

**REMARKS OF FCC COMMISSIONER AJIT PAI  
AT THE BRANDERY**

**“A DIGITAL EMPOWERMENT AGENDA”**

**CINCINNATI, OHIO**

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This is my first time in Cincinnati. I haven't been here long, but I'm already impressed. In fact, I can't put it any better than another first-time visitor, who once said this about the Queen City: "I have not often seen a place that commends itself so favourably and pleasantly to a stranger at the first glance as this [city] does." That was Charles Dickens, writing in an 1842 travelogue as he toured America. Just imagine what he would have said if he'd had a chance to try the ice cream at Graeter's, which was founded the year he died!

Dickens said something else that endures today, and helps explain why I have great expectations, you might say, of my time here: "The inhabitants of Cincinnati are proud of their city as one of the most interesting in America: and with good reason." For "[t]here is something of invention and fancy [here]."

One reason why invention and fancy are thriving in Cincinnati today is the Branderly. Thank you for hosting me.

The Branderly is now one of the nation's top-ranked accelerators. Its companies have raised over \$120 million and created hundreds of new jobs. About two-thirds of companies accepted here come from outside Ohio. They even come from outside the country; the 2016 class includes members from Canada and Morocco.

This morning, I had a chance to meet the team at Branderly alum FamilyTech. Its flagship service is ChoreMonster, a suite of web and mobile apps that make chores fun for kids (really!). FamilyTech says its aim is "to bring sanity to families with a technology platform that engages the entire family to get things done at home." After seeing it in action, I believe it. And as the father of a five-year-old and a two-year-old often in need of persuasion, I think this is the ultimate in disruptive innovation.

Year by year, company by company, the Branderly is creating something special here. It's putting the lie to the (in)famous quote, misattributed to Mark Twain, that "[w]hen the end of the world comes, I want to be in Cincinnati because it's always 20 years behind the times." No more. I liked the way Tony Alexander, the Branderly's general manager, explained it: "It wasn't always easy. We were flyover country, but slowly at first and now more rapidly, we're changing that discussion."

This is a remarkable transformation. Not long ago, entrepreneurship, especially entrepreneurship relying on technology, was thought to happen only in places like Silicon Valley. That's changing—and fast. The idealized garage of 20th century California has made way for the accelerators of 21st century Middle America.

What is putting Cincinnati and cities like it at the leading edge of innovation? Part of it is initiative—of many individuals pairing talent with hard work. And part of it is a growing embrace everywhere in this country of the spirit of innovation. But I would argue that a critical yet sometimes understated factor is the Internet.

High-speed Internet access, or broadband, has enabled what I've called the democratization of entrepreneurship. Way back when, if you had a good idea, the odds were strongly against you reaching success at scale unless you labored in a large organization, had personal connections, or otherwise hit the lottery. But today, with a powerful plan and a digital connection, you can raise capital, start a business, immediately reach a worldwide customer base, and disrupt an entire industry. Never before in our

country has there been such opportunity for entrepreneurs with drive and determination to transcend their individual circumstances and transform our country.

I've witnessed this amazing change for myself during the more than four years I've had the privilege of serving at the FCC. I've seen the old American can-do spirit channeled in new ways, and in new places.

I've met Greg Smith, who heads an online company in Kansas City that's helping people make much better personal investment decisions. And Chelsea Pickner, who now has two fashion stores in Sioux Falls, South Dakota and an international online presence. And Gabe Hopper of Reno, Nevada, whose company is developing a Skype-like application that lets people read together. And Doug Warner, who's growing a company in Bozeman, Montana that you might call the Uber for shipping personal items. And speaking of Uber, I rode in the car of Trinetta, a former baker and current driver in New Orleans, Louisiana, who told me that her new gig has allowed her to take charge of her life and "feeds into who I am."

Along with these personal success stories, I've seen a culture of entrepreneurship growing in soil in which technology-related businesses hadn't really flourished until lately. I've met with countless entrepreneurs at the Innovation Depot in Birmingham, Alabama; at Geekend in Savannah, Georgia; at Startup Kalamazoo in Michigan; at the Entrepreneur Center in Nashville, Tennessee; at FargoConnect in North Dakota; at Rev1 Ventures in Columbus, Ohio; and in other hubs around the country. These institutions, and the innovators they support, refuse to accept that opportunity and execution, risk and reward, are concepts relevant only to the coasts.

