



RE: DSS Request for Information

Thank you for the opportunity to comment on this Notice and Request for Information¹ (RFI) regarding Dynamic Spectrum Sharing (DSS). We understand that DoD is seeking information “regarding all methods and approaches, and feasibility, to best develop and deploy DSS across a broad range of capabilities and for future understanding of how spectrum may be utilized in both 5G and innovative technologies.” Among the requested information DoD specifically asks “How could DoD own and operate 5G networks for its domestic operations? What are the potential issues with DoD owning and operating independent networks for its 5G operations?” DoD’s intent, as specifically stated in the RFI, is “is to ensure the greatest effective and efficient use of the DoD’s spectrum for training, readiness, and lethality.” We believe that both DoD’s inquiries and intent are misguided and concerning when considering the ramifications of the prospect of DoD owning and operating 5G networks and the impact on consumers, innovation, and U.S.’ leadership in the global digital economy.

The American Consumer Institute Center for Citizen Research (ACI) is a 501(c)(3) non-partisan, educational, and public policy research organization, with the mission to identify, analyze, and project the interests of consumers in selected legislative and rulemaking proceedings in matters that affect the consumers. We have worked² extensively on this issue to inform consumers and policymakers on the problems of nationalizing 5G networks.

We are not aware of DoD publishing any evidence of a cost-benefit analysis that would corroborate and justify the RFI. Instead, we urge the DoD to consider the vast empirical

¹ Defense Spectrum Sharing Request for Information, Department of Defense (Sept. 18, 2020). https://beta.sam.gov/opp/4851a65e2b2d4d73865a0e9865b0c28a/view?keywords=spectrum&sort=-modifiedDate&index=&is_active=true&page=1.

² See Krisztina Pusok, “Implications of a Government-Run 5G Network,” Morning Consult, October 12, 2020 <https://morningconsult.com/opinions/implications-of-a-government-run-5g-network/>, Coalition Letter sent to Senator Thune, October 7, 2020, <https://www.theamericanconsumer.org/wp-content/uploads/2020/10/Coalition-ltr-5G.pdf>, and Krisztina Pusok, “Nationalizing 5G Is Not the Way to Win,” Real Clear Policy, October 16, 2020, https://www.realclearpolicy.com/2020/10/16/nationalizing_5g_is_not_the_way_to_win_580910.html.

evidence supporting private-sector innovation as a time-tested model for American success and prosperity. As such, our assessment is that the risks and costs associated with materializing the idea of DoD owning and operating 5G networks outweigh any possible benefits and could result in serious challenges to national security and the future of our digital economy.

In what follows, we discuss in more detail the specific risks and costs that would affect consumers, innovation, national security, and U.S.' leadership in the global digital economy.

Our comments are divided into the following sections:

- I. The Effects on Consumers
- II. The Long-Term Effects on Innovation
- III. Cybersecurity Implications
- IV. This Will Not Win US the 5G Race
- V. Conclusion

I. The Effects on Consumers

Discerning the appropriate level of government role and oversight in 5G deployment is a salient issue that ultimately affects consumers and how they benefit from the digital economy. The track record of government-run economic enterprises and networks and centrally-planned infrastructures has for long been the subject of academic review and scrutiny. As a result, there is a vast literature based on empirical evidence that should be the guide for this inquiry.

A review of the empirical evidence provides no support that consumers would benefit from a nationalized 5G network, but instead it highlights the possible negative consequences that would burden taxpayers and consumers. The myriad of historical examples should also be highly suggestive of this.

Take Amtrak for example. The private passenger rail thrived in the United States between the mid-19th century and the early 20th century. By the late 1950s, however, passenger rail was struggling because of the rise of alternative means of transportation. With railroads facing large tax, regulatory, and union burdens, which led to a number of railroads to bankruptcy, Congress stepped in to take over passenger rail and created Amtrak in 1970. Amtrak was supposed to become financially

self-supporting after a transition period, but it has never earned a profit.³ Instead, it has consumed more than \$40 billion in federal subsidies over four decades.⁴

Then we have the U.S. Postal Service, which has legal monopolies over various types of mail, and has prevented entrepreneurs from launching competing postal services which would improve quality and reduce costs for consumers. The USPS has lost more than \$50 billion since 2007 and will likely continue losing money without major reforms to improve efficiency. Last year's USPS's quarterly financial report not only revealed another net loss of \$2.3 billion for the three-month period, but also an unexpected drop in the USPS's package volumes for the fewest deliveries in nearly a decade.⁵ The performance data provides a stark reminder of this money-losing postal system that relies on taxpayers money under the form of federal bailouts to survive.

