

The Strategic Imperative of U.S. Leadership in Next-Generation Networks

Lessons from Europe's Stumbles and Implications for the Future of Free-Market Democracies

By Clete Johnson

Executive Summary

The internet—and, more specifically, the ubiquitously connected society driven largely by next-generation wireless broadband—will be a crucial domain for both autocracies and market democracies in the twenty-first century. Remote and mobile connectivity is an increasingly essential component of a functioning modern society; if leveraged for dynamism and innovation rather than authoritarian command and control, fifth-generation (5G) wireless connectivity provides the foundation for solutions to the world's most pressing challenges. Addressing issues from climate change and food supply to artificial intelligence (AI) and healthcare, this connectivity can help bring about a more prosperous, peaceful, healthy world.

In contrast, the social control and information operations that can arise through exploitation of ubiquitous connectivity is [essential to the autocratic ambitions of authoritarian regimes](#) such as the People's Republic of China (PRC)—which is “emerging as the most powerful authoritarian state in history”—and its increasingly aggressive strategic partner, Russia.¹ Together, these governments and their supplicant states seek global influence and domestic power through control of natural resources, technology supply chains, and information.²

Telecommunications regulatory governance is therefore a powerful strategic security lever that the United States and its allies should wield to advance free-market democracy. Just as these allies formed the North Atlantic Treaty Organization (NATO) to protect market democracies after World War II, they should now apply the same commitment to principles of free-market dynamism, innovation, fair competition, and protection of human rights to today's technological environment, in which 5G's capabilities can profoundly shape societies and government structures. In short, the United States can help guide and enable free-market democracies by ensuring the 5G platform reaches its full potential to help solve the challenges of the twenty-first century.

The United States needs to get this right *now* in order to win the strategic future, because 5G comes with higher stakes compared to previous wireless generations. Free-market democracies are competing with the PRC, Russia, and other authoritarian regimes to leverage these innovative technologies. Will the future be one of freedom and innovation or surveillance and control? Given 5G's potential to tackle key contemporary challenges, it is imperative that the United States continue to lead on 5G in the competitive global marketplace.

¹ This is why the most recent NATO summit [formally recognized](#) that the PRC's “malicious hybrid and cyber operations and its . . . disinformation target Allies and harm Alliance security,” declaring that “the deepening strategic partnership between the People's Republic of China and the Russian Federation and their mutually reinforcing attempts to undercut the rules-based international order run counter to our values and interests.”

² NATO and other allies are newly focused on this dual threat to free-market democracies worldwide. NATO invited Finland and Sweden, two countries bordering Russia, to join the alliance and included the leaders of Australia, Japan, New Zealand, and South Korea—four of the major non-NATO allies in the Indo-Pacific region—in the [Madrid Summit](#).

Fortunately, by most meaningful measures the United States is presently [leading the emerging global 5G economy](#), thanks to massive private investment, robust free-market competition, and a flexible, pro-innovation regulatory framework. U.S. 5G stakeholders are competing throughout every economic sector to outperform each other with the farthest-reaching, fastest, most secure, most reliable, and most resilient networks in the world. Currently the United States is the world's 5G-powered innovation hub, having a significantly larger amount of coverage than Europe does.³ Europe's fragmented and prescriptive regulatory environment has continued to hobble deployment of advanced communications networks. Meanwhile, the PRC is scrambling urgently to catch up with the United States, and Russia cannot even ensure its armed forces communicate securely on a battlefield, much less compete in 5G.

The United States should maintain its innovation-oriented regulatory governance framework for wireless broadband services at the federal and state levels. The lessons of recent years are manifest: Europe led the world in 2G but fell behind in 3G and 4G and is falling behind in 5G, largely due to spectrum mishaps and splintered, onerous regulatory requirements that imposed restraints on its wireless ecosystem, stifling investment and innovation.