These people, these organizations, these missions inspire me as a citizen.

Perhaps more importantly, though, they motivate me as a Commissioner. For there are still far too many parts of this country where broadband is unaffordable, inadequate, or nonexistent—where it's harder to start a business, improve one's life, build a community.

Sadly, there is a real and growing digital divide in this country. Although gigabit services and mobile broadband are becoming common features of wealthier, metropolitan areas, they aren't universal. Almost 34 million Americans don't have access to the broadband networks needed to fully participate in the digital economy. It's no surprise that access tracks income: Americans living in the poorest counties are twice as likely to lack access as those living in the most well-to-do. And access traces our rural-urban divide: 39% of rural Americans and 41% of those living on Tribal lands lack adequate access.

My own experiences confirm these numbers. I'll never forget the Alaska Native villages above the Arctic Circle with no physical roads in or out, let alone an "information superhighway." Or the Latino parents in Los Angeles who told me how they couldn't afford Internet access at home that would allow their children to do their schoolwork. Or the two women in West Virginia who told me their restaurants sometimes can't connect with customers via text or process customers' payments. Even in southeast Kansas, where I grew up—my hometown, Parsons, Kansas, population 11,514, is the "big city"—broadband isn't a given. It's something that people can only take for granted when they visit places like Kansas City.

This is not how it should be. The way I see it, every American who wants high-speed Internet access should be able to get it. Every consumer should have affordable choices in a competitive marketplace.

Now, I could tell you that I believe this because the law that created the FCC requires me to. The very first section of the Communications Act of 1934 says that the FCC's purpose is make sure that we have "rapid, efficient, Nation-wide . . . communication service[s] with adequate facilities at reasonable charges," all "without discrimination on the basis of race, color, religion, national origin, or sex."

But the real reason is that I believe everyone should have online opportunity. I know there's virtually no limit to what Americans who are disconnected today could achieve tomorrow if they were participants in, rather than spectators of, the digital economy.

It's because there is so much more left to do that I've come to Cincinnati today. In the Brandery's ethos, I want to "tap [my] ideas" about how to bring broadband to every part of the country. I want to discuss how government at all levels can help spur more entrepreneurship and innovation. In short, I want to share my vision of a Digital Empowerment Agenda that will allow all Americans—no matter what their race, religion, gender, or sexual orientation, no matter where they live, no matter what their personal background—to make their lives better.

## I.

For starters, we have to focus on bringing high-speed broadband to economically deprived areas. And to do that, we must recognize that deploying broadband isn't easy. The Internet isn't an abstraction. It's a physical network of networks that requires massive investment to deploy and constant adjustment to manage. Internet service providers (ISPs) must trench conduit, lay cable, install electronics, attach antennas, and stitch together a seamless communications network from aging copper and brand-new fiber, legacy switches and modern routers.

Given how hard and expensive it is to build a network, it isn't surprising that ISPs have an incentive to concentrate their investments in communities where they assume they'll see the most business. Unfortunately, the result is that lower-income areas, communities of color, and those who were already less connected get left behind. And for them, that means less access to high-speed broadband *and* fewer of the benefits of competition, including more affordable broadband.

My friend David Honig, President Emeritus of the Multicultural Media, Telecom and Internet Council, has called the failure to build out broadband infrastructure to some neighborhoods on the same terms as others "digital redlining." The consequences of leaving low-income communities behind has serious consequences. It impedes economic development and professional opportunities (imagine having to apply for a job that only takes online applications). It reduces educational options for the students who live there. And it makes it harder for people to stay connected with the wider world around them.

To solve this problem, I believe that we should embrace the spirit of the late Jack Kemp. Almost 40 years ago, Congressman Kemp, who would go on to be Housing and Urban Development Secretary, saw the problems afflicting many of our nation's urban neighborhoods, problems that too often still exist. And he recognized that empowerment and entrepreneurship could be the answers. He understood, for example, that you can't create more employees in a neighborhood without first drawing in employers. And he emphasized the need to mobilize both financial and human capital for the benefit of low-income communities.

Kemp therefore proposed something he called "enterprise zones." In high-poverty areas, the federal and local governments would work together to improve the community. To encourage investment in those areas, the federal government would offer accelerated depreciation schedules and lower capital gains taxes. To encourage hiring, the federal government would cut payroll taxes for businesses in those zones. And to encourage companies to renovate abandoned buildings, local governments would loosen zoning restrictions and hold down property taxes.

When Jack Kemp introduced the blueprint for enterprise zones, he wrote: "There are 'experts' who view people below the poverty line as a national stigma, as though they suffered from a permanent affliction. They miss the point of how quickly such human 'capital' can be mobilized in our inner cities. They miss how rapidly, in an entrepreneurial economy, the poor can move up the ladder of success."

I couldn't agree more. That's why I believe it's time to update Jack Kemp's vision for the digital age. And that's why I am calling on Congress to create Gigabit Opportunity Zones.

The concept is simple. Provide financial incentives for Internet service providers to deploy gigabit broadband services in low-income neighborhoods. Incentivize local governments to make it easy for ISPs to deploy these networks. And offer tax incentives for startups of all kinds in order to take advantage of these networks and create jobs in these areas.

Here's how the program would work in practice.

*First*, zones could be of any size—from a single neighborhood block up to an entire town or county—so long as the average household income for residents of the zone was at or below 75% of the national median. Based on the most recent American Community Survey estimates, areas with average incomes below \$40,243 would qualify.

*Second*, to qualify as a Gigabit Opportunity Zone, state and local governments must adopt deployment-friendly policies. Once they do, they would submit an application to the U.S. Department of Commerce for review. The Department in turn would maintain a publicly accessible list of all Gigabit Opportunity Zones in the country, along with a copy of their qualifying broadband deployment processes (more on those processes later). A central location would allow ISPs and businesses interested in gigabit deployment to know where to go and what to do. And it will incentivize civic leaders across the country to qualify so that they can publicize the fact that their communities are open for jobs, opportunities, and economic growth.

*Third*, the federal government would provide meaningful tax incentives for ISPs to build out gigabit services in these zones. Specifically, ISPs would be able to immediately expense all capital spending associated with bringing gigabit services to residents and businesses in Gigabit Opportunity Zones. Additionally, ISPs could carryover any losses for up to seven years, giving new ISP competitors with less revenues a strong incentive to enter the market. These accounting measures would propel the deployment of future-proof, gigabit networks.

*Fourth*, the federal government would offer tax credits for qualified startups in Gigabit Opportunity Zones. In particular, the government would establish a tax credit to offset the employer-side payroll taxes for any startup employee who works in a Gigabit Opportunity Zone. These reduced payroll taxes, along with the opportunities brought by ready access to gigabit broadband, will encourage small companies to set up shop in low-income communities and seek out the untapped talent within those communities. (As FamilyTech explained this morning, the gigabit Internet available in Cincinnati's up-and-coming Over the Rhine neighborhood is critically important to the company. "Faster connectivity means everything to us.") And these incentives will make it easier for aspiring entrepreneurs living in these zones to start their own companies without needing to relocate.

Gigabit Opportunity Zones would be a powerful tool for closing the digital divide that too often separates the haves from the have-nots. They would promote the spirit of entrepreneurship where it is needed the most. And they would be a major step towards empowering every American community to take control of its own destiny in the digital age.

## II.

But our efforts must not end there. We must empower consumers throughout our nation with 21st century digital opportunities. And that means paying special attention to rural areas where the private-sector case for broadband deployment is much more difficult.

Mobile broadband is especially crucial for rural America. With a high-speed wireless connection, innovators can bring much-needed jobs and opportunities to parts of rural America that might otherwise be left behind. The examples I mentioned earlier with Gabe Hopper in Nevada and Doug Warner in Montana show that wireless connections can let anyone, anywhere innovate and succeed. As their examples show, it is important that we bring wireless broadband and the opportunities afforded by the app and sharing economies to everyone in America.

But the benefits of wireless broadband in rural America extend far beyond that. Take precision agriculture. High-speed wireless connections can make America's farms more productive and efficient. Not long ago, I had the chance to visit Clear Meadow Farm, in a rural part of northern Maryland. I saw first-hand how machine-to-machine communications, GPS-controlled combines, and remote weather and soil sensors—all powered by wireless connections—can transform our nation's agriculture industry.

The bottom line is this: Rural Americans deserve the same digital access as those living in more urban areas. That's why I'm proposing a three-step plan to improve high-speed, mobile broadband throughout rural America.

*First*, we need to increase the buildout obligations that apply to wireless providers. Right now, the FCC issues flexible-use licenses with relatively limited buildout obligations. Broadband PCS licenses, for example, had an initial license term of 10 years. Licensees were only required to provide service to 66% of the population. Similarly, some 700 MHz licenses only require providers to serve 75% of consumers by the end of their initial 10-year license term. After those initial license terms expire, the FCC generally allows wireless providers to retain their spectrum without any additional deployment required.

That's a problem for rural Americans who typically live in higher-cost areas. A wireless carrier may never build out to those areas if it's never required to do so, even though its exclusive license prevents anyone else from building out to that same area with that same spectrum.

We need to rethink this approach. My proposal is to increase the buildout obligation associated with an initial license term to 95%. That would substantially increase the number of rural Americans covered by high-speed, mobile services. And to make it more economically feasible for carriers to serve these consumers, I propose that we extend the initial license terms. For instance, where the FCC would ordinarily issue a 10-year license, we should extend that license term to 15 years. With the additional certainty of a 15-year license, carriers can better justify the long-term investments it takes to serve rural areas. And for licenses that the FCC has already issued, we should take a fresh look at the renewal stage at the reasonable steps we can take to incentivize investment in rural America.

*Second*, it is time for the FCC to get moving with the second phase of the Mobility Fund. Right now, the Universal Service Fund spends about \$400 million each year paying two, three, or even six wireless carriers to overbuild each other and displace private investment. Some have deployed mobile broadband, but not consistently—partly because our past policies have been erratic at best and partly because we have not included performance benchmarks for funding recipients to ensure accountability.

Here is my vision for the next phase of the Mobility Fund.

We need to establish objective, technologically neutral performance standards. 3G, 4G, or 5G is less important than making sure rural Americans get the faster service that's common in urban areas.

We need to end subsidies in areas where private investment is doing the job.

We need to base the size of the Mobility Fund Phase II on what's needed to preserve and advance mobile broadband throughout our nation. That means we shouldn't be tied to the \$400 million per year providers are receiving today nor the \$500 million the FCC proposed five years ago. Instead, the total funding should be tied to what it takes to get the job done.

And we need to make sure that the most efficient provider meets accountable benchmarks so that every rural family, farm, business, and town has the opportunity to access the high-speed services taken for granted in the cities.

*Third*, I recognize that getting the job done in rural America may take more funding than is currently available in the Universal Service Fund. That's why I believe Congress should authorize a "rural dividend" from the sale of wireless spectrum.

Here's how the rural dividend would work: Whenever the FCC auctions spectrum for flexible use, we would set aside 10% of the net proceeds raised from the sale for the deployment of mobile broadband in rural America. We will award these funds to support wireless deployment in particular areas over a set term of years. This way, providers will have certainty and be able to invest based on the rural dividend. If this plan had been in place over the last decade, when spectrum auctions raised a record \$70 billion for the U.S. Treasury, an additional \$7 billion, or \$700 million per year, would have been available for deployment. That's real money that would have brought the wireless revolution to rural communities everywhere.

What's more, one often overlooked cost of the record rates paid in recent auctions is that every dollar spent on spectrum is a dollar that cannot be used for deployment. That typically translates into less investment in rural America. By recycling a small portion of the funds raised at auction back into deployment, the rural dividend voids this opportunity cost. And it would also preclude the need to raise universal service fees—the taxes paid by working families for telecommunications services every month.

In short, I believe we can deliver high-speed wireless broadband to rural America. This three-step plan would give rural Americans the access they need and want.

### III.

I've talked about some of the issues unique to urban and rural America. But there are some problems with broadband deployment throughout our nation. In particular, government at all levels too often makes the task harder than it has to be.

Let me give you an example. Last year I visited Southern Light, a competitive fiber builder along the Gulf Coast. Southern Light has assets stretching from Jacksonville, Florida to the bayous of Louisiana. Their employees are deploying "ditch witches" to burrow through hundreds of feet of mud to install conduit. They push high-pressure air to snake cables through that conduit. And they use fiber optic technology as backhaul, to connect wireless small cells to the network. It's amazing what they've accomplished.

But in some places, their crews are idle. The company is stuck waiting. Why? Because before Southern Light can break ground, a municipality must grant it a local franchise, approve the permits for access to the roadside rights-of-way, and sign off on the zoning of any towers or even small cells. Some towns take months to process these applications, while others have banned altogether the construction of cell sites. Regulatory hurdles like these slow down or even stop deployment.

This story is no anomaly. And it can get worse.

Some cities require applicants to supply the local government with free laptops, free service, or an ongoing cut of a company's revenues. Still others put wireless construction on ice through bureaucratic inertia. In one case, Sprint had to litigate for seven years in federal and state courts as it attempted to build two towers in Los Angeles County!

The federal government isn't much better when it comes to managing the rights of way on federal lands. On average, it takes twice as long to deploy broadband on federal lands—parts of this country that can be critical to serving rural America—than it does to deploy on commercial property.

Why? Well, getting a siting decision from the Bureau of Indian Affairs, the Bureau of Land Management, the U.S. Forest Service, and the alphabet soup of other agencies can take years. In one case outside of Las Vegas, the U.S. Forest Service said it would likely take three to five *years* to process a permit that needed signoff from the U.S. Fish and Wildlife Service as well. In another, an ISP's application to lay fiber optics on tribal lands lay dormant for years as six separate agencies within the Department of Interior reviewed the application.

The cost to deploy broadband is already staggering—enough that corporate giants like Google have dialed back their efforts to enter the field and boost competition. So there’s no reason why ISPs should have to navigate a dizzying array of federal, state, and municipal obstacles before the shovels even hit the dirt. After all, each month spent negotiating with a municipality for access to local rights of way is another month that consumers must wait for faster service and another month that work crews must sit idle. Every dollar spent complying with unnecessary regulations is a dollar that could have been better spent deploying next-generation technologies.

And now that we are moving towards 5G wireless service, these problems could get much worse. Future 5G technologies will require “densification” of wireless networks. That means providers are going to deploy hundreds of thousands of new antennas and cell sites, and they are going to deploy many more miles of fiber to carry all of this traffic. Without a paradigm shift in our nation’s approach to wireless siting and broadband deployment, our creaky regulatory approach is going to be the bottleneck that holds American consumers and businesses back.

The upshot of all this is that we need to make it easier for ISPs to build, maintain, and upgrade their networks—and ultimately make broadband more affordable and accessible to all Americans. Here are five ideas on how to make this happen.

*First*, the FCC must aggressively use its statutory authority to ensure that local governments don’t stand in the way of broadband deployment. In section 253 of the Communications Act, for example, Congress gave the Commission the express authority to preempt any state or local regulation that prohibits or has the effect of prohibiting the ability of any entity to provide wired or wireless service.

So where states or localities are imposing fees that are not “fair and reasonable” for access to local rights of way, the FCC should preempt them. Where local ordinances erect barriers to broadband deployment (especially as applied to new entrants), the FCC should eliminate them. And where local governments are not transparent about their application processes, the FCC should require some sunlight. These processes need to be public and streamlined.

And section 253 is not our only source of authority. In section 332(c)(7) of the Communications Act and in section 6409 of the Spectrum Act, Congress clearly and specifically granted the Commission the power to remove barriers to infrastructure deployment. It is time for us to fully use that authority to preempt needless municipal barriers to broadband deployment. For example, the FCC has already established a shot clock within which local governments are supposed to review wireless infrastructure applications. But if a city does not process the application in that timeframe, the broadband builder’s only remedy is to file a lawsuit. We should give our shot clock some teeth by adopting a “deemed-grant” remedy. That way, if a local government does not act on a wireless facilities application by the end of the FCC’s shot clock, that application would be considered approved and an ISP could start building right away.

*Second*, the FCC needs to reform its rules governing pole attachments. Remember, before ISPs can offer service to customers, they must string fiber optics, coaxial cables, and/or other wires on utility poles and through underground conduit. Congress has given the FCC the power to regulate the rates charged for these attachments as well as the process for gaining access to the poles.

If we want more affordable broadband and more competition, we need to take a fresh look at our pole attachment rates. We should reduce those rates by excluding capital expenses from the pole-attachment formula (currently, ISPs have to pay for a pole owner’s capital expenses even when the pole owner has already recovered them separately). And we should commence a rulemaking to review the reasonableness of costs charged by pole owners for preparing poles, ducts, conduits, and rights-of-way for pole attachments.

Congress should also expand the Commission’s authority over pole attachments. Right now, we don’t have jurisdiction over poles owned by government authorities, whether federal, state, or local, nor

poles owned by railroads. Unsurprisingly, I have heard from ISPs that many pole-attachment disputes arise from these particular pole owners, who may have little interest in negotiating just and reasonable rates for private actors to access their rights of way. This is a gap that Congress could easily fix.

*Third*, the FCC should develop a model code for cities and towns that want to encourage broadband deployment and competitive entry. To do this, we should establish a new advisory committee, a Broadband Deployment Advisory Committee, and ask it to draft for the Commission's consideration a model code covering local franchising, zoning, permitting, and rights-of-ways regulations. Its approach should be forward-looking and fair, balancing the legitimate interests of municipalities with the ever-growing demands of the American public for better, faster, and cheaper broadband. The committee should recommend to the FCC an appropriate shot clock for local action. It should consider what fees are reasonable to compensate cities for processing permits. It should recommend allowing ISPs to hire certified, private safety inspectors to speed up the work of deployment. It should examine how to ensure new entrants get speedy access to poles and conduit without disrupting the existing services already deployed. It should identify categories of deployments for which there should be minimal regulatory hoops for providers to jump through. And for inspiration, it should survey which policies have worked in broadband-friendly communities across our nation. Once the Advisory Committee has completed its process, the full Commission should review the model code to ensure that it places a firm enough thumb on the scale in favor of faster deployment.

*Fourth*, it's time for the federal government to do its part to speed up the deployment of broadband on federal lands. While some progress has been made on this issue recently, including the streamlined procedures just adopted by the Department of the Navy, much more needs to be done. Federal agencies should survey and consolidate the information they have about federal assets that could be used to aid broadband deployment. Maps of these federal assets should be made available to ISPs in a manner that respects security and law enforcement considerations. The federal agencies most often involved in broadband buildout—the Department of the Interior, the Bureau of Land Management, the Forest Service, the Fish and Wildlife Service, and the Department of Defense—should adopt reasonable internal shot clocks for processing applications and negotiating leases to build on federal lands. At a minimum, they should establish a firm deadline so that no matter how many federal agencies need to review an application, an applicant will receive a final answer within one year. Federal agencies should minimize and standardize any fees for permits and for leasing rights of way. And federal agencies should issue longer-term leases or easements with renewal expectancies, so that providers have the certainty necessary to deploy on federal lands.

*Fifth*, we must make “dig once” a central tenet of our nation's transportation policy. The concept is simple enough: every road and highway construction project should include the installation of the conduit that can carry fiber optic cables. Trenching new conduit is the most expensive part of any new broadband deployment, so why not leverage construction that will take place anyway to install it? Cities like Seattle enacted dig-once policies long ago and now have extensive public conduit that the private sector has used to lower the cost of deployment. I hope other cities and even states will soon follow suit.

Congress has shown interest in dig-once policies as well. The bipartisan Broadband Conduit Deployment Act of 2015 requires the Department of Transportation to work with states to evaluate whether covered highway construction projects could be potential avenues for the buildout of new conduit and requires that conduit be built wherever there is a need. I hope congressional action comes soon so that dig-once is the law of the land.

With these five steps, innovators would have greater incentives to build out their own broadband networks, upgrade their equipment, and focus on serving their customers. For workers, this additional deployment would mean more jobs: Studies estimate that every \$1 billion the private sector spends on fiber deployment will create between 15,000 and 20,000 new jobs. And for consumers, competitive entry and next-generation networks would mean better, faster, and cheaper broadband and a brighter future.



#### IV.

So far, I've talked about making the Internet more accessible and more affordable for all Americans. But that's not the end of the story. The Internet is a means to an end—the end being the countless online applications and opportunities that are transforming our lives. We all know about the innovation that happens on that broadband platform—after all, most of you are busy creating it! From e-commerce to connected health, consumers rely on Internet-based services in countless ways.

These services are developing at a mind-bending pace. It's sometimes a struggle for me to keep up with them; I'm reading about new businesses and ideas almost every day. But more important, government as a whole often struggles to keep up. Laws and regulations can quickly become outdated and inadvertently stand in the way of innovation that would benefit consumers and entrepreneurs alike. And problems that we haven't conceived can spring upon us without an easy solution.

How do we make sure that our policies promote Internet-based entrepreneurship? This topic could be a dissertation by itself, but I'll briefly touch on what I think are a few key areas. I don't pretend to have all the answers. And many of them lie beyond the scope of the FCC's authority. But I do think it's important to talk about these issues.

One of the biggest flashpoints in today's digital economy is how old rules should apply to new ways of doing business. Internet entrepreneurs are constantly coming up with new ways to benefit consumers. The most successful ones disrupt incumbent businesses. But often they don't face the same regulatory landscape that incumbent businesses do. When that happens, the government's instinct is to apply legacy regulations to these newer companies. Sometimes, startups are slowed down by those regulations. Sometimes, they're stopped. That's bad for consumers.

We shouldn't be trying to shoehorn new services into old regulatory frameworks no matter how poor the fit. Instead, the government should ask whether consumers are benefiting from these new services, products, and modes of distribution. If they are, and there's no systematic evidence of fraud or misrepresentation against consumers, the government shouldn't erect artificial roadblocks to competition—and certainly not for the purpose of benefiting entrenched interests.

So should Uber, Lyft, and other ride-sharing companies be regulated like taxicabs? No. Should Airbnb abide by the longstanding rules of the hotel industry? No. Should Tesla have to pay middlemen (car dealers) instead of selling directly to consumers? Of course not. If municipalities are going to serve their citizens, they should embrace innovation as a consumer good, not as a threat.

Cities aren't the only ones trying to apply old rules to new problems. So is the federal government. Consider the problem of raising funds for startups. For decades, the Securities and Exchange Commission has applied detailed rules that are intended to protect investors. But the Internet has already shown us its power to connect informed individuals with financing to good ideas. Kickstarter is a great example of this phenomenon of “crowdfunding,” or using the Internet to raise capital among individuals. Anyone can go on [www.kickstarter.com](http://www.kickstarter.com), find an appealing idea, and contribute support. (In fact, the belt I'm wearing right now was a reward for my Kickstarter support of an innovative company called Kore Essentials.)

We need a kickstarter for all entrepreneurs. Congress started down that path with the Jumpstart Our Business Startups Act in 2012. But the bang for the buck has been disappointing. The SEC, for example, has imposed artificial limits on the amount of crowdfunding that startups can raise. And by requiring startups to jump through new regulatory hoops before pitching the public on an idea, the SEC has made it harder for startups to test the waters for their ideas and see whether the public is likely to sponsor a full-out fundraising drive. As former SEC Commissioner Dan Gallagher has put it, this part of the JOBS Act has proven to be “an over-engineered regulatory approach. The wisdom of the crowd has been displaced by the all-knowing Washington book club.” If these decisions on crowdfunding rules can't be changed, I hope Congress will right the ship.

A few small changes to the tax code could also help startups in a big way. For example, a key part of the bipartisan Startup Act, introduced in 2015, involves helping new companies raise capital. One proposal in that bill would create a limited research and development tax credit for startups that are less than five years old and have less than \$5 million in annual revenues. Another would make permanent a 100% exemption on capital gains taxes for investments held for at least five years in qualified small businesses—a step that the Kauffman Foundation estimates would generate \$7.5 billion in new investment in startups. These proposals deserve serious consideration.

There are still other steps the federal government can and should take. Consider the Food and Drug Administration. It serves an important public interest function, but in at least one case it limited competition and consumer choice in the market for genetic testing.

That case involves the company 23andMe. 23andMe is a decade-old California company that does genetic testing. Consumers order saliva collection kits over the Internet. 23andMe then analyzes the results, giving consumers health and ancestry information. But in 2013, the FDA blocked it from sending the kits, saying the company could not prove its test results weren't misleading or inaccurate. It took almost two more years for the FDA to finally grant limited approval to 23andMe to restart sending kits and giving customers limited health information.

The results have been notable. For example, less than a month ago, 23andMe, in collaboration with Pfizer and Massachusetts General Hospital, found 15 new DNA regions associated with mutations that could predispose individuals to major depression. What enabled this breakthrough was massive amounts of data from 23andMe customers who consented to this research—research that wouldn't have been possible had 23andMe been prohibited at the outset.

Innovations like those I've discussed make people's lives better. If the United States is going to lead the world in innovation, we need to embrace new services, not restrict them. We need to adopt a more consumer-centric approach to startups, rather than reflexively imposing legacy rules.

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I know I've taken a big bite today, from Gigabit Opportunity Zones to the rural dividend to a pro-innovation platform. But I hope it's a Skyline-worthy bite. If policymakers and the private sector get these big questions right—if we bridge the digital divide and advance entrepreneurship everywhere—we'll improve the lives of countless Americans. And we'll go a long way toward ensuring that future visitors to this country are awed by the “invention and fancy” they find.