You’re listening to Tech Tank, a bi-weekly podcast from the Brookings Institution exploring the most consequential technology issues of our time, from racial bias in algorithms to the future of work, Tech Tank takes big ideas and makes them accessible.

Welcome to the Tech Tank podcast. I am cohost Nicol Turner Lee, and today we are talking about Tik Tok. Now to be clear the social media application has been in the news for quite some time, not just the last couple of months. During his first presidency, President Trump addressed the cyber security concerns of Tik Tok when he signed an executive order in 2019. Those national security vulnerabilities would later be addressed by former President Biden and confirmed by his executive order that essentially banned the application domestically unless it was sold to a U. S. company. Days before Trump's inauguration, the Chinese company vowed to abide by body's executive order after losing the appeal to the Supreme Court and probably some expected Trump extended the ban with millions of Tik Tokers attributing the victory to him. This saga is not over. Several Republicans have expressed disapproval of the president's overreach of this authority, others have suggested that the main goal for the ban which was to look at national security concerns is probably being overlooked and obviously the company I don't think I could be playing into the debate, first letting users know a few hours before the ban was to take place that they were thanking president trump who's vowed to save the company listen more than one million uses of this online panic including by high school senior daughter and many of them went to the other Chinese app called red note and there's so much anxiety that I think we don't even know what is next with tic tac so here we are now and I think I read something today that basically said that the President got over it and somewhat ambivalent about what happens next but we’ll see and that's why I’ve invited a couple of really great guests to talk about it so that o as our podcast explores these types of issues, we can get up to speed. So, today's experts are Darrell West you all know it is a cohost for this podcast and a senior fellow in the center for Technology Innovation at Brookings and Justin Sherman who is the founder and CEO of global cyber strategies and the author of the forthcoming book “Navigating Technology and National Security.” Thank you both for joining us today.

Nicole, great to be with you for having me.

Yeah, it's going to be an interesting conversation.

So, listen I'm not going to pretend this is actually over I don't even know we're in the process we are I feel like it's a daytime soap opera, but I think readers need to get a little bit more background as to what's going on. So, I gave the headlines you know as we started this podcast. I'd love to dig into where are we now in Darrell maybe we'll start with you, like what is the grand scheme of what's happening with Tik Tok and then Justin please jump in and add anything subsystem level setting before we jump into the current issues that we're talking about today.

You're right it has been a busy time on the Tik Tok front, Trump has imposed a 75-day extension to look at possible sales to American companies, there's been some talk that Larry Ellison of Oracle or you Elon Musk potentially could be buyers but they're two problems with what Trump has done. One, the bill allowed an extension to finalize a pending sale to a U. S. company but there's no pending sales Byte Dance, the Chinese owner already said they're not going to sell to you Elon Musk. Trump was the one who floated Larry Ellison as a possibility, but the company doesn't seem to have anything to add on that front and so basically the one rationale the Congress gave the president to extend the time before the ban takes place is not relevant in this case. Then the second problem is just the issue of Trump delaying this Congressional legislation by 75 days if you think about the precedent that is set by that, like he didn't particularly seem to like the ban, you know he seems to be a big user of a Tik Tok and as you know seems to be pretty sympathetic to the company if the President doesn't like any piece of legislation I can just simply say oh I'm not going to implement it for 75 days or 90 days or 200 days that's a terrible precedent that allows the president to basically override congressional authority so I just think it what Trump did was problematic on both of those front.

Yeah, and I get that address and Justin you want to jump in on that because it seems like you know I keep saying I thought it was about national security I thought it was about national security, and it seems like it's becoming something else.

It's an important point & I laugh when you mentioned the soap operated said the other day I feel like I'm living in The Twilight Zone right where folks who have been banging the drum of the ban for years now are now saying well it's actually fine if it stays in place and I mention here is right it is worth remembering this is been going on for over five years now since senior members of Congress first were sending letters in 2019 raising concerns about Tik Tok to all the other things that have followed. I think this point about what's the real motivation is a central question, there are undoubtedly as we’re saying, folks who genuinely do think that there are national security risks, whether that's content manipulation or access to people's devices or data. There are also folks who perhaps are latching on to those national security arguments for their own ends, including in the past couple of years there have been other large U.S. tech companies who have themselves taken out lobbying spend to attack Tik Tok as a national security threat right as Tik Tok is encroaching on their user base. So I think this point about what are the real motivations behind this is so critical because as you're saying if there is a real national security concern if that is serious that shouldn't really shift depending on the political wind that should remain in place regardless, but the shifting suggests other motives in play.

