REMARKS OF FCC CHAIRMAN AJIT PAI
AT HILLSDALE COLLEGE

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Thank you for the warm welcome to Charger country! I'm delighted to make my first visit to Hillsdale. I don't think recording a podcast at the Kirby Center in Washington counts.

But first, a confession: I was nervous about speaking here. Somebody told me that Hillsdale guest speakers had to deliver their remarks in Latin. Obviously, he was joking. So I'll be delivering my remarks in Greek.

As I was thinking about what to say to you today and what might resonate with an audience that's younger than I'm used to, I thought back to when I was in college. The main thing that stuck out to me was how dramatically the world has changed since I graduated in 1994. Back then, Mark Wahlberg was Marky Mark, the leader of the Funky Bunch. Fast forward and he is now the leader of our existential battle against the Decepticons. We truly live in an age of wonder.

When I graduated, e-mail was the Internet's killer app. And Netscape, the browser that made the World Wide Web accessible, was seven months away from its public launch. On the wireless side, only 9.1% of Americans had cell phones—devices that were anything but smart—and talking was the *only* app.

I never imagined back then that in the not-too-distant future, I would be walking around with a supercomputer in my pocket that effectively puts all human knowledge at my fingertips. (Even harder to imagine would be that I would be leading the federal agency charged with setting policy to guide these technological revolutions.)

Looking back, it's clear that the mid-1990s represented a hinge moment in history. We were at the front end of two revolutions that have dramatically shaped the way we live: the commercial Internet and mobile communications. And interestingly enough, one of the reasons why we have a hyperconnected world today is a critical decision made at that hinge moment.

At the dawn of the commercial Internet, policymakers faced a fundamental choice. Should we regulate this new thing called the Internet like a lumbering utility? Do we want it to be as innovative as a water company? Do we want it to work as fast as the DMV? Or do we want the free market to guide its development and allow it to scale? In a historic and bipartisan decision in 1996, President Clinton and a Republican Congress went the latter route. They made it our national policy that the Internet should be "unfettered by federal and state regulation."

The results speak for themselves. Companies spent $1.5 trillion building Internet networks. Google, Facebook, Amazon, and Netflix grew from scrappy startups to global giants. Consumers reaped the benefits of online innovation in countless ways.

It is beyond dispute at this point: the Internet is one of the greatest platforms we've ever seen for innovation and free expression. And that's because we embraced the power of the market, not government, at that critical moment.

We had a free and open Internet then—something I strongly believe in. We ensured that anyone, anywhere with an Internet connection could introduce a new service or share an idea without having to ask anyone's permission. We had an Internet economy that became the envy of the world.

But in 2015, a partisan majority at the FCC abandoned this successful approach and chose a different path. The Internet wasn't broken, but the FCC imposed on the Internet heavy-handed rules

anyway—rules developed in the 1930s. It started micromanaging the Internet as if it were a slow-moving utility. It embraced a seductive marketing slogan called "net neutrality," even though putting the government in charge of the digital world is anything but neutral.

The results were predictable. For one thing, investment in broadband networks fell for two straight years—the only time this has happened outside of a recession during the Internet era. This is basic economics: Regulating something more heavily lowers the return on investment, discouraging companies from spending more on or building more of that something. No rational entrepreneur is going to say, "Well, the FCC is now micromanaging network management practices. Let's raise a lot of money and invest."

Another predictable result was new government intervention in the marketplace. As an example, the FCC started targeting consumer-friendly wireless services. Back in 2016, the FCC signaled it was ready to ban free data services under which you could stream video, music, and the like to your phones exempt from any data limits. Only in Washington could a group of three unelected bureaucrats decide unilaterally to stop millions of American consumers from choosing to get something for free—supposedly to "protect" those consumers.

Thankfully, in December 2017, the FCC changed course. We've restored the bipartisan, well-established rules that will both protect consumers and promote infrastructure investment.

One part of our approach is to require transparency. Every single Internet service provider, big or small, has to disclose all kinds of business practices to the FCC and the public. If an ISP starts blocking lawful content, everyone will know. If an ISP starts throttling services based on the nature of the content, everyone will know. This is a powerful disincentive for bad behavior.

Another part of our approach is empowering the Federal Trade Commission to target any broadband provider that behaves anti-competitively. The FTC has made clear that it will exercise that power.

These common-sense rules will give us the high-speed networks we need—not heavy-handed regulations that freeze us into the networks we already have.

Now, so far, I've talked about the wisdom of markets in the context of Internet regulations. But more generally, the FCC offers one of the best cases you'll ever find of what can happen when government puts its faith in markets and entrepreneurs instead of lawyers and politicians.

Here's a great example. One of the FCC's most important jobs is to manage the commercial airwaves that, among other things, transmit data from cell towers to our smartphones and from antennas to our car radios or TVs. These airwaves are commonly known as spectrum. Back in the 1980s, there were some airwaves so undesirable and unused that they were called "junk" bands. The FCC wasn't sure what to do with them, so they set some aside for what we call "unlicensed" spectrum. Basically, anyone can use this spectrum, provided that you don't cause harmful interference to other services using that spectrum. At first, these unlicensed applications were things like baby monitors and garage door openers. But the real breakthroughs were Bluetooth, and most important, Wi-Fi.

That's right. We have Wi-Fi today because the FCC had the crazy idea of giving the private sector some running room and seeing what happened. (Some of you may be desperately searching for a Wi-Fi connection right now.)

So, what has the FCC done for free enterprise and innovation lately?

First and foremost, we're promoting better, faster, cheaper Internet access and competition. We've making it quicker and cheaper for companies to access utility poles to string fiber lines and transition from the fading copper networks of yesteryear to fast fiber connectivity.

We've also tried to make it easier for new competitors to enter the broadband market. For example, we approved new satellite constellations orbiting lower in the Earth's orbit. These satellites, launched by companies like SpaceX, will be used to beam high-speed Internet connections back to the Earth that are as fast as services based on land.

Speaking of new technologies, let me talk for a moment about one of the exciting items on the FCC's agenda: the rollout of the next generation of wireless networks—what we call 5G.

5G promises exponential growth in the Internet of Things—a world in which everything is connected, from refrigerators to cars. It could enable cars to sense and avoid crashing into each other. It could enable remote robotic surgery. It could allow virtual reality gaming. It could enable consumers to download 4K movies in seconds. And those are just a few of the things we can already foresee. History tells us that there will be transformative 5G applications that we can't yet conceive.

Just to give you a sense of timing, all of our major wireless carriers are moving forward with 5G rollout plans. And on October 1, less than two weeks from now, a major wireless company is going live with the first commercial 5G home service in four U.S. cities.

But the 5G future doesn't have to happen. It'll require a lot of spectrum to carry all this wireless traffic. It'll require a *lot* of regulatory approvals for infrastructure. 5G simply will not come to be if the FCC doesn't take action on spectrum and infrastructure.

Well, we're doing just that. On spectrum, we're working hard to get more licensed and unlicensed airwaves into the marketplace. And on infrastructure, we're cutting the red tape at the federal, state, and local levels that often makes it hard if not impossible to install infrastructure. The rules we've adopted to clear federal underbrush are already producing results. In fact, one carrier recently reported that during the first 17 days that these new rules were in effect, it cleared about half as many sites for construction as it had in the prior six months.

These are just some of the ways that the FCC is working to promote a world-leading Internet economy and to expand digital opportunity to all Americans. It's truly a privilege to be able to lead the agency at a critical time like this.

Speaking of timing: As it turns out, you, too, will likely graduate from college in what will be a key inflection point in American life. There are many candidates for the Next Big Thing, but perhaps the biggest for your generation will be artificial intelligence, or AI. Today, the AI of science fiction is finally becoming reality.

Some of the early applications are astounding. For example, Microsoft has developed an app that uses deep learning tools to narrate the visual world—describing nearby people or objects with spoken audio for people who have trouble seeing.

To be sure, AI causes some to be not just amazed, but anxious. Consider this: A team of 15 radiologists recently competed against an artificial intelligence system to see who could diagnose neurological disorders faster and more accurately. Each side studied 225 samples. The team of humans took an average of 30 minutes to make a diagnosis with a 66% accuracy rate. The AI system made a correct diagnosis 87% of the time in only 15 minutes.

As this experiment suggests, emerging AI technologies are widely seen as profound because they could automate jobs and dramatically change the future of work.

The opening passage of a new report by the Council on Foreign Relations frames the challenge succinctly: "The world is in the midst of a profound transformation in the nature of work, as smart machines and other new technologies remake how people do their jobs and pursue their careers. The pace of change will almost certainly accelerate, and the disruptions will grow larger."

Right now, you may be asking: "Why are you trying to scare us?"

But if you're still with me, this is a key point I wanted to make to you today: Classical liberal arts training will only be more valuable in this digital future, not less.

Just last week, the President of Johns Hopkins University published an op-ed making this very point. He said he was horrified to overhear a student tell a group of classmates that he was dropping introductory philosophy because he needed to take more "practical" classes and that "enlightenment would have to wait."

He regretted not inserting himself into the conversation to set everyone straight. He wished he'd told these students that mastery of philosophy, literature, political theory, and history "cultivates critical thinking, self-reflection, empathy, and tolerance, the usefulness of which only becomes more apparent as one navigates life's challenges." Sound familiar? More relevant to my larger point, he added, "As the world is transformed by artificial intelligence, machine learning, and automation, the uniquely human qualities of creativity, imagination, discernment, and more reasoning will be the ultimate coin of the realm."

Again, this is the head of a university more renowned for medicine and biological sciences than the humanities.

People in the tech space are saying the same thing. Noted venture capitalist and computer scientist Kai-Fu Lee has a new book coming out called *AI Superpowers*. In it, he argues that the jobs that will be most in demand in the future will be the jobs AI can't do. It is those innately human qualities, like creativity, that will be most sought-after in tomorrow's economy.

What I'm getting at is that your school's unique commitment to a classical liberal arts education—to "understanding the good, the true, and the beautiful"—isn't just excellent preparation for life. It's preparation for working in the digital age.

And I don't mean to suggest that that age will be solely one of challenging disruptions. There are a lot of opportunities too.

The World Economic Forum actually put out a report this week that makes this point. On one hand, the 2018 *Future of Jobs* report estimates that emerging technologies will eliminate 75 million jobs worldwide by 2022. That's a big number. But here's the kicker: They estimate new tech will help create 133 million jobs over the same period—a net increase of 58 million jobs.

This data may be new, but the underlying sentiment that technology is a net positive for job creation is not. Today on campus, I walked by a statue of Ronald Reagan. In 1987, he gave a speech to engineers at Purdue that would be just as timely if it were delivered today.

President Reagan said, "The computers I saw in your classrooms, the robots, and other high-tech devices—some fear that these innovations will destroy more jobs than they create, that technology is in some way the enemy of job formation; and yet we need only look at our nation's actual experience to see that this is not so. . . . It's true that over the years, adjustments have had to be made as older industries sometimes gave way to newer. But these adjustments were made, and today our nation employs some 113 million. No, technology is not the enemy of job creation but its parent, the very source of our economic dynamism and creativity."

That's why we at the FCC are focused on accelerating technological process, not slowing it down. That's why, if you get into the field of technology, I hope you'll take the tools you've been given here at Hillsdale and help extend the digital revolution to benefit all Americans.

I'm sure we'll get to other topics like closing the digital divide during the Q&A session. Before taking your questions, I'd like to close with this thought.

It has famously been lamented that "The best minds of [your] generation are thinking about how to make people click ads." That's why a liberal arts education is so important. If we have the world's

best coders, but no ethical code as a nation, we will stumble. You are carrying on Hillsdale's strong tradition of graduating strong leaders—leaders who are brave enough to chart a course for our future rooted in the timeless principles of our past. Get in the arena. Make your voices heard. And stand strong for what you believe despite the difficulties. After all: *virtus tentamine gaudet*!