- As it deploys 5G networks, Europe continues to use the same fragmented regulatory and political structure that slowed the mobile ecosystem's growth and investment in 3G and 4G. Likewise, various U.S. states seek greater prescriptive requirements on broadband—interventionist regulatory regimes that would be both overly intrusive and create a confusing patchwork of rules for an inherently mobile and continent-wide service such as wireless connectivity. Similarly, as the United States competes with the PRC, it is critical to remember that its authoritarian government can quickly remove local or regional roadblocks to 5G deployment, so the United States needs to leverage the scale of its own nationwide market and regulatory approach to outpace it.
- Europe continues to delay and complicate access to more spectrum. Similarly, the U.S.-licensed spectrum pipeline is going dry as demand for valuable uses of spectrum accelerates, auction authority expires, and federal agencies' squabbles delay access to auctioned airwaves—meaning licensed spectrum, particularly in the key mid-band, remains too scarce. Meanwhile, the PRC has made 460 megahertz (MHz) of valuable, licensed mid-band spectrum available and is expected to make up to 1,660 MHz in additional mid-band spectrum available over the next five years.
- Europe lost focus on wireless competition, investment, and innovation in favor of a more interventionist regulatory approach and price controls. In the United States today, some well-intentioned stakeholders seek to impose utility-style regulation of broadband at both the state and federal levels in a counterproductive attempt to promote affordable broadband access.

³ Presently, 5G service reaches [approximately 95 percent](#) of the U.S. population, compared to only 64 percent of the European Union's population. As for adoption, U.S. 5G-equipped subscribers equaled 17 percent of total subscribers worldwide, compared to 6 percent in the European Union; similarly, only [5 percent](#) of the total EU population had 5G subscriptions at the end of 2021, while it was more than 20 percent in the United States.

However, the present trajectory remains positive, as the United States leapfrogged the world by launching 5G commercially over a year before the PRC, sourcing network gear from a trusted, secure supply chain. Continued U.S. global leadership in 5G and next-generation networks is key to unlocking their full potential. But this leadership cannot be taken for granted. The United States may be leading now, but it can fall behind if it changes its regulatory approach. Proposals to cede significant regulatory power over broadband to state governments and adopt more intrusive regulatory regimes at the federal level would combine the stifling aspects of the PRC's centralized, top-down command-and-control model with the splintering effects of Europe's approach to network regulation.

Instead, the United States should double down on its 5G leadership so that the innovation-oriented values of democracies prevail over the PRC's control-oriented authoritarianism and government-dominated industrial policy. This leadership path should also incorporate the lessons learned from Europe's stumbles in 3G, 4G, and 5G and provide a compelling model for how existing and new industries can enable 5G-enabled solutions in ways that advance free-market principles and democratic values.

Telecommunications regulatory governance remains a powerful strategic lever, and this paper discusses several recommendations for pertinent policy solutions, largely drawn from the disparate U.S. and European experiences with 3G and 4G. As outlined below, there are numerous concrete steps that the United States can take to foster rapid 5G deployment, pave the way for future innovation, and prove that free-market democracies best promote trusted, innovative communications technologies.

Free Markets, Human Rights, and Democracy: Securing the Future through U.S. 5G Leadership

Internet connectivity and mobile broadband services form the foundation for twenty-first-century solutions to some of the world's most pressing issues. From addressing food supply to AI, healthcare, and climate sustainability, [next-generation wireless connectivity can help bring about a better world](#). 5G's network capabilities and data-driven intelligent solutions will be orders of magnitude beyond those of past networks, creating previously unimaginable innovations and efficiencies. Furthermore, 5G networks provide the most secure wireless communications to date, more secure than previous generations of wireless communications on licensed spectrum and also existing wireless technologies for unlicensed spectrum.

The Covid-19 pandemic cemented remote and mobile connectivity as an indispensable component of a functioning modern society. Broadband enabled commerce, education, and social activities to continue during the pandemic. The United States fared better than many other countries under unprecedented connectivity demands, benefiting from the bandwidth cushion afforded by more widespread 4G and 5G network infrastructure. At the same time, local and global disparities between those with access and those without grew more apparent. U.S. policymakers responded with historic funding to bridge the digital divide, building on existing wireless industry investments that were driven by competition and the economies of scale enabled by the national regulatory framework for wireless and broadband.

As they look to the future, U.S. policymakers should leverage free-market democratic values—the fair and robust competition, economies of scale, and freedom of thought and expression that lead to innovation and growth—to promote 5G and next-generation networks. Policymakers should, in turn, leverage such networks to promote these values. The United States and its allies formed NATO to protect the nascent market democracies of Europe following World War II. Now, it should apply the same commitment to principles of free-market dynamism, innovation, fair competition, and protection of human rights to today’s technological environment, in which 5G networks can profoundly shape societies and government structures.