What I want to stay there for just a moment Justin because ByteDance has been accused of data surveillance or you know national security breaches in the past and I think we've been you know privy to what has been identified as those vulnerabilities so I mean can we just put on the table that there has been concern about the corporate diligence and perhaps the connection to the Chinese government when it relates to data collection or you know erosion of data privacy of Tik Tok users.

I mean there has been concern on the data surveillance front just the fact that this is a Chinese company and obviously there are huge complications in our geo-political relationship with China but the question I've always thought about in this area is why are we singling out Tik Tok for the ban as opposed to other Chinese companies like WeChat is a very common video conferencing but the thing that is used around the world Alibaba is a major ecommerce site, Timu is when that American consumers are using is the issue that we're worried about any Chinese company or are we worried about Tik Tok just because of the role that is playing in the information ecosystem and I think members of Congress really when they're thinking about these bans and the issue of you know is that the data going to be turned over to the Chinese government also need to be thinking about some of these other companies.

Justin, what do you think?

I agree with that and just to double click on one of Darrell's points to things right folks have said for years now why is Tik Tok any different than any U. S. company that tramples all over people's privacy or maybe operates an opaque news feed with a black box algorithm right and I think what we're saying gets to the answer which is yes lots of companies have privacy problems, there is an additional or perhaps unique dimension to this because of that Chinese ownership and you know I've always been of the view although I think there's copious evidence out there that if you think the Chinese government can't coerce a tech company you've got another thing coming so it's really less about is it possible and more about how likely is it and what do we do and the question of what we do leads to the second point that I want to emphasize what Darrell mentioned. This is just one company right there are lots of Chinese tech apps, software programs, connected car components, telecom equipment, and so forth in the United States in the U.S. tech supply chain and so if we've taken an approach to Tik Tok that's been so protracted been so back and forth been messaged at least initially in my opinion very poorly what are the lessons we can learn from that because there are going to be other apps to come along that people are saying we should ban there are going to be other questions in the future, we want to make sure we have a good plan and policy and strategy in place to deal with it.

I think that's the part that's most interesting to me if we could stay here for a minute guys right, the one part of it is you know just about abilities when it comes to the potential of Chinese government to extract data from Tik Tok users it's just by over a million people whose data is part of this application. But then there's the algorithm part right which is also a pretty testy issue which Darrell to your point may be limiting the ability of the sale I think some of the reports that I've been reading is that you know Byte Dance is like we're not giving up the algorithms you know I work in the space of AI & clearly algorithms do have national security vulnerabilities but there is this concurrent conversation around algorithms and addiction, and algorithms and bias and you know other persuasion, but I think also poses own set of risks I'm just curious for both of you if you thought about that as well because I think that's also a little bit part of the conversation that’s gotten obscured in some of the back and forth.

I mean Nicol I think that algorithm question is really a fascinating issue because you know what Congress is said is they want the U. S. part of Tik Tok to be sold to an American company. The question I have is it actually possible to separate the algorithm into a U. S. component and a non-U.S. component? The Chinese authorities have said they're not wanting to share the algorithm because it is a proprietary a thing. As a Tik Tok user myself I can attest to its addictive quality, you watch all these videos the algorithm learns what you're interested in and then they tailor the videos that they give you based on your interest and the algorithm is actually very good compared to some of the other social media sites that I use. So, I do think it'll be interesting if there is a sale to an American company how the Chinese owners basically disentangle the American part of the algorithm from the algorithm that's going to operate in the rest of the world.

Justin, what do you think?

This came to the fore in the two in the hearing a couple years ago with the Tik Tok CEO which was sort of a Rorschach test for how one views this issue right there were some who watched the hearing and said that went really well what a master class and congressional oversight and others who watched it and said we just had a hearing where we heard questions about do you call the Chinese Communist Party and intelligence officers and two seconds later question about well your algorithm is addictive and harming kids and isn't that bad for mental health and so I think what you're saying it is it is difficult rhetorically to disentangle these questions but as Darryl saying it also gets difficult technologically there was a proposal on thinking of from a couple years ago that would have sought to separate out not the algorithm but the data access piece on Tik Tok from information access and I spent the longest time looking at this and continue to be confused at that how one thought you could even separate those two in terms of how social media platform works. I think this question of the opacity of the system and then as has been mentioned what's the value add to Byte Dance really are going to be key factors in how the Chinese government approaches this debate.