In healthcare, the track record is not better. Not only has Medicare blocked innovations that would have improved health care,⁶ but decades of reports by government watchdogs have demonstrated that Medicare has been failing to conduct oversight, resulting in rampant waste and fraud. Evidence shows that Medicare was so lax in its oversight that it was approving orthopedic shoes for amputees.⁷

Bennett and Johnson (1981) reviewed numerous studies that compared the performance of services that were governmentally and privately produced, including refuse collection, fire protection, debt collection, ship repair, electricity services, airline services, ambulatory care, and other services.⁸ Their findings suggest that government production was far more costly than private production. They also found that government financial data often excluded comparable costs (such as net interest, pensions, taxes, and other opportunity costs) that, when included, made government production twice as costly as private production. Their conclusions corroborate previous

³ Cato Institute, "Amtrak" in *Cato handbook for policymakers*. Cato Institute, 8th Edition, 2017, https://www.cato.org/sites/cato.org/files/serials/files/cato-handbook-policymakers/2017/2/cato-handbook-or-policymakers-8th-edition-45_0.pdf.

⁴ Ibid.

⁵ Steve Pociask, "Logistics Analysts Agree: USPS Parcel Strategy Was Always Doomed to Fail," Morning Consult, September 3, 2019, <https://morningconsult.com/opinions/logistics-analysts-agree-usps-parcel-strategy-was-always-doomed-to-fail/>.

⁶ Cato Institute, "Medicare" in *Cato handbook for policymakers*. Cato Institute, 8th Edition, 2017, <https://www.cato.org/cato-handbook-policymakers/cato-handbook-policy-makers-8th-edition-2017/medicare>.

⁷ John Steele Gordon, "Why Government Can't Run a Business," Wall Street Journal, May 21, 2009, <https://www.wsj.com/articles/SB124277530070436823>.

⁸ James T. Bennett and Manuel H. Johnson, *Better Government at Half the Price: Private Production of Public Services*, Caroline House Publishers, Inc. Ottawa IL and Ossining, NY, 1981.

findings⁹ that government production of goods and services was roughly twice as expensive as private production.

Evidence in telecommunications and broadband internet services shows similar patterns. Several municipal governments have so far taken the financial risk of building and operating their own communications networks. Mounting evidence¹⁰ shows that despite the subsidies, many, if not most, municipal government owned systems are financially unviable, leaving the burden of unrecovered costs to local constituents, and even federal taxpayers.

The idea that government-owned networks would provide the same quality of network technology as private-owned networks is based on the premise that government-owned networks would offer lower costs as a result of economies of scale. But this premise is flawed. Research investigating the financial performance of government-owned networks shows that they do not come cheap, nor do they free consumers and taxpayers from problematic consequences.

For example, a recent study assessing the financial performance of 88 municipal fiber projects finds that only 20 of them report the financial results of their broadband operations separately from the financial results of their electric power operations.¹¹ Out of the 20 projects, 11 generated negative cash flow, and for the 9 projects that are cash-flow positive, seven would need more than sixty years to break even. Even these statistics are overly generous, considering that government institutions¹² pay no state, local and federal taxes, and they often omit opportunity costs and capital expenditures for existing land and buildings, as well ignore employee retirement and benefit costs. Yet, the private sector pays these same costs and still outperforms the public sector.

⁹ See Thomas E. Borcherding, "The Sources of Growth in Public Expenditures in the U.S. 1902-1970," *Budgets and Bureaucrats: The Sources of Government Growth*, ed. Thomas E. Borcherding, Duke University Press, Durham, NC, 1977, p.2.

¹⁰ T. Randolph Beard, George S. Ford, Lawrence J. Spiwak, and Michael Stern, *The Law and Economics of Municipal Broadband*, 73 *Federal Communications Law Journal* 1 (2020), http://www.fclj.org/wp-content/uploads/2020/09/MunicipalBroadbandArticleFINAL_9.2.20.pdf. For other examples of failed government-owned internet companies (including a number of government-owned wireless internet services) see "In the Matter of Electric Power Board and City of Wilson Petitions to Preempt State Laws," American Consumer Institute Comments to the Federal Communications Commission, WCB Docket No. 13-115 and WCB Docket No. 14-116, <https://ecfsapi.fcc.gov/file/7521825516.pdf>.

¹¹ Yoo, C., and Timothy Pfenninger. "Municipal fiber in the United States: An empirical assessment of financial performance." *Report for Penn Law Center for Technology, Innovation, and Competition*, 2017, <https://www.law.upenn.edu/live/files/6611-report-municipal-fiber-in-the-united-states-an>.