Just as the United States is demonstrating the power of free-market democracies to confront Russia’s authoritarian aggression against Ukraine, it can work to provide a compelling model for how existing and new industries can leverage the full potential of 5G networks—for AI, autonomous vehicles, public health, agriculture, and food security—in ways that promote human rights, individual freedoms, competitive free markets, and representative democratic governments. In contrast to the U.S. model, the PRC, Russia, and other authoritarian governments aggressively promote internet connectivity and internet-driven industries of the future—not as levers of innovation, expression, and competition but as tools for suppressing their citizens and controlling their societies and as vehicles for predatory, anti-competitive commercial practices that support their zero-sum, mercantilist economic strategies.

Presently, the United States is the world’s 5G-powered innovation hub. Free-market policies have [enabled](#) it to lead in 5G deployment and performance. Competition among U.S. carriers is fostering diverse approaches to leveraging 5G architectures, driven by companies’ desire to attract customers by providing best-in-class services. Recent policymaker-driven allocations of mid-band spectrum are [critical in this regard](#). But the United States needs to stay vigilant, as the PRC is approaching 5G deployment with the authoritarian power to make more licensed spectrum available and deploy networks without regard to individual or commercial rights.

Given 5G’s potential and the U.S. wireless industry’s progress in deploying it in the competitive global marketplace—as well as the geopolitical challenges presented by authoritarian regimes—the United States should maintain its existing innovation-oriented national framework. This is the path to a future in which the innovation-oriented values of free-market democracies prevail over the suppressive values of authoritarianism.

A Fork in the Road toward Connectivity: Lessons Learned from European Stumbles (and U.S. Advances) in 3G, 4G, and 5G

Competing with the PRC, Russia, and other authoritarian regimes in technology innovation and solving key global challenges means continuing—not threatening—U.S. 5G leadership and the innovation-oriented national regulatory framework that has enabled it. For next-generation networks, U.S. innovators and partners should demonstrate that they can out-compete those seeking to advance authoritarianism by leveraging technologies and services enabled by broadband connectivity.

As described below, the U.S. and European experiences in the 3G, 4G, and early 5G eras offer lessons learned that are directly applicable to the big-picture questions of today. The world is

facing an epochal competition between (1) the free-market democratic model of the United States and its allies and (2) the command-and-control authoritarian model of the PRC, Russia, and other autocracies. The former is based on the values of mutually beneficial innovation, competition, and free expression—all of which should be advanced in the 5G and next-generation network era. In contrast, the PRC’s autocratic model is based on state-dominated “national champions,” zero-sum mercantilist global economics, and big-data/AI-driven social control—all of which autocrats can potentially use to nefarious ends. Meanwhile, Europe has demonstrated what happens when policymakers try to dictate outcomes and market structures and take aggressive, government-directed market actions. Europe led the world in 2G networks and fell behind in 3G and 4G largely due to splintered regulatory requirements that imposed artificial restraints on evolving technologies.

Continued leadership in a generation of wireless cannot be taken for granted. As the PRC continues to act aggressively to deploy 5G, the United States should show its allies and partners—including in Europe—the path to 5G leadership, drawing on lessons learned from Europe’s stumbles in 3G, 4G, and early 5G.

Telecommunications Regulation Is a Strategic Security Lever for Investment in Innovation and Free-Market Democracy

With the advent of the Covid-19 pandemic, communications networks experienced unprecedented connectivity demands. The widespread and persistent shift toward reliance on connected technologies reinvigorated public interest in information and communications technology (ICT) and produced new opportunities for competitive buildout to empower consumers and enable myriad applications—many unforeseen—for next-generation networks. Since early 2020, U.S. networks have risen to the occasion and successfully maintained resiliency in large part due to robust private investment. In a [letter to then-president Donald Trump](#), the National Security Telecommunications Advisory Committee (NSTAC) described how historic and ongoing investments in ICT infrastructure, products, and services enabled ICT companies to respond to rapidly changing traffic behavior and allowed for 12–18 months of projected growth capacity. [Moreover](#), “personnel from a major content service provider based in the United States reported that, while they capped subscriber bit rates at the request of some operators in other regions of the globe, the network capacity and agility investments in the United States made that decision unnecessary for domestic connections.”