Yeah I don't think they can get it done in 75 days, I don’t know about you all but just looking at the technical cadence of it it's going to be difficult enough itself is going to require technical people right to see if that's possible and I think it's some of the proposals I've read you know prior to Ellison jumping in, is that there are companies like we'll buy it let us fix the algorithm. But then you lose the value of Tik Tok right and so I think there's going to be some really hard areas to disentangle if we're talking about .I love how you talk about like sort of shedding the assets are investing well the U. S. side but what's so interesting about this is this conversation we're having here I don't think has factored loudly into you know what the Trump administration has done with the extension of the Supreme Court ruling, as well as executive orders, so Darrell I want to come to you for a moment. I mean the Supreme Court was appealed to as part of you know stopping the ban, reconsidering the time, you know Biden came out and said Hey there's no enforcement capacity so if it does go into place Hey ByteDance you know you still have a little sort of like a grace period, but what we have seen is Trump basically come in and assert his own guidance on that even though there's been some congressional statutory authority. I'm curious you started this conversation, is this a dangerous precedent that we're seeing in terms of abiding by the law, or you know something that we think you will see more of?

Well, the Supreme Court did not think it was a dangerous decision, there was a unanimous ruling, and you know the Congressional legislation passed on huge margins was a bipartisan vote there is well, so both the legislative and judicial branches have not seen this as particularly controversial. The government made the national security argument in the risk of that data being turned over to the Chinese government officials, the company made its own free speech argument and kind of used the American norm that people should be able to say what they want on a social media site. The court decisively basically rejected that freedom of speech argument in regard to Tik Tok and embraced the government argument on national security, so it was not seen as a dangerous precedent by either the legislators or the judges and justices who heard at this case. It became complicated only when Trump intervened and basically proposed this 75-day extension like most of the rest of the government which pretty much on board with the ban.

Yeah, that's been interesting I don't know Justin you’ve seen like myself of many of the Republican members sort of pushing back on the extension as well as with like Tom Cotton and others who are suggesting that that was overreach.

I think it sets up an interesting clash right because some of these, I mean plenty of members of Congress, obviously this legislation sailed through so plenty in Congress generally support this idea but plenty of Republicans have been super vocal about this they cared genuinely and deeply misguided or not about China in various ways and so I don't see any way they're budging on the question of this app in their mind posing a national security risk the irony is Tik Tok in my opinion did a terrible job in its lobbying campaign in the past couple of years and yet in the past few weeks they seem to have identified the right levers in the new administration to basically say maybe we can now buy some, you know, court some allies in terms of getting this at least extended or having them inject ambiguity into this debate.

Yeah I mean I find that to be interesting too right because this didn't happen overnight right we're going back to 2019, it has been on the minds of many people for quite some time which is also another area which I find to be interesting as well you know it's no coincidence that the president is very skilled in the social media space and by creating Truth Social after being banned from other social media applications and as we are currently witnessing you know those bans obviously have been lifted and they're probably more embraced but there's also the suggestion with the sale and I do want to make sure I ask this because I'm not clear how this works. Darrell in particular I basically said you know whoever does by the company that there should be fifty percent of proceeds go back to the government. I think of the many benefits a great ban I've seen other types of

agreements when it comes to mergers and acquisitions, I don't know if I've seen something like this I winna make sure that I didn't miss this in my career or it's something that has been done before.

This is a terrible idea on the part of Trump and this was not part of the congressional legislation and was not part of the judicial consideration of the ban it’s something that Tamp just kind of blurted out and it was his idea that the government should have a partial a stake in the a proceeds of this. You know the idea that any company has to sell and then share some of the money with the government as opposed to you know the benefiting from the sale of its own asset just does not seem there's any evidence in American law to support that idea so I just thought Trump was completely off base in making this suggestion.

Yeah, it seems like it's almost replicating with the Chinese government has done right, giving the U. S. access to the surveillance of data that can be used for right reasons which Justin I think is a national security concern on the domestic level.