¹² The military is not immune to overpaying contractors and for basic supplies – including a \$7,622 coffee maker, \$659 ashtray, a \$469 wrench, a \$2,043 "plain round nut", and a \$37 screw, to name a few. See Jack Smith, "\$37 Screws, A \$7,622 Coffee Marker, \$640 Toilet Seat: Suppliers to Our Military Just Won't Be Ovesold," *Los Angeles Times*, July 30, 1986, <https://www.latimes.com/archives/la-xpm-1986-07-30-vw-18804-story.html>.

Unfortunately, these examples and observations are not anomalies. They only represent a handful out of the myriad of government-run enterprises and government-owned networks gone bad. Extensive evidence suggests that these networks lead to higher consumer costs and taxpayer burden as they push their financial losses on to consumers and taxpayers to avoid going out of business.

There is no reason to believe that a military-owned and run 5G networks would be any different. On the contrary, having the government oversee infrastructures such as a 5G network would not just be inefficient but it would all come at the cost of the taxpayers.

II. The Long-Term Effects on Innovation

Not only it is very unclear how consumers could be benefiting from a 5G government-owned and operated network, but the idea that such a network could be competitive and drive innovation has no basis in reality.

A recent market analysis finds that US telecom and technology companies spent a total of more than \$130 billion on research and development (R&D) in 2018.¹³ Comparatively, on a global scale, US companies spent 7.2% of revenue on R&D, compared with 1.7% in Japan, 2.6% in China, 3.6% in Germany, and 5.6% in South Korea.¹⁴

U.S. operators have invested over \$1.5 trillion over the last 20 years,¹⁵ and need another \$275 billion¹⁶ to finish building out our 5G networks. And the cost of this transformation is going to just keep increasing and private operators still need to raise capital to invest in their networks. Market-based auctions have already delivered hundreds of billions of dollars to the US economy, and they have shown to be the viable way to encourage investments and network deployment.

Abandoning this approach for a nationalized, government-led network in 5G threatens to deter investment in private networks as it can harmfully distort both capital and retail markets by trimming the flow of investments and driving up the costs of capital. There is

¹³ Enrique Duarte Melo, Val Elbert, Antonio Varas, Heinz T. Bernold, and Helen Kondos, "Building the US 5G Economy," BCG, September 14, 2020, <https://www.bcg.com/en-us/publications/2020/building-the-us-5g-economy>.

¹⁴ Ibid.

¹⁵ Larry Downes, "The U.S. Government Shouldn't Run the Country's 5G Network," Harvard Business Review, April 30, 2019, <https://hbr.org/2019/04/the-u-s-government-shouldnt-run-the-countrys-5g-network>.

¹⁶ Testimony of Roslyn Layton, Statement before the Senate Committee on Judiciary Subcommittee on Antitrust, Competition Policy and Consumer Rights On Game of Phones: Examining the Competitive Impact of the T-Mobile–Sprint Transaction, June 27, 2018, <https://www.judiciary.senate.gov/imo/media/doc/06-27-18%20Layton%20Testimony.pdf>.

no evidence suggesting that the government is better positioned than the market to drive investments and innovations in this critical technology.

As elaborated in the previous section, government-run enterprises and infrastructures are frequently plagued by financial failure, service shortfalls, and a lack of innovation. There is no reason to believe that a nationalized 5G network would escape these challenges.

The prescription for a government-owned and ran 5G network would ignore the advantages of free-market innovations. As history has shown, abroad and domestically, only when state-owned enterprises are privatized and introduced to competition, market investments soar, prices decline, and innovation and competition flourish. The privatization of the internet in 1995 provides an example of that.

As such, it is our belief, based on theory, empirical evidence, and history that it is the market, not government, that is best positioned to drive innovation, investments, and deliver competitive products and services to consumers.

III. Cybersecurity Implications

What is suggested in the RFI has also serious security implications that deserve further consideration.

It is not clear HOW the DoD, through a proposed government-owned network, would improve on the security practices of carriers who have been operating mobile networks for decades, and who provide the secure and reliable networks. This raises considerable concerns.

The security of a 5G network is a complex ecosystem that must be protected in its entirety in order to function reliably. The supply chain that makes up the 5G ecosystem including, but not limited to, the integrated chipsets and the billions of IoT devices that will use the network, they all introduce risks and vulnerabilities that require consistent monitoring and updating.