However, even as networks remained resilient, Covid-19 also illuminated the digital divide and the need for universal connectivity. According to the [Pew Research Center](#), 90 percent of Americans said the internet has been essential or important during the pandemic. For most, connectivity has been a lifeline to work, school, healthcare, and more.⁴ Still, about a quarter of home broadband users and smartphone owners worried about paying their high-speed internet and cellphone bills. Furthermore, 4 percent of parents with lower incomes whose children faced school closures said their children had at least one problem related to the homework gap. And “tech readiness”—which is tied to people’s confident and independent use of devices—varied significantly by age and race.

⁴ For example, “78% of those who tried to sign themselves up and 87% of those who tried to sign others up” for Covid-19 vaccines [did so online](#).

The United States is making historic federal investments in broadband deployment to address the digital divide and meet the critical connectivity needs of Americans. During the pandemic, Congress created the [Emergency Broadband Benefit Program](#), administered by the Federal Communications Commission (FCC), to help struggling families and households afford internet service; it was replaced it with the \$14 billion Affordable Connectivity Program in December 2021. In 2020, the FCC established the \$20.4 billion [Rural Digital Opportunity Fund](#) to improve connectivity and quality of life in rural communities. It also oversees the [Connected Care Pilot Program](#), a \$100 million subsidy drawn from the Universal Service Fund to cover costs of broadband connectivity, network equipment, and information services necessary to provide connected healthcare services for patients. Most significantly, Congress included more than \$65 billion in funding to drive broadband infrastructure deployment and access in the [Infrastructure Investment and Jobs Act](#) (IIJA).

U.S. wireless providers have already invested significantly to roll out multiple national and regional 5G networks, not to mention providing the home broadband market with 5G for home fixed-wireless access services, in which users gain access to broadband internet via radio links between a cell tower and an antenna at the home (that is, without a physical connection like fiber). On a per capita basis, U.S. broadband investment is many times greater than that of other countries, including its allies. Taken together, the U.S. wireless industry has invested over \$130 billion in private capital over the past five years, and in 2020 the country accounted for 18 percent of all global wireless investment despite only representing [4.5 percent](#) of the world's population.

On top of this world-leading private investment, the historic federal funding presents a once-in-a-generation opportunity for the United States to reap the societal and strategic benefits of high-speed broadband connectivity (including 5G fixed-wireless services). In addition, U.S. leadership in 4G and 5G was driven by a set of fundamental spectrum policies: exclusive-use licenses, flexible-use rights, globally harmonized spectrum, the freeing up and auctioning of new commercial spectrum, and investment-friendly technical rules.

In short, how the deployment and operation of 5G networks are regulated will play a significant role in determining which of these two competing models prevails. It is therefore in the United States' immediate national interest to get its approach to telecommunications regulations right so it can win the strategic future, particularly as the PRC focuses its efforts on licensing more mid-band spectrum over the coming five years. The United States was the first country to achieve large-scale commercial 5G deployments thanks to free-market policies that unleashed the competitive energy of its wireless industry. However, the United States cannot take this leadership for granted. It will take continued support from decisionmakers pushing forward-looking policies that encourage industry investment and competition to ensure that the United States maintains its first-mover advantage in 5G. U.S. policymakers need only look to recent history to understand how easy it is for a country or region to lose its dominant position from one generation of technology to the next, as well as how detrimental that loss can be.

Europe “Won” 2G but “Lost” 3G and 4G (and Is Losing 5G)

Both consumers and European-headquartered companies benefited from European governments’ [generally forward-leaning leadership on 2G](#), with “the most advanced networks supporting the most advanced devices”—meaning that new technologies went to market in Europe in advance of release in the United States. However, by the end of the 2G era, Europe’s spectrum-related regulations increased the burden to deploy new technology so significantly that it delayed commercial investment in local 3G networks and the region [ceded its wireless leadership](#) position to Japan.

In the 3G and 4G eras, the fragmented EU regulatory and political structure slowed the mobile ecosystem’s growth and investment. A [2013 analysis](#) by GSMA Europe, an organization of mobile network operators, concluded that Europe’s fragmented market structure prevented economies of scale in the mobile ecosystem and exacerbated shortfalls in the availability of licensed spectrum, and that policies focused on direct management of prices rather than promoting investment and innovation. Around 100 relatively small network operators, none of which operated across the entire continent, [fought over small pieces of market share](#) at low profit margins. European mobile operators reported that they had not invested more because these policies discouraged the economies of scale that would have assured a larger return on investment, leading the GSMA to [recommend](#) that the European Commission “launch a major regulation exercise to establish a light-touch, simplified approach to pan-European regulation.”