Well I think you make a good point if this was the scenario playing out in Russia with a completely different company the media would be describing this in a very different way her hit ten they're describing it now and I'm not a lawyer so I can’t speak to the constitutionality but I agree with Darrell, a lot of other programs right where the Committee on Foreign Investment in the U.S. for example where people are making similar inspections in the government of foreign capital movement. Imagine if they had a program where if you block a transaction you get fifty percent of it that would be you know that we were if people complain already that there are too many things being blocked I mean that would put them through the roof so I agree it's a completely ridiculous suggestion.

And it's so interesting because I think part of the it takes a bit of Tik Tok and have to admit I have an account but I don't have any followers because I don't know how to post well but it's you know for the record okay. But what I would say there you know at the heart of this which is why I think there was some pressure on president trump to move for with this are the one million users of Tik Tok, or more than one million as projected, and I've read some numbers of you know upwards of three hundred billion in economic revenue that comes by utilizing this tool which I think is a really great argument for the small business spirit of the United States that people have something that they can use and we do know that the company did quite well when he came to save Tik Tok campaigns and among the young people who use this tool I have one at home, there was a lot of crying prior to the ban as well as a lot of the nostalgic memory, she’ll hate that I said this but you know my own child showed me you know her Tik Tok memories when it was musically and how she had content on there from when she was like seven to where she is now is a high school senior and so for me that is interesting because two things happen when people heard that that site was going away they immediately went to Red Note which is another Chinese app which has ties to buy dance which didn't completely flag you know Americans are conscience around this but you know the question I have for this right, at the end of the day, yes this is this issue of you know whether or not we need to look at a company for its ties to a country in which we are shielding ourselves from, but why is it that people just can't take their data with that right for me watching my daughter cry was yes about Tik Tok but it was a lot about everything she was going to lose and I think that I read that in many commentaries among Tik Tok users I'm curious from you Darrell first right like we have yet to pass better privacy legislation and we haven't done a great job when it comes to data portability and I know I've read somewhere we tried to change on many social media platforms the API so people can take their data with them but there was a rush to try to figure out how people were going to save this stuff and then when many people went to Red Note they started from scratch so I mean embedded in this conversation should we also be having that conversation as well?

Nicole I think you're right, the data portability aspect of this is underexplored, a lot of people not focused on this, but it's actually very important. Especially as you mentioned for the small businesses who have actually built their entire business around Tik Tok and have actually been very successful there a lot of young people who have engaged in this their other content creators have been very successful in doing that and a number of American social media platforms over the last few years actually have moved towards data portability so you know if you want to get off at one of the big sites. There's an easy mechanism to basically download the images and other things that you have posted on that site and then move that en masse to some other site. Tik Tok did not seem to be set up in the same way they don't have the same easy portability that some of the American sites had and I think this actually did create a big problem for these content creators and the small businesses who have been very successful at utilizing Tik Tok.

Yeah I mean it was like a panic right I mean my poor child was like I'm downloading every single video and I've run out of storage on my phone right. So it was one of those like moments I'm not going togoing toie she came with the tears you guys she came with tears about ten o'clock when they she got that note there with tears and I could only think about like why was it so hard for her to capture that data because that was what the tears were about. Justin what do you think I mean at the end of the day I heard someone say recently that the lack of privacy is a national security concern and I would assume that the people's inability to move that data as well me that it is resting somewhere on the server for the company ByteDance right which also presents its own set of risks so I would love to hear from you as a person who's in cyber, you know like we see these all the time I mean is there any easy fix to this.

Yes and no, and just to circle back on one point you know because you know that there are tons of Tik Tok users right I mean the numbers lately had been a hundred seventy plus million so it's really a lot of people I think the other brief point to add to what Darrell was saying. The data portability conversation in my view is focused a lot on the technical elements which are of course important right how do you actually get this data off in a usable way from a platform. It loses sometimes the social context like I sort of laughed a little bit when there is a discussion about Tik Tok and data portability in the past couple years in the sense that what am I going to do with my Tik Tok video data like imported to LinkedIn right I mean you know the platforms are you need a platform that not only can and ingest that kind of data but where that actual data would make sense in that environment but I so agree with what you said I've been along with many others banging this drum for a while now that you know privacy is important inherently. Privacy is also a national security imperative, and we've seen as you noted where companies have lots of sensitive data plopped on the server it's vulnerable it can be used let's say by the Chinese or Russian governments or where data brokers I say all the time right the companies that collect and sell people's personal information that's also a national security risk right if we're worried about a criminal hacking into a hospital and taking a bunch of medical records why is it any less of a security threat that a company can legally collect and sell which prescriptions people are picking up at the pharmacy and put it online and all you need is a credit card and email. So I think all of these intersections complicate the Tik Tok debate like we've been saying but in some ways they also clarify it right that some of these issues with Tik Tok come back to route failures in the U. S. to effectively and comprehensively regulate data privacy and then on top of that base line that we need that yes we can go back to all the questions you both have been raising of okay there might be increased risk from a Chinese company so we have our baseline let's add some additional controls on top of that for those couple scenarios where we think there's an elevated risk.