DoD itself “is facing a future 5G environment where its supply chain will be increasingly vulnerable or compromised,” according to last year’s report of the Defense Innovation Board.¹⁷ To further complicate matters that exacerbate security concerns, evidence

¹⁷ Milo Medin and Gilman Louie, “THE 5G ECOSYSTEM: RISKS & OPPORTUNITIES FOR DoD,” Defense Innovation Board, April 3, 2019, https://media.defense.gov/2019/Apr/03/2002109302/-1/-1/0/DIB_5G_STUDY_04.03.19.PDF.

suggests that there are more than 200,000 decades-old vacuum electronic devices¹⁸ now in service in the Department of Defense, powering critical communications and radar systems that cover the land, sea, air, and space. The federal government is still reliant on outdated legacy mainframes. At a very minimum, DoD would need to upgrade old equipment to meet national security needs.

Given the complexity of the myriad of decentralized interconnections characteristic to 5G networks and the constant upgrading of the software and hardware, it will be extremely difficult to track the possible attacks or introduction of malware.¹⁹ Again, there is no reason to believe that a government-run 5G network would escape these challenges.

The belief that a government-owned and -operated network is inherently more likely to be secure than private networks is rather concerning as previously echoed by industry experts. The Technology Policy Institute, for example, specifically emphasizes the government's terrible track record with security and privacy breaches.²⁰ Notable examples include the Office of Personnel Management losing nearly 22 million personal records in 2015 (including employees with high-security clearances), the Department of Defense in 2020, the Securities and Exchange Commission losing sensitive data, and the continuous ramifications of Snowden exposing the cracks in the US intelligence agencies' security systems.²¹

The recent history of government-run technology should be considered as evidence for the fallacy that a government network will be secure simply because the government owns and runs it. Instead, multiple studies have shown that competition encourages firms to improve cybersecurity.²²

We acknowledge DoD's role in national security. However, the DoD has yet to explain how it will achieve its objectives to build and operate a 5G network both securely and reliably.

¹⁸ "Back to the Future: Next-Generation Vacuum Electronics," 5G Technology World, August 13, 2015, <https://www.5gtechnologyworld.com/back-to-the-future-next-generation-vacuum-electronics/>.

¹⁹ Claude Barfield, "Nationalization: The answer on 5G — or just evidence of US flailing in the face of the China challenge?" American Enterprise Institute, March 20, 2019, <https://www.aei.org/technology-and-innovation/telecommunications/nationalization-the-answer-on-5g-or-just-evidence-of-us-flailing-in-the-face-of-the-china-challenge/>.

²⁰ Scott Wallsten, "Proposal for Government-Owned 5G Network Ignores History, Everything Else We Know," Technology Policy Institute, January 29, 2018, <https://techpolicyinstitute.org/2018/01/29/proposal-for-government-owned-5g-network-ignores-history-everything-else-we-know/>.

²¹ Ibid, and see Catalin Cimpanu, "DOD DOSA Discloses Data Breach," Zero Day, February 21, 2020, <https://www.zdnet.com/article/dod-disa-discloses-data-breach/>.

²² Charles Duan, "Of Monopolies and Monocultures: The Intersection of Patents and National Security," Santa Clara High Technology Law Journal 36 (2020) pp. 369, 395. <https://digitalcommons.law.scu.edu/cgi/viewcontent.cgi?article=1655&context=chtlj>.

IV. This Will Not Win US the 5G Race

All points discussed in Sections I, II, and III - the required investments to build up competitive, reliable, and secure 5G networks that consumers can benefit from in a timely manner - are prerequisite for the US to win the 5G race.

China has already assessed the economic potential of 5G networks. A Brookings report shows that China has reported more than 200 million 5G subscribers before the full deployment of the technology and anticipates growth of at least three million jobs over a five-year period.²³ More concerning, China has outspent the United States in wireless communications infrastructure, all while the US has lost some time in its attention to a range of regulatory and legislative directives that have constrained activities.

If the US government fully appreciates and seeks to maximize the economic opportunities associated with 5G, then no persuasion should be needed to understand that prioritizing a government-owned 5G network does exactly the opposite. As such, the idea of a government-owned 5G network is not only unrealistic, but also unwise.

V. Conclusion

While we appreciate the Department's interest in seeking information regarding Dynamic Spectrum Sharing, we urge the DoD to reject any proposal for a nationalized network, as it would negatively impact consumers, taxpayers, innovation, national security, and U.S. leadership in the global digital economy.

Respectfully submitted,



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²³ Nicol Turner Lee, "Navigating the U.S.- China 5G Competition," Brookings Institute, April 2020, https://www.brookings.edu/wp-content/uploads/2020/04/FP_20200427_5g_competition_turner_lee_v2.pdf

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