, you're not going to be able to put things on boats, you're having to, you know, fly those to expedite charges, in addition to the gouging that delete talked about. So what it means to the infrastructure money is means that projects are going to end up costing 20% More than you anticipate, and it makes it very, very difficult for people applying for grants to when they do their feasibility study, because on top of all this, then you have this massive inflation that we're seeing, and, you know, I didn't get to the workforce component of this, but you know, the installation costs so it's very difficult because you by time you get your grant approved, um, you can't afford to do the project because your costs have gone up. And so just trying to anticipate inflation and On the cost of components cost everything, it's a lot of moving parts. And

Tim Lordan

so we'll get to that. Yeah, well, that's maybe some of the point we'll get to the the labor issue in the in the training and the jobs issue. I would recommend, I think American Enterprise Institute did a an event, probably last week, and they actually skipped over the chips and glass part and spent a lot of the time talking about the labor part. I'll try to pull up that video and put it in the chat in just a second. But just let me go back to Patrick and to Dileep on, you know, what, what's going on in Congress? And how does it help? How does it hurt? What could they do?

Patrick Lozada 30:43

Absolutely, I'm happy to take a first crack at that. You know, you know, certainly in the context of the USICA, America Competes conference, there's some really important legislation in there. I think, number one, is that the chips act, but I don't think the chips act is enough. And I don't think that's discussed about enough, you know, the extent to which Asia, you know, countries and AMEA elsewhere, provide subsidies for domestic industry is even in consideration of the chips act significantly beyond what the US would spend. And so we need to make ambitious investments in this area. That means not just funding the chips for America Act, it also means funding the fabs Act, which provides an additional tax credit for US manufacturing of chips and ensuring that we have a clean bill, you know, folks have been trying to toss in unrelated stuff asking for things like nationalization or production along specific nodes just to suit the auto sector. I don't think that's the best approach. And that's not going to help broadband.

But another thing is ensuring that we have sufficient funding for rip and replace. As you may know, the US took vitally needed action to remove equipment from Huawei, ZTE, that poses a national security threat to the United States. But it turns out, after going back and assessing the amount of equipment that is in us networks, the amount of money that we set aside wasn't

enough. And so we need to ensure that companies have enough money to take security seriously. And we can't let rural, underserved communities and operators in this communities go bankrupt. While at the same time we're trying to connect more people,

D Dileep Srihari 32:31

Dileep, yeah, when it comes to broadband and chips, I would say, number one, do no harm. And if you're intervening in the Industrial Marketplace, as a government to favor the auto sector, that would probably be harmful, as I've discussed, to broadband. So think very carefully before doing that, or not at all number to fully endorse what Patrick said about the chips act, although I think everyone realizes that that's a little bit more of a long term play, and won't necessarily help us like right immediately in next month's as we're dealing with this number three, to the extent that there is actual price gouging going on in some in the spot marketplace for some of these specialty chips and components, that is maybe something where the government could look to make sure that you know, price gouging is not happening. And, and number four, as the chips axe is being implemented, it's just important that folks on the Hill and any, in any administration, just keep an eye, not just on the overall numbers of chips, but the types of chips and the types of applications that they're being used for, because it's not, it's not sort of a one size fits all, there's a difference between these cutting edge digital CPUs and these specialty chips that are needed for more commonplace applications, in industry or in broadband. So just be sure to, you know, I would tell members of Congress to just keep asking questions, and making sure that you know, are all the sectors, you know, having their needs met in terms of the flow of chips, because it's not really a one size fits all kind of problem? Dileep, can you talk a leap a little bit? What is the what is the timeline for actually rolling out broadband? And and how quickly do they have to act on chips?

Well, I think, you know, clearly immediate action on the chip sack will help were a will help, I will say is that a lot of the procurements that broadband companies do for their equipment, and in turn that their equipment vendors do for chips, those procurement cycles are normally set, you know, two, three years in advance. So, you know, if we're going to try and tackle this problem, both in the short term and the long term, it's sort of imperative for Congress to act right now to make sure that the chips act gets funded. I think I think we're still going to be facing, you know, some crunch here because the IGA timelines are so are so aggressive, but I think, you know, the fast action by Congress there would help

Tim Lordan

And, Gary, do you have any do you have thing to add to Patrick's comment about rip and replace?

I'm not really on rip and replace. I mean, obviously, we don't want to make bad decisions. And that's why, you know, having a using trusted fiber is very important to make sure that we, because right now, when you think about Asia, China's largely served with China, and so they

have a huge surplus. And so it's very easy for gray market and things to come in, you know, when you go through some distributor don't really know the source. And so being able to defend the identify where fiber has been made, that it's been ethically produced, and ethically priced and so forth, is really important. The other part, I think, that's, you know, just overall, as on legislation is, you know, we have the new Office of manufacturing, security and resiliency, you know, coordination with industry stakeholders to make sure that we identify vulnerabilities and gaps that could disrupt, you know, critical goods. So, like in the fire industry, you know, that's I mentioned, resin is really important. So those resins, gases, like before and helium, and just a range of metals that are needed for optical communication supply chain, as really important to the focus on but at the end of the day to, you know, what we're seeing is some states looking at, you know, how do they

G **Gary Bolton** 36:30

put in forecasts and be able to secure supplies, you know, kind of their own arsenal, we got to be really careful that we don't create this demand problem. So, you know, the more stability and long range visibility, because it's not a big issue to have a 52 week lead time, if you've planned for that, and you've put your your forecast in so well, that we see as a lot of small providers are able to have fiber when they need it. Because, as you know, they worked with a consulting engineer, as they do the feasibility study, they map out exactly how much fiber they need, they put the order in, so that by the time they're ready to put fiber in the ground, it's been 52 weeks, and they have it. And so, you know, having that long range visibility, so things that, you know, easy thing that Congress could do is to just make all the infrastructure money, you know, for fiber and not get into, you know, complexities of what is it going to be because, you know, we're talking about infrastructure. And so wireless needs fiber, everybody needs fiber, that's kind of a no brainer. And that gives better visibility to ramp up more production, because it's, it's the suppliers know exactly how much they need to build, they can invest in increase in their facilities. You know, we saw $300 million investment last year and domestic manufacturing of fiber, and we can continue to see an uplift in that investment. Well, I promised everybody, we'd be done in about 40 minutes. Let me just, if I can just go to Patrick, Dileep, just give some final thoughts on on on this topic?

Sure, I'll jump in. Yeah, I just think the chips issue is it's talked about a lot. And you hear about the auto sector a lot, I think, you know, the patent administration is worried about it. The auto sector is out there publicly and visibly talking about it a lot more. But the reality for the broadband companies is is also really significant. They don't talk about it publicly as much. But there's a survey out there that something like 74% of all the broadband operators have been reporting challenges finding equipment. So the challenge is real. And you know, before reacting too quickly to what one industry sector is saying, I just think that everyone in Congress should take a deep breath and understand the holistic impact of some of these policies, especially on broadband, which has really proven its worth and we all we all understand intuitively now, after the pandemic, and two years of people, you know, working from home and going to school and getting telehealth from home, we all intuitively understand the vital importance of broadband now. So I think that would just be my closing message,

Patrick?

Absolutely. You know, this is a once in a generation opportunity to connect Americans to the internet. And it is imperative that we get it right. And to do that. The reality is that we're going to need some form of waiver from these requirements for the short term, specifically the Buy America requirements, and that's just the threshold issue. If there's no waiver, then there's going to be a basic lack of opportunity to source products that go into broadband networks. In longer term, we need to think about smart ways to re incentivize manufacturing in the United States. You know, if a content threshold doesn't work, how can we think about What parts of the supply chain we really need here? What is the highest value American workers and what puts the most people in in the most productive and remunerative positions? And we think that by taking that short term approach of getting a waiver and strategizing the long term, how do we have a chips act for the telecom industry, so we can build more here. I think that may be a productive way to think about this challenge and invest both in our connectivity and our manufacturing capacity.

Thank you. I did mention, again, Gary had brought up the labor issue, I linked in the in the chat to the American Enterprise Institute event with Senator Fischer. And Ajit Pai moderated it, towards the end, they have a pretty long discussion of labor. Normally, I don't address supply chain issues from the Congressional Internet Caucus perspective, I certainly usually don't get into labor that much. I'm way out of my depth today. But I wanted to thank you know all of you. And again, to quote Alan Davidson from the ceiling that conference a few weeks ago. This is a historic opportunity. I think Patrick mentioned that as well. This is an incredible opportunity. The money has already been allocated, and we need to make this happen. So I want to thank Gary Patrick and Duleep for your time, I want to thank the commercial Internet caucus co chairs Congresswoman Anna Eshoo Congressman Mike Michael McCaul, Senators Patrick Leahy and John Thune. Thank everybody for joining. We'll have this video up on YouTube very shortly after it's done streaming and then we'll get this out so you can watch the end and with the transcript. So thanks, everybody. And that's our rent today. Thank you.

Tim Lordan
Thank you