Yeah I think that's interesting and I want to also apologize to the 169 million people that I missed on Tik Tok.

We see you. Well maybe not I don't know if the apps life but we mentally see you.

I mean part of it is like I love the way we're talking about this right because if you're an average everyday news consumer you think it's about you know whether or not we're going to keep this in place so that people can enjoy the benefits of the content but what we're what we're actually saying is the ban is only going establish one premise, whether or not you know aspects of it will be offloaded to a U.S. company with the presumption that they'll do the right thing. But U.S. companies also know I mean it's so interesting although as Tik Tok was sort of waning down there were other companies who are going to pick up on the market opportunity I think we see a lot of that, but that's how capitalism runs right, but what's so interesting about this particular tool and I've had the opportunity to talk about this I'm several media outlets if it does have this like genuine interest in providing some type of context, like you said, to the small business user, to the local content creator, to the everyday grandmother right? And in the backdrop are these conversations we're having here in DC that maybe they don't necessarily understand the implications of. Darrell you've done this a long time like me when it comes to tech awareness, I mean there does also need to be like the literacy or the to the tech top left and also be teaching us about the need for literacy when it comes to technology?

We certainly need a much-improved digital literacy on a variety of different fronts I mean there's so much disinformation and misinformation out there, how people access social media sites, the extent to which they are believing and being influenced by what they see is certainly a big problem. I do think it to build on a point that Justin made, this data broker angle is a very important part of this because basically Congress and then the Supreme Court ratified the decision basically saying there is a risk of data surveillance from this company because it was a Chinese company but we seem to ignore the fact that Chinese officials, Chinese businesses, can actually buy American consumer data from data brokers, often at a great level of detail and as Justin noted, you know we still do not have national privacy legislation in the United States. There are states that have passed privacy laws, but Congress has not really had done this, and to me that is actually one of the real problems here. It's not just the issue of is this one company puts information at risk, burisk,ta brokers are buying and selling information. The absence of a national privacy bill means that they're a bunch of other social media sites where there's no guarantee that our information won't be used or misused so I think that's it that should be a part of the debate away as well.

I agree I definitely agree on that. Justin, you want anything as we start getting to a wrap?

Yeah, I'll briefly point out a beautiful and very sad illustration of of what we're talking about right. Along with the law that was passed and now I suppose that on paper banned Tik Tok there was another bill quickly attached a written in about five seconds that said you know certain third party data brokers can't sell certain data on U.S. persons to China or Russia etcetera and I pointed out right it says third party so it doesn't cover companies that have a direct consumer relationship. I pointed out in the vein of what we're saying, so you realize these two laws themselves would put Tik Tok back in U. S. hands, but it would then be legal for that entity to sell the data directly to the Chinese government. Like what is this weird system we are creating in which again I agree yes there are risks from a particular foreign country ownership perspective but we need to get the baseline in order, we need to make sure that not just data brokers but the online digital ads ecosystem and all these others are locked down. The second thing I'll just add is underscoring your point, Nicol, in the huge gaps between the way those of us in the DC bubble and others outside of it have talked about this right which is when there was first a stir about Tik Tok really getting banned two years ago ahead of the Tik Tok hearing a ton of people called into professional offices telling them they didn't want to ban I know plenty of offices that literally unplugged their phones all day because they were getting so many calls and this is a great example of that Rorschach test right. That actually flipped some Democratic members who were opposed to supporting a ban because they said if Tik Tok puts one notification on its platform that says call your Congressman call your Senator and that's all it takes to get this I'm worried and on the other hand and I agree I see both of these perspectives, the public said you represent people and we're calling you telling you either we don't want this or we at least have more questions right you can't just say national security give us no information and your reaction is to literally unplug your phone and not listen to your constituents like are you serious? So I think again like you said it really does underscore we have a weird gap here and it's my view as I mentioned in the forthcoming book that when you're talking about a little used piece of tech equipment in a corner somewhere that gets pulled out for national security reasons that's one thing, it's not the case that everyone in the country needs to know what's going on there, but when you're banning a platform, a communications platform that half the country uses, even if for good reason, you have to provide more information than has been provided to date, right. There needs to be more transparency, and I don't think we're there yet from a process standpoint.