Additionally, the European Union had [27 separate national regulators](#), which created a “a hodgepodge of different regulations” that reduced innovation and the introduction of new services across the continent. It also delayed and complicated access to more licensed spectrum. Specific network technologies were often tied to particular spectrum bands, a rigid system that required European network operators, for instance, to wait for a specific 3G auction to gain spectrum before deploying 3G services, rather than simply repurpose spectrum previously used for 2G. This approach [pushed up the costs of licenses](#) and delayed deployments.

Europe also failed to fund 5G deployment. Despite imposing higher costs on providers, Europe has [invested less per capita](#) in its telecommunications networks than the United States. Europe’s [average telecommunications spending](#) per capita has actually *decreased* by over 15 percent, while that of the United States has increased by 24 percent. And top-down prescriptive regulation has [prevented telecommunications providers from implementing structural changes](#) to improve margins and investment.

The European Union’s fragmented regulation framework, prescriptive regulation, and lack of investment in 5G caused the continent to lag behind the United States. Regulation of the mobile sector [remains fragmented](#), allocation of important mid-band spectrum [hinders continent-wide deployment](#), and license holders face [constraints](#) that disincentivize investment. As a result, the [GSMA predicts](#) that by 2025 the average adoption of 5G across Europe will only be 44 percent, with the highest rates of adoption in the United Kingdom and Germany at roughly 60 percent, compared to a 68 percent in the United States today. While only 2 percent of the U.S. population is expected to remain without access to 5G coverage by 2025, almost a third of the European population will lack coverage.

How the United States Won 4G and Secured the Benefits of First-Mover Status

The United States presents a starkly different picture, with a large, robustly competitive continental market regulated at the federal level. There are four national network operators available to most of the U.S. population of more than 300 million people, and dozens of competitive regional and local carriers providing additional capacity. The U.S. market's efficiency derives from the ease with which these carriers could achieve [scale due to a concerted legislative and regulatory effort](#). Defragmentation in the telecommunications industry was aided by the [Omnibus Budget Reconciliation Act of 1993](#), which preempted state-level rate and entry regulations, and the Telecommunications Act of 1996, which [provided a uniform framework](#) that explicitly limited states' and localities' regulation of commercial wireless services, thereby avoiding an Articles of Confederation–era state-by-state approach that would have deterred innovation.

In contrast to the European model, the United States leveraged a pro-innovation nationwide regulatory regime that created economies of scale and provided tremendous incentives for private investment. The U.S. market also [benefited](#) from “the rapid auctioning off of spectrum by the FCC and incentives that prompted spectrum holders to make spectrum available to other users.” U.S. per-household investment in the ICT sector in 2011–12 was [more than double](#) that of the European Union. A flexible approach to spectrum use that allowed U.S. operators to shift licensed spectrum to any technology as needs (and technology) changed, along with accelerated cell-tower siting rules, [helped the United States quickly transition](#) to 3G and develop a solid foundation for 4G leadership.

The deployment of 4G in the United States drove costs down and usage up. In [2012](#), 86 percent of the U.S. population had access to LTE networks; in Europe, it was only 27 percent. Nearly 17 million new U.S. jobs were created during the nine-year period when 4G wireless networks were deployed and became a key driver of the U.S. economy. At the beginning of the 4G era in 2011, 3.7 million jobs were connected to the wireless industry, [a number that rose to 20.4 million by 2019](#). During this “4G decade,” the U.S. wireless industry [grew by 253 percent](#) to \$690.5 billion.

These investments also [paid dividends](#) during the unprecedented emergency bandwidth challenges during the early months of the Covid-19 pandemic, during which U.S. networks [outperformed their European counterparts](#). The [NSTAC recognized this major success](#), noting that while networks in other countries had to cap subscriber bit rates, “the network capacity and agility investments in the United States made that decision unnecessary for domestic connections.”

Implementing Key Lessons for U.S. 5G Deployment to Promote Free-Market Democracy

To maintain 5G leadership, the United States should continue to support free-market-based innovation, a nationwide regulatory framework, and pro-investment policies. In contrast, some proposals would cede significant regulatory power over broadband to state governments and adopt more intrusive, monopolistic regulatory regimes at the federal level—thus combining the

stifling aspects of the PRC's centralized, top-down command-and-control model with the splintering effects of Europe's approach to network regulation.

The communications sector is at the center of a battle for the future because of the near-ubiquitous connectivity that 5G and next-generation networks will bring. The United States and its partners should ensure that this connectivity brings social and political dynamism—not the isolation, inequality, and resulting economic and political tumult of recent years. They should avoid creating a potential “surveillance state” dystopia in which a future metaverse of augmented and virtual reality blurs the line between the physical and virtual worlds and networks operate as *Matrix*-like manipulators of society.

The battle going on right now between Russian invaders and the people of Ukraine, with the backing of the United States and its allies, shows that the world has come to a fork in the road regarding how governments, businesses, academia, and citizens interact with each other. The PRC, Russia, and other authoritarian governments are charting one path based on military aggression, top-down planning of the economy, and total social control of their businesses and populations via big data and AI-enabled surveillance: Big Brother in real life. The other path is the dynamic, free-market competition and freedom of expression and belief that the United States and its allies have nurtured and advanced for decades. To weave democratic values into the fabric of next-generation technology, the United States needs to be at the forefront of developing and supplying that technology, particularly as the PRC focuses on deploying more licensed spectrum and growing its own 5G sector for export.

The world's future will be determined by whether the U.S. model can harness human ingenuity and progress to prevail over the restrictive command-and-control structures of authoritarian governments. Assuming that people inherently crave freedom and equal opportunity to achieve their potential—and that market diversity and competition are the beating heart of innovation—then it is on the United States to pursue policies that leverage these ideals to its competitive advantage. As the foundational, enabling technology upon which myriad innovations of the near and distant future will rely, the deployment and use of 5G networks is a bellwether for how governments, businesses, and citizens will fare in the face of authoritarian impulses.

To this end, this paper recommends the following policy solutions, largely drawn from the disparate U.S. and European experiences with 3G and 4G.

First, the United States should **foster rapid 5G deployment** by

- [continuing to make low-, mid-, and high-band spectrum](#)—particularly licensed spectrum—available to the commercial wireless market;
- [reducing barriers to deployment](#) such as European-style patchwork siting and licensing regulations; and
- maximizing the impact of the Infrastructure Investment and Jobs Act (IIJA) by funding fixed-wireless services where fiber to the premises is not the most effective solution.

Second, the United States should **pave the way for future innovation** by

- [clarifying and reestablishing the FCC as the federal government's primary authority](#) for commercial spectrum allocation to head off interagency spectrum disputes early and thoughtfully;
- advancing efficient use of spectrum through exclusive-use licenses, flexible-use rights, reliance on market forces to ensure spectrum is put to its highest and best use, the development of a new pipeline for auctionable spectrum, and investment-friendly technical rules;
- leading efforts toward globally harmonized licensing of spectrum bands that will enable the global scale necessary for trusted suppliers to design and market semiconductors and other related components;
- harmonizing best practices for cross-border data transfer to promote security, privacy, and optimal use of data generated by next-generation networks;
- supporting the transition to next-generation network architectures and technologies through demonstration projects, research and development, testbeds, and pilots that support market diversity and innovation, including through the \$1.5 billion Public Wireless Supply Chain Innovation Fund; and
- continuing federal spending in support of 5G deployment, including through the IJIA's Broadband Equity, Access, and Deployment program and similar projects.

Third, the United States should work with its allies to **prove that competitive free-market democracies best foster trusted, innovative communications technologies** by

- promoting trust in communications networks and supply chains, including by implementing the [Prague Proposals on 5G infrastructure](#) and the criteria put forth by the [CSIS Working Group on Trust and Security in 5G Networks](#);
- leveraging partnerships with like-minded nations to counter predatory practices and promote global economies of scale for network operators and vendors serving these markets; and
- safeguarding international standards-setting processes for private sector technical innovation and protecting intellectual property rights.

The United States and other free-market democracies are competing with the PRC, Russia, and other authoritarian regimes to leverage innovative 5G technologies to lead the world's future. The key issue is simple and stark: Will the future be one of freedom and innovation or surveillance and control? The United States can determine the answer to that question, but this requires getting 5G "right" so that freedom and innovation prevail.

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