You know that's a really good point. I think I see a blog coming here for our listeners. if you follow this podcast we also have the Tech Tank newsletter where we actually put on paper more explanation for these issues but you know this kind of reminds me of the general data protection act right from the E. U. that we were forced to sort of comply with the cookie notification and I love the way that you're kind of sharing that because I think people had a general sense of what was at stake as part of this conversation but it didn't hit them until they saw that white box with that we are now off line you know question and it really to a certain extent I was a politicized some individual users to think that Trump actually save Tik Tok. In fact, I think I saw at the inauguration a Tik Tok victory party that was actually going on. But my point is like you know we have to be careful the way that we use these tools to be weaponized to provide to Darryl's point some of that potential for misinformation disinformation disentangling it from what the real issues are at hand the general thinking is not just digital literacy it might actually be just civic literacy right, to get people to understand how these policies work so we don't see potentially more overreach when it comes to that process of how laws get made in this country. So that's like you know my dissertation I'll stick to it off the ground and write about it, but I do what I do want to see if we can end this daytime drama guys in the end how is this going to end? Darrell, how is it going to end do you think it's going to be the conclusion or is it gonna be part five?

I mean I think the reason trump to the 75-day extension is he loves to negotiate he considers himself like the best negotiator in the world. So given his interest in that topic and his pride in his own negotiating ability I think he will try to negotiate a sale of Tik Tok to an American company I hope it's not to one of the other social media platforms because that would be damaging in terms of competition policy we need more competition not just a few dominant players in that area, but if he sells it to an American company that is currently outside the social media space I would actually view that as a plus. The content creators would still have access to the platform for small businesses that we're relying on Tik Tok would still be able to use it I think that would actually be a good outcome for everybody interesting I mean if President Trump is listening use those negotiation skills and let's do it in a way that it doesn't consolidate the social media market place and brings more competition that's reasonable right I think that's a reasonable response. Justin, how do you think this is going to end?

I think I’ll end by saying we have to factor in again as we have been China and to Darryl's point the art of the deal right I as in the first Trump administration this was said explicitly at the time that Tik Tok could be a lever or a chip in negotiation and so we'll see but I don't think it's out of the question that either the Chinese government will not cooperate in the maybe it does become this political football type situation where it's a game of who's this stronger leader , who's going to enforce it well, but I think it's equally likely that there will be some sort of trade negotiation or something or the other and this is something the the Tik Tok situation that the president can put on the table and say I'll make it go away if you give me a concessions in these other areas so we'll see how it unfolds.

Yeah I mean I think for both of you just to wrap up, I think those are interesting pathways for where this conversation can end and I honestly think like the two of you that it's not over I think that there will be some way to try to comply like Darrell said with the sale but I do think Justin, I think at the end of the day if the Chinese will be subjected to potential terrorists and other issues that are on the table in terms of our relationship with China going forward I do see this is a barter tool and I think what by day it's actually learned as there was a threat of closure is that American Tik Tok users will go to their other sites so I think you know it's going to be interesting going forward and so whoever is going to take this up next, may the force be with you because it's going to be a lot of work. Thank you both for being on the podcast Darrell West and Justin Sherman, both Darrell and Justin as well as myself have books out but Justin your book is coming out, when should we be expect to be able to read it and get it?

My editors are listening as you ask me. Let's say later this year is the plan.

That’s what we want to know, later this year, come on back to the podcast and tell me about it! I appreciate both of you. Thank you, Darrell, as well for being a great cohost and being on podcast.

Thank you, Nicol.

We will see where this conversation goes, we encourage all of you to continue to explore the in-depth content on this issue and other pertinent top tech policy issues that we have at the Center for Technology Innovation. Please if you love this episode. send it to somebody else, share it, like it, subscribe to the podcast overall if you're not already subscribed to it, & we ask that you also go to the Center for Technology Innovation website so that you can also get access to Tech Tank’s newsletter which actually takes these issues and puts more detail to them. We love this podcast because it takes very complicated bits and it turns it into a very palatable bites, so we hope that you enjoyed and understand a little bit more about this dialogue and until next time, thank you for